Implementing Environmental Policy in Cuba:
An Assessment of Eco-Socialist Theory

By

Zoë Nicole Boutilier

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Approved:	Dr. Henry Veltmeyer Supervisor
Approved:	Dr. Anthony Holland O'Malley First Reader
Approved:	Dr. John Devlin External Reader
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Abstract

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A branch of environmental theory known as eco-socialism posits that socialist political economies incorporate systemic features which better enable them to achieve sustainable environmental management.

This study assesses eco-socialist theories in two steps. The first step is a case study which addresses the question: What are the major factors influencing the implementation of Cuba's new environmental framework law, Law 81? The second step is a comparison of the results of the Cuba case study to two seminal models of policy implementation.

This comparison yields insight into the influence of political economy on sustainable environmental management. It demonstrates that the factors that influence environmental policy implementation in central command economies are similar, with some key differences, to the factors that influence environmental policy implementation in liberal market-based economies.

The results of this study suggest that political economy is not a critical determinant of a society's ability to achieve sustainable environmental management.

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Zoë Boutilier
July 2005

Chapter One
Introduction

The Development Problem

Human beings have but one home: planet earth. As far as we know, it is the only place in the galaxy where we can survive and multiply. After millions of years of mutual evolution, Homo sapiens rely on planet earth to provide more than just the air we breathe, the food we eat, and the water we drink. Vitally, the earth permits us to propagate by recycling the very elements of which we are all composed. As a species, our reliance on earth is so rudimentary that we are blind to it. Insanely, incredibly, unbelievably, modern human beings are progressively destroying the very ecosystems upon which our survival depends.

The progressive destruction of ecosystems is aggravating the already uneven distribution of natural resources among humans. The progressive destruction of ecosystems has a human price that is disproportionately born by the voiceless: the poor and the unborn. This is the fundamental, underlying problem of global human development.

The challenge of development is compartmentalized in theory and in practice. Development 'professionals' work sectorally in fields such as water and sanitation, health, agriculture, security, economics, governance, and gender. But if you are a development professional working in water and sanitation, you know that human beings are overburdening the earth's organic cleansing capacities. If you are a development

professional working in the field of security and counter-terrorism, you understand that all wars are essentially disputes over resources. If you are a development professional and you work in gender, you have seen that resource scarcity impacts women before men. If you are at all concerned about human development, you should comprehend that the underlying problem of global human development is an unequal access to necessary resources that disproportionately disadvantages the poor and the unborn.

The underlying problem of global development is a human problem with the possibility of human solutions. While the tide of human behavior seems to be thundering along a path of ongoing environmental destruction, it is still possible to implement the necessary change in behavior that will allow us to live off the planetary interest as opposed to the planetary balance.

The human problem of environmental degradation is not a technical one. We possess sufficient science and technology to guide the re-establishment of a sustainable relationship with the Earth's ecosystems. I believe, for example, in the science of climate change that underlies the Kyoto Protocol. I believe in the ecological facts that underpin the Convention on International Trade of Endangered Species (CITES), and the Biological Diversity Convention (Biodiversity Treaty). What I do not have faith in is the ability of humans to construct a society that recognizes and prioritizes the environmental problematic such that international and national policies, such as the ones just mentioned, take precedence even when they clash with economic priorities.

What would an environmentally sustainable society look like? What would be the fundamental characteristics of a society that would recognize the primacy of national and international environmental policies over short-term economic priorities? These are, in my opinion, questions that are fundamental to human global development, and they are the broad theoretical questions that motivate this study.

The Thesis of this Study

According to eco-socialists, a society that is motivated to recognize the primacy of national and international environmental policies over short-term economic priorities would be the antithesis of the dominant neoliberal model. It would be a society in which 1) the government would have the power to enforce regulations, 2) government would be stacked with environmental expertise, 3) the public would have ownership of natural resources and the means of production, planning, and rationing, 4) use-values would more accurately reflect nature's intrinsic value through expanded utilization time of commodities and energy, 5) socio-cultural morality would emphasize volunteerism, solidarity, public good, and self sacrifice, 6) regulation and enforcement would be enhanced, and 7) the economy would be centrally planned.

Cuba is a country that displays many of the systemic political and economic characteristics that have been identified by eco-socialists as being conducive to sustainable environmental management. It follows that if eco-socialist theories are correct, sustainable environmental management should be relatively easier to achieve in Cuba than it is in other countries.

This study sets out to probe the truth of the eco-socialist logic that leads to the conclusion that sustainable environmental management should be relatively easier to achieve in Cuba and in other central command economies with the above-mentioned characteristics. Since the achievement of sustainable environmental management in a holistic sense is impossible to ascertain, this thesis will focus on one component of sustainable environmental management: the implementation of environmental law.

In 1997, Cuba passed a new framework environmental law that was widely considered to be progressive, far-reaching, and ambitious. Compared to previously existing environmental legislation, Law 81 was revolutionary in its scope and in the authority it vested in the implementing environmental agency, CITMA. The law was described by one observer as "more ambitious in its goals and its details than any comparable legislation in the United States or Western Europe" (Houck 2000). This thesis, then, looks at the implementation of the Cuban framework environmental law, Law 81. Specifically, the field research component of this thesis is a case study on the question: What are the major factors influencing the implementation of Law 81? This Cuba case study, which uses interviews, questionnaires, and community case studies as data collection techniques, identifies the major factors that influence the implementation of Law 81.

The results of the Cuba case study are compared to implementation models that demonstrate the factors influencing the implementation of policies in liberal market-based countries. This enables the comparison of two sets of factors; one set that has been

shown to influence implementation in Cuba, and another set that has been shown to influence implementation in the United States and Western Europe. I am thus able to compare factors that influence implementation in a central command economy to factors that influence implementation in liberal market-based economies.

This comparison shows that the process of implementing environmental policy in a central command economy is in many ways very similar to the process of implementing environmental policy in a liberal market-based economy. The chief ways in which the two processes are similar are: 1) the bureaucracy of implementing policy and 2) the necessity of creating concerted, widespread public buy-in to policy goals. The primary notable differences between the processes in each context are 1) environmental policy in a central command economy tends to be generated and enforced from the national level and 2) the general public in a command economy has much less opportunity to communicate with decision makers and to influence the policy process. Overall, there seem to be more potential challenges to successful implementation in the central command context.

The results of the comparison yield theoretical insight into the influence of political economy on sustainable environmental management. Based on the assumption (outlined later in this chapter) that environmental policy implementation can be used as a proxy measure for sustainable environmental management, this study demonstrates that the process of achieving sustainable environmental management in a central command economy is in many ways very similar to the same endeavor in a liberal market-based economy. However, certain systemic characteristics of central command economies pose

additional roadblocks to sustainable environmental management. In other words, central command economies face additional challenges to sustainable environmental management that liberal market-based economies do not face. Thus, this study concludes that contrary to eco-socialist assertions, political economy is not a critical determinant of a society's ability to address the fundamental problem of human development.

Normative Foundations of this Study

As with all social research, this study was constructed on the foundations of certain normative convictions that are important to implicitly recognize as much as possible. As the designer, reporter, and analyst of this research, I recognize that my normative positions (both conscious and subconscious) underlie all of the choices and decisions that make this thesis a unique piece of work.

To begin, the majority of my formal education has taught me to view the world through the lens of natural science generally, and ecology specifically. I am attached to a certain extent to the positivist traditions of scientific methodology. As a result, I have designed this research along the lines of an experiment: a question is posed, research is done, results are collected, and conclusions are drawn. This approach varies somewhat from the more standard social science approach in which a thesis argument, proposed at the outset, is advanced in stages until the anticipated conclusion is drawn. This study is unique in that the results of my research did not support my starting hypothesis. In the writing of this study, I attempt to reflect the gradual process of discovery that actually occurred as I proceeded through the various stages of this study. The experience of doing

this study widened my perspective and provoked a revision of some of my ideas about environment and development. In other words, I started with one set of ideas and assumptions, and I ended with as altered set of ideas and assumptions. This process of discovery and reflection was an integral part of the research experience that I want to share with the reader of this study.

I also bring to my work an ecologist's sensitivity to the interlocking codependence of ecosystems and human beings. Despite the hardy adaptability of the ecological balance that has evolved in complexity over trillions of years, the ecological balance on which we depend is in danger of being irrevocably upset. If this happens, disaster for humankind will ensue.

Above all else, I am a humanist. I fear the destruction of ecosystems because I care about the fate of current and future generations of people.

As stated above, I believe that environmental degradation is the fundamental, underlying problem of global human development.

The problem of environmental degradation can only be solved if human beings, en masse, find a way to relinquish individual material aspirations in favor of establishing global ecological stability and a socially just distribution of natural resources.

Overall, I recognize a need for an environmentally sustainable human society. Such a society could only be built in the context of a global agreement on a basic plateau

standard of living to be shared by everyone. Material sacrifices would be made by some, and material gains experienced by others, until the convergence of a sustainable standard of living. While I am pessimistic about the actual achievement of such a society, it seems to me the only possible solution to the fundamental problem of global human development.

Finally, I recognize that my belief in a 'plateau' society as described above clearly overlaps with basic socialist ideals. For this reason, I was compelled from the outset to use this thesis as an opportunity to examine, as much as possible, the relationship between socialist ideals and ecological sustainability.

Theoretical Framework

Two fields of thought form the theoretical basis of this thesis.

The first is eco-socialism. Eco-socialism is a school of thought that combines certain theories of political economy with certain theories of environment. Eco-socialism draws on political economic theory insofar as it adopts a very structural interpretation of the systemic structures that characterize various political economic systems. Eco-socialism draws on environmental theory insofar as its primary preoccupation and motivating force is the achievement of a sustainable ecological balance. In essence, eco-socialism is a branch of theory that views political economic structures as the critical determinant of a society's ability to achieve sustainable environmental management. Specifically, eco-socialists argue that certain systemic characteristics associated with capitalist political

economic arrangements are inherently incompatible with sustainable environmental management. They argue in contrast that certain systemic characteristics associated with socialist political economic arrangements are inherently compatible with sustainable environmental management.

Curiosity about the real-world veracity and the practical applications of eco-socialist theory is what originally motivated this thesis. I have been strongly tempted to buy into eco-socialist theories because they agree to a large degree with my normative inclinations. I have nevertheless also been uneasy about the general failure of eco-socialism to agree on a comprehensive plan of action, and thus uneasy about the real-world applicability of eco-socialist theory.

The role of eco-socialism as a motivating influence and a theoretical foundation of this thesis is reflected in the broad theoretical objective of this thesis. As outlined below, the broad theoretical objective of this research is to gain an understanding of the influence of political economy on sustainable environmental management.

The second field of thought which contributes to the theoretical foundations of this research is policy implementation. Implementation research is a branch of public policy research, which is itself a sub-field of political science. Implementation research attempts to theorize the process of implementing public policy. Since its beginnings in the 1970s, implementation research has attempted to create explanatory theories which demystify, order, and render predictable the implementation process. In basic terms, the field

endeavors to explain why implementation in some cases has "failed" and in other cases has "succeeded".

This thesis draws on implementation research insofar as implementation research provides a basis for comparing the original research results collected in Cuba. Implementation research is characterized by a number of framework models, which summarize multiple implementation studies. Thus, studies of the implementation of many different policies have been summarized into models that purport to describe a "generalized" implementation process. These models provide a basis for comparison of my Cuba case study.

An important working idea which I have derived from implementation research is the idea that implementation is a process which can be facilitated and / or impeded by certain critically influential factors. Depending on the context, the influence of a factor can be either positive in that it facilitates the implementation process, or negative in that it impedes the implementation process. It is important to underline that the same factor can exert both forms of influence.

Thus eco-socialism and policy implementation are the two principal fields of thought that form the theoretical foundation of this thesis.

Research Objective, Specific Research Question, and Hypothesis

The broad theoretical objective of this research is to gain an understanding of the influence of political economy on sustainable environmental management.

The specific research question to be addressed by the in-field data collection of the Cuba case study is: What are the major factors influencing the implementation of Cuba's Law 81?

This broad theoretical objective is addressed by comparing the answer to the specific research question to two models of implementation that will be described in Chapter Three. In other words, an understanding of the influence of political economy on the implementation of environmental legislation will be obtained through comparison of the factors derived as influential to the implementation of Cuba's Law 81 against the factors highlighted by the Sabatier-Mazmanian and Winter's models.

I hypothesize that the factors identified by Cubans as relevant to the implementation of Cuban Law 81 will be substantially different from those variables listed in the framework models.

Methodology and Assumptions

The methodology of this thesis is outlined in specific and comprehensive detail in Chapter Six. The entirety of Chapter Six is devoted to describing the methodology

because 1) it is not straightforward, 2) a number of assumptions with methodological implications were made, and 3) I feel it is important to clearly demonstrate how I arrived at my results.

In the following paragraphs I summarize the methodology although I refer the reader to Chapter Six for more specific and comprehensive detail.

As the chapter structure of this thesis illustrates, I approach this study in distinct steps. The first step is a literature review of eco-socialist and implementation theories. This literature review allows for the identification of the major questions and debates within each field, and thus the creation of a theoretical framework for the study as a whole.

The second step is the Cuba case study. The Cuba case study is built on original field research that was conducted in Cuba between January 2003 and May 2003. The Cuba case study is designed such that it provides an answer to the specific research question: What are the major factors influencing the implementation of Cuba's Law 81?. Within the overall methodological approach of the case study, four separate data collection techniques are used. These techniques include: 1) semi-standardized, semi-structured interviews, 2) questionnaires, 3) community case study analysis and 4) participant observation. These four data collection techniques yielded a large amount of raw qualitative and quantitative data. To make sense of this large amount of data, I analyse first the results of each data collection technique. In other words, I individually analyse the results of the interviews, questionnaires, community case studies, and participant observation. The results of all four data collection techniques are then

combined into a cumulative analysis that is summarized in the form of a model (Figure 1).

The third step is the comparison of the results of the Cuba case study to the seminal implementation models identified and described in the section of the literature review that examined implementation theories. The objective of this comparison is to gain an understanding of the influence of political economy on the implementation of environmental legislation.

As mentioned above, the methodology of this thesis is built on the basis of a number of important assumptions. At least two of these assumptions are based on working ideas derived from the literature review of eco-socialist and implementation theory. For example, I borrow from implementation literature the working assumption that implementation is a process which is helped or hindered by a number of independent variables. From eco-socialist theory I borrow the assumption that systemic political and economic structures substantially influence sustainable environmental management.

Another assumption of this thesis, which has important methodological implications, is that the implementation of environmental policy is an important component and thus a proxy measure of sustainable environmental management. In other words, I assume that the successful implementation of environmental policy provides a strong indication of successful sustainable environmental management. This assumption is made in order to render 'testable' the eco-socialist argument that socialist systemic structures are inherently more compatible with sustainable environmental management. Since the

achievement of sustainable environmental management in a holistic sense is impossible to ascertain, especially within the limited scope of this thesis, this thesis focuses on one important component of sustainable environmental management: the implementation of environmental law.

A second assumption with important methodological implications is that Cuba can be treated as representative of the kinds of 'socialist' societies that eco-socialists are positing as inherently compatible with sustainable environmental management. Recognizing that this is a potentially problematic and debatable assertion, Chapter Four systematically isolates the inherent characteristics that eco-socialists have identified as compatible with sustainable environmental management, and demonstrates individually that these characteristics are represented in Cuba. Overall, Chapter Four attempts to show systematically that Cuba is indeed representative of the kind of society that eco-socialists are proposing.

The preceding paragraphs provide a macro-level, wide-focus outline of the methodology employed by this thesis. This methodology is described in more specific and comprehensive detail in Chapter Six.

Outline of Thesis Structure

Chapter One, as the introductory chapter to this thesis, is a stand-alone chapter. Most of the other chapters belong to a larger section which plays a definable role in the advancement of this study.

Section One is comprised of Chapters Two and Three. Section One constitutes a literature review that focuses on two distinct schools of thought: eco-socialism and policy implementation. Chapter Two outlines the central debates surrounding eco-socialism. Specifically, it outlines the objections of eco-socialists to mainstream environmental literature, the solutions proposed by eco-socialists to the environmental problematic, and the grounds on which eco-socialist solutions are refuted. The purpose of Chapter Two is to describe eco-socialism as a school of thought that argues that certain systemic features of socialist political economies make these economies inherently more compatible with sustainable environmental management. Ultimately, this is the central argument that this study attempts to test. Chapter Three provides an overview of the field of policy implementation. It is necessary to provide this overview because this study assumes that policy implementation is a suitable proxy measure of sustainable environmental management. In Chapter Three, implementation is defined and the history of policy implementation research, with a focus on theoretical debates, is outlined. Most importantly, Chapter Three introduces the two conceptual models of policy implementation that will be used as a basis of comparison later in this study.

Section Two is comprised of Chapters Four and Five. Section Two serves as a bridge between Section One and Section Three, in that it links the literature review to the ensuing Cuba case study. The purpose of Section Two is to explain, in light of the working ideas furnished by the literature review, why the Cuba case study is designed such as it is. Specifically, Chapter Four demonstrates why Cuba is a suitable and appropriate place to test eco-socialist theory. Chapter Five demonstrates why policy

implementation is used as a proxy measure for the larger question of sustainable environmental management.

Section Three is comprised of Chapters Six and Seven. Section Three presents the original fieldwork of this study – the Cuba case study. Specifically, Chapter Six outlines in comprehensive detail the methodology that was followed in executing the Cuba case study. It describes the procedures that were followed for each of the four data collection techniques (interviews, questionnaires, community case studies, and participant observation) that were employed as part of the case study methodology. Chapter Seven presents the results and the analysis of the Cuba case study.

Section Four is comprised of only one chapter – Chapter Eight. This chapter presents a comparison of the results of the Cuba case study against the two implementation models described in Chapter Three. Ultimately, the results of this comparison do not support the original hypothesis that is outlined in the introductory and methodology chapters. Overall, the comparison demonstrates fewer than anticipated differences in the ability of distinct political economies to implement environmental legislation.

Chapter Nine is also a stand-alone chapter. Chapter Nine closes this study by drawing some conclusions about the influence of political economy on sustainable environmental management. This chapter thus responds to the broad theoretical objective of this study. In illustrating what this study demonstrates about the influence of political economy on sustainable environmental management, this chapter also refutes the eco-socialist assertions outlined in Chapter Two.

Chapter Two
Political Economy and Sustainable Environmental Management

Introduction

In the bulk of literature on environmental management, the influence of different political economic systems upon environmental problems and environmental solutions is not explored. Nor is the political economic setting in which environmental management takes place generally questioned. Essentially, mainstream environmental management literature represents a search for environmental solutions from within the framework of the liberal-democratic capitalist system, which is the status quo of powerful countries in the modern world.

Conversely, on the fringes of environmental literature is a branch of theory that focuses on political economy as the critical determinant of a society's ability to address the environment-development problematic. In other words, this literature posits that the political economic structure of a society will dictate that society's ability to achieve sustainable environmental management. With this political economic focus, the debate centers on arguments about what form of political economy is best suited to foster sustainable environmental management. While some theorists assume that sustainable environmental management is best achieved by 'capitalist' political economies, others contend that the environment can only be managed sustainably from within a 'socialist' political economic structure.

This debate as found in the literature can be described as a series of reactions; the first reaction being a rejection of the status-quo, and the second reaction being a rejection of the first.

The first reaction is to the lack of explicit treatment of political economy in conventional environmental management theory. This first reaction posits that capitalism is inherently incompatible with sustainable environmental management, whereas socialism is compatible and is therefore the only way to achieve sustainable environmental management. The argument that capitalism is inherently incompatible with sustainable environmental management is based on a deconstruction of capitalism into its 'inherent' features and a subsequent theorizing of how these inherent features preclude sustainable human interaction with the environment. Proponents of this argument, referred to variously as "eco-Marxists" and "social ecologists", will henceforth be referred to as "eco-socialists".

The second reaction is to the first reaction. In other words, the second reaction disputes the incompatibility of capitalism and the compatibility of socialism with sustainable environmental management. The logic underlying the basic tenet of eco-socialism (that of capitalism's inherent incompatibility with sustainable environmental management) is challenged as "seriously flawed". The compatibility of socialism with sustainable environmental management is refuted based largely on existing evidence of environmental trauma inspired by 'actually-existing' socialist political economies, and to a lesser extent on purely theoretical arguments.

The frequency with which the above theoretical positions are found in the literature underlines the fact that political options other than capitalism are largely dismissed in the environmental management literature. The sheer amount of this literature produced in the last few decades is staggering. Comparably, the body of literature that examines environmental management through a political economic lens is orders of magnitude smaller. Similarly, the number of writers who have responded to eco-socialist theories (either positively or negatively) is relatively few. This underlines the fact that eco-socialism is marginal to the field of environmental management. Certainly, even among those who do discuss eco-socialism, there is often an overt admission that socialism is practically non-existent.

The structure of this chapter is as follows: *firstly* the status quo political economic setting of most mainstream environmental literature is demonstrated; *secondly* the theoretical positions of eco-socialists are delineated, and *thirdly* the arguments employed to refute the logic of eco-socialists are outlined. Throughout, I attempt to tease out two types of ideas: 1) those related to inherent systemic features of capitalism and socialism, and 2) those related to the presumed detrimental or beneficial influence of these systemic characteristics on the possibility of attaining sustainable environmental management. In other words, I focus on drawing out those characteristics that are identified as 'inherent' to each system, and to outlining the arguments of why each feature is or is not compatible with sustainable environmental management. The purpose of this section of the literature review is to provide an in-depth overview of arguments about the inherent compatibility (or lack thereof) of capitalist and socialist political economies to sustainable

environmental management. This chapter is thus intended to showcase the theoretical debate that motivates the specific research question of this thesis.

The Political Economic Framework of Mainstream Environmental Literature

The sheer volume of environmental literature that has been produced in the last few decades is staggering. The vast majority of this environmental literature seeks management solutions from within the framework of the modern world's dominant political economic system of liberal-democratic capitalism.

At the beginning of the twenty-first century, mainstream environmental theory and practice has reached an 'accommodation' with liberal market-based capitalism. Seen from a historical perspective, this hasn't always been the case. As argued by Bernstein, the current formulation of the environmental problematic "differs substantially from those dominant when the first concerted efforts at wide-scale global responses to environmental problems began in the late 1960's and early 1970's. From the perspective of these earlier efforts, focused on the negative environmental consequences of unregulated industrial development and suspicious of economic growth, the shift in environmental governance is a remarkable and largely unforeseen departure" (2001, p 3). Bernstein goes on to call the current form of environmental governance "the compromise of liberal environmentalism" (2001, p 3).

Saral Sarkar describes a similar evolution in the environmental norm-complex. He posits that the earlier roots of environmental governance were much more radical, and he

describes the 1970s and early 1980s in Germany as a time when "radical ecologists dominated the discourse and projected an eco-radical society and economy opposed, or alternative to, industrial society" (1999 p 2). By the end of the 1980s, this radical dominance had been replaced by ideas of ecologically restructuring, or modernizing, industrial society (Cohen 2001, Sarkar 1999).

Ideas about ecologically modernizing industrial society formed the basis of what eventually evolved into 'sustainable development'. Even in 2005, eighteen years after its appearance, the dominant premises of the mainstream approach are most clearly illustrated in *Our Common Future* (World Commission on Environment and Development 1987). *Our Common Future* (also known as The Brundtland Report) is widely acknowledged to have ushered in the era of sustainable development. While the idea of sustainable development has been criticized as being inherently contradictory and ultimately meaningless and co-opted (Sachs 1993, Escobar 1996), it still embodies the stated environmental aspirations of most governments, industries, and mainstream environmental organizations. Sustainable development is an approach to the environmental problematic that looks for solutions in the reform and improvement of current political and economic systems. In other words, it posits that incremental changes to political and economic systems are both appropriate and feasible. Given that poverty is identified in *Our Common Future* as a major cause of environmental degradation, sustainable development finds its solutions in the promotion of economic growth through increased trade, open markets, controlled population growth, and green technology.

Sustainable development is thus the form of environmentalism adopted by most policy makers and implementers because it allows, theoretically, for the coexistence of economic and environmental imperatives. In this sense, mainstream environmentalism concedes to the overriding imperative of economic growth whereas radical environmentalism argues that the overriding imperative must be the environment. According to Bernstein, "The institutionalization of sustainable development...was a normative compromise that predicated environmental protection on the promotion and maintenance of a liberal economic order" (2001, p 4).

The normative underpinnings of sustainable development have been critiqued from many corners. Chatterjee and Finger (1994) criticize modern environmental governance as being too accepting of the status quo economic practices that created most of the world's problems in the first place. These sentiments are echoed by Slaughter (2001), who points out that global environmental governance is politically constituted by the very power structures that systematically produced environmental problems to begin with. He explains that "the form of global governance that prevents the formulation of successful responses to environmental change and actually reproduces the circumstances that allow environmental crisis is politically structured by two influences. The first is the normative structure of liberalism...the second is the conditioning influence of economic globalization" (2001, p 6).

In the preceding section, I have attempted to show that the dominant political economy effectively frames approaches to environmental management. Many people have criticized this framework, seeing it as a norm-complex that both propagates

environmental problems and precludes their sustainable solutions. The following section will highlight the arguments put forth by those who have deconstructed the dominant polity, attempting to explain systematically their belief that liberal-democratic capitalism is fundamentally incompatible with sustainable environmental management.

The Eco-Socialist Critique

A fringe branch of environmental literature has criticized mainstream environmental literature for failing to examine or question its liberal-capitalistic normative foundations. This fringe branch of the environmental literature is variously identified as eco-Marxist, eco-socialist, eco-anarchist, and social ecologist (and probably there are additional terms as well). The purpose of the following section is not to highlight the theoretical differences that distinguish these groups, although these theoretical differences definitely exist. Rather, the purpose of this section is twofold. First, it is to consolidate the fact that these groups do agree on one common point: that the modern world's mainstream political economy (variously referred to as capitalism, consumer capitalism, liberal democratic) is incompatible with sustainable environmental management. The second objective of this section is to deconstruct the general arguments against capitalism into specific points about the structures which make up capitalism, so that it is possible to see precisely what systemic components are being objected to, and why.

An isolation of the structural components which are being objected to is particularly important in the context of the ambiguity surrounding blanket terms such as "the capitalist system", "the liberal-democratic system", "capitalist normative foundations"

and "liberalism". While such terms by necessity will be used in this thesis, it is recognized that the meaning of these terms is theoretically imprecise and subject to debate and interpretation. It is outside of the scope of this thesis to create comprehensive definitions for these terms, thus it is critically important to separate out and examine in isolation those structural components that are identified as incompatible with sustainable environmental management.

Because the purpose of this section is to examine arguments against capitalism, the majority of the authors surveyed are representative of eco-Marxism, which explicitly names capitalism as the cause of environmental problems. Saral Sarkar, for example, is an eco-Marxist who is definitive in his belief that a capitalist society cannot be a sustainable society. He sees "an eluctable and unresolvable contradiction between capitalism and industrial economy on the one hand and the requirements of a truly ecological economy on the other" (1999, p 4). Specifically, elements in un-resolvable conflict with sustainable environmental management are "capitalism's compulsive orientation towards growth" and "capitalism's logic, in which there is no place for justice, equality, fraternity, solidarity, compassion, morality, or ethics" (1999, p 4). A third structural element of capitalism discussed by Sarkar is what Marx earlier referred to as the basic contradiction of capitalist production: the idea that capitalist production saps the original sources of all wealth, including the soil and the laborer.

James O'Connor is often identified as one of the foremost Marxist social scientists in North America and the foremost proponent of eco-Marxism. Over the course of three decades of writing, O'Connor has been a critical observer of American political economy

and global capitalism. In 1988, he co-founded the quarterly journal '*Capitalism, Society, and Nature*', which seeks to develop a fusion of red and green politics, and published the book '*Natural Causes: Essays in Ecological Marxism*' (1998). '*Natural Causes*' gathers together O'Connor's major writings on capitalism and nature, thus providing an overview of his contribution to eco-Marxist theory and practice. In '*Natural Causes*', O'Connor's central thesis is that capitalism is unsustainable "because it has an inherently weak capacity to preserve or maintain its own conditions of production" (1998, p 311). This line of argument is similar to that of Sarkar, described above, and arises from Marx's earlier concept of use values as opposed to exchange values.

Essentially, O'Connor argues that capitalism reduces nature's 'use value' to being merely an immediate condition of the production of goods and services by human labor. This instrumental valuation of nature leads to nature being conceived as an aggregate of separate utilities rather than a functioning and evolving system in its own right. In other words, nature is merely an instrument for commodity production for profit. The negative environmental consequences "are not merely excesses of the system of accumulation and growth but rather are inherent in the capitalistic system. The basic (and not very well publicized) fact is that by its very nature, capitalism is bad at preserving things" (1998, p 317). O'Connor shows that within capitalism, there is no profit to be gained from actions of maintenance or preservation. Instead, "profit is in expansion, accumulation, and marketing something at lower costs" (1998, p 317).

John Bellamy Foster is another leading eco-Marxist writer. His work includes '*The Vulnerable Planet*' (1994) and '*Marx's Ecology: Materialism and Nature*' (2000). Like

Sarkar and O'Connor, Foster also identifies capitalism as the ultimate culprit in the ongoing process of environmental deterioration. According to Bellamy Foster, the capitalist economy contains within it one fundamental contradiction: "it cannot separate advance from destruction, nor progress from waste – however catastrophic the results" (1994, p 133). Furthermore, Foster argues that capitalist commodity society permits the exploitation of common environmental resources for individual short-term gain.

The thesis that drives the work of Joel Kovel is implicit in the title of one of his books. '*The Enemy of Nature*' (2002) is divided into three sections; 'The Culprit', 'The Domination of Nature', and 'Towards Ecosocialism'. These three sections correspond to Kovel's assessment of the cause of environmental degradation, its origin, and its remedy. In '*The Enemy of Nature*', Kovel calls for "a rational dissection of this system's assault on nature" and dissects capitalism's "logic of unceasing accumulation" (p 5). Capitalism's logic of unceasing accumulation demands that each unit of capital must 'grow or die', and that all markets must constantly expand (2002, p 6). Kovel argues that the expansion of capital is linked to a corresponding compression of time; where "the speeding up of buying and selling leads to reduced utilization time of commodities or the synthetic production of waste, that is, the throw-away society" (2002, p 60). He also demonstrates that, under the capitalist system, economic imperatives take precedence over all others. Thus environmental imperatives, such as the natural limits to growth, are consistently devalued in the search for profits. "Under such a regime the economic dimension consumes all else, nature is continually devalued in the search for profit along an expanding frontier, and the ecological crisis follows inevitably" (2002, p 115).

Like the other writers discussed above, M. Cahill makes a connection between the capitalist system and environmental degradation. But unlike the others, he also focuses on capitalism's impact in human agency. He analyses the systemic psychosocial impact of capitalism on people, and shows how the resulting behaviors are unsustainable. Thus Cahill discusses the psychology and the morality of what he calls 'consumer capitalists'. According to Cahill, the psychological and moral impacts of capitalism are what is incompatible with environmental management, because these undermine concepts of citizenship and public responsibility. "Generations who have been brought up on ideas of themselves as consumers do not readily appreciate ideas of public interest or community, preferring instead to view their contact with the public sector as a consumer / seller relationship" (2002, p 90). In other words, "...consumer society promotes the realm of the private individual world as the reality which one can alter and enjoy so that the public sphere is necessarily regarded as alien and unimportant" (2002, p 90).

Not only is the capitalist consumer less interested in the public sphere, but, according to Cahill, s/he also feels powerless to evoke changes in the larger world. Adopting Mestrovic's (1997) idea of post-emotionalism, Cahill argues that marketing and the media are constantly manipulating consumers' emotions. This leads to a population of consumers who are capable of a great variety of emotions, and yet feel disconnected from action. "They have reached the conclusion...that they are powerless" (2002, p 92). For Cahill, a strong sense of obligation and a willingness to work and sacrifice for the public good is an important measure of a society's ability to interface sustainably with the surrounding natural environment. He believes that a society can only move to a less damaging environmental relationship if its individuals and families value the common

good ahead of their own wants and needs. Thus the ideology of capitalist consumers is essentially anti-environmental because it promotes short-term individual satisfaction over long-term communal benefit.

In his book "*Nature, State, and Economy; A Political Economy of the Environment*', R.J. Johnston focuses on economic and political constraints to the resolution of environmental problems. He concludes that "a sustainable relationship between people and nature is unlikely to be achieved within the political economy which now predominates in almost all the world" (1996, p 241). This dominant political economy, which he identifies as the liberal democratic state, is "oriented to the resolution of immediate problems, whereas a potential environmental catastrophe requires a solution of the type that it (the liberal democratic state) cannot deliver" (1996, p 242). This dominant political economy is built on a foundation of maximizing economic growth at the cost of pollution, of encouraging consumerism and material desires, and on a lack of restrictions on individual freedoms. It is these very foundations that encourage environmental destruction. Johnston concludes that 'green politics' is concerned with ends (such as saving the earth, however this may be possible), whereas dominant liberal politics is concerned with means (such as defending democracy and ideals of individual liberty) (Johnston 1996).

Criticisms of capitalism's ability to manage the environment are not new. In '*Ecology and the Politics of Scarcity*', William Ophuls opines that "given the ultimate natural limits to environmental growth...capitalism may not be consistent with sound long-term environmental management" (1977, p 170). At that time, Ophuls described the American political economy as being based on laissez-faire, individualistic premises that are

incapable of recognizing or responding to ecological scarcity. Seeing this, Ophuls called for 'a new paradigm of politics' capable of respecting natural limits (1977). Ophuls' statements were outlined and responded to by Zachary Smith in '*The Environmental Policy Paradox*' (1992). Smith's faith in American-style democracy's ability to respond to ecological scarcity is slightly more optimistic. He believes that the system's ability to respond to environmental imperatives will depend on the problem's public exposure and to the amount of public concern it generates. He sees the American political economic system is being highly empowered "to respond to crisis situations and those controversies that attract a great deal of public attention"(1992, p 251). In other words, the nature of the problem and hence the amount of media attention generated will determine whether or not the system responds adequately to a given environmental problem.

As we have seen, eco-Marxists such as Foster, O'Connor, Sarkar, and Kovel explicitly link the policies and structures of capitalism – in particular globalized capitalism – with an inability to maintain the basic operating conditions of the natural environment. Social ecologists are distinct from eco-Marxists in that they do not explicitly name 'capitalism' as the culprit of environmental problems. Instead, social ecologists emphasize that most environmental problems arise from the social injustice and inequality that they see as pervasive in modern society. Social ecology, then, shares with eco-Marxism a belief that the structures of mainstream society are incompatible with sustainable environmental management. However, where eco-Marxists focus specifically on capitalism and a Marxist interpretation of the conditions of production, social ecologists focus more generally on power imbalances.

In '*Defending The Earth*' (1991), Murray Bookchin, a prominent social ecologist and anarchist, describes society as a hierarchy. It is a hierarchy that concentrates economic power in corporate elites, and political and military power in state institutions. Hierarchies and the power imbalances that they represent are exactly what Bookchin and other social ecologists object to. "While it is theoretically possible that a hierarchical society can biologically sustain itself, at least for a time, through draconian environmental controls, it is absolutely inconceivable that present-day hierarchical and particularly capitalist society can establish a non-domineering and ethically symbiotic relationship between itself and the natural world" (1991, p 123). Thus, the pervasive persistence of power imbalances throughout human society is what renders unremarkable, and thus permits, humankind' s abusive power relationship with the environment. "As long as the hierarchy persists", warns Bookchin, "as long as domination organizes humanity around a system of elites, the project of dominating nature will remain a predominant ideology and inevitably will lead our planet to the brink, if not into the abyss, of ecological extinction"(1991, p 123).

The preceding paragraphs have presented the arguments of numerous prominent eco-socialists, including Sarkar, O'Connor, Foster, Kovel, Cahill, Johnston, and Bookchin. As demonstrated, all of these writers share in the belief that the modern world's dominant political economy is fundamentally incompatible with sustainable environmental management. At various points in their writing, they all point to structural features (of this dominant political economy) that they view as incompatible with sustainable environmental management. In the preceding paragraphs I have attempted to highlight

precisely what structural components are being objected to. The following table summarizes these arguments.

Table 1: Systemic Characteristics that are Inherently Incompatible with Sustainable Environmental Management According to Proponents of Eco-Socialism

Systemic Characteristics that are Inherently Incompatible with Sustainable Environmental Management According to Proponents of Eco-Socialism
A compulsive orientation towards economic growth (Sarkar); a logic of unceasing accumulation and continual expansion of markets (Kovel)
Ethics which do not promote justice, equality, or solidarity (Sarkar)
Mode of production which saps or fails to preserve the necessary inputs to production (Sarkar / O'Connor)
Lack of material benefit to be gained from maintenance / preservation (O'Connor)
Short-term gain valued over long-term stability (Foster, Johnston)
Wastefulness is encouraged (Kovel)
Economic imperatives take precedence (Kovel)
Morality / Psychology in which private interests predominate over public interests (Cahill)
Morality / Psychology in which public feels powerless to evoke social change (Cahill)
Lack of restrictions on individual freedoms (Johnston)
Society is concerned with means rather than ends (Johnston)
Presence of power hierarchies (Bookchin)

Eco-Socialist Solutions

The previous section outlined some of the criticisms that have been levied against the dominant political-economic system's capacity to establish sustainable interaction with the natural environment. In the context of these criticisms, what, if any, alternative solutions are proposed? As we will see, some eco-socialists articulate, if not a fully conceptualized alternative solution, at least the necessary components or the fundamental outline of a solution. Still others don't move beyond the stage of criticizing the dominant

system, and thus never manage to present even a conceptual alternative proposal. The purpose of the following section is to present some of the most clearly articulated solutions proposed by those eco-socialists whose criticisms have previously been outlined.

As early as 1977, William Ophuls called for a new paradigm of politics that would be more capable of sound long-term environmental management. "Ecological scarcity undercuts the basic laissez-faire, individualistic premises of the American political economy so that current institutions are incapable of meeting the challenges...what is needed is a new paradigm of politics" (1977 p 170). In Ophuls' view, contemporary institutions would have to be replaced by "oligarchic governments, staffed with environmental experts with the power to enforce sound environmental policy" (1977, p 170).

The very title of Saral Sarkar's book, " *Eco-Socialism or Eco-Capitalism: A Critical Analysis of Humanity's Fundamental Choices*" (1999), implies that he will explore the 'fundamental choices' and ultimately choose one solution to the environmental problematic. Indeed, the concluding section of his book, titled 'Either Eco-Socialism or Barbarism', makes clear his esteem of eco-socialism as the only viable alternative. What, for Sarkar, are the necessary components of this eco-socialist solution?

Sarkar is convinced that "unless we solve the (environmental) question in a socialist and not a welfare state manner, we have no hope of overcoming the ecological crisis" (1999, p 4). Sarkar supports a 'socialist' method of organizing the economy, considering that

public ownership of natural resources, and public ownership of the means of production, planning, and rationing are fundamental to the achievement of an 'ecological economy'. Sarkar's line of logic assumes that a society whose natural resources are publicly owned has a greater motivation to invest money into the protection of its natural resources. As opposed to the capitalist logic which forces the externalization of costs wherever possible, a socialist system would make externalization impossible because all resources and all means of production would be owned by one common body – the public. In Sarkar's words, "any extra profit made by a state-owned enterprise neglecting to protect the environment would mean losses elsewhere, which ultimately the state would have to bear" (1999, p 35). Thus a socialist state has a greater motivation for investing in and protecting its own natural resources. Sarkar's solution, and his justification of it, suggests that he judges public ownership (of natural resources, of the means of production, of planning, and of rationing) to be the key systemic component of a political-economic solution to the environmental problem.

In a very similar argument, John Bellamy Foster calls for the 'public protection' of all nature (1994). According to Bellamy Foster, nature must be centrally and publicly managed on a nationwide scale. Above all, nature must be removed from the reach of free exploitation and individual short-term gain. " Only through the democratically organized social governance of both production and nature ... is their any meaningful hope ...that the world will be cared for...in the interest of generations to come" (1994, p 133). Like Sarkar, Bellamy Foster's formulated solution hinges on public ownership of the means of production, the environmental inputs to production, and the environmental sinks into which the after-effects of industrial production are absorbed.

Bellamy Foster also elaborates on how this necessary condition of public ownership will be achieved. The necessary condition of public ownership, and thus the possibility of an environmental solution, will only be possible in the wake of a social revolution. Other important ramifications of this ecological social revolution will include lowered standards of consumption, reduced economic growth rates, lower individual incomes, programs of public education, state subsidized food supplies, guaranteed medical services, and redistributive policies in favor of the poor (Bellamy Foster 1994). These, according to Bellamy Foster, are the characteristics of the only type of society capable of sustainably co-existing with the natural environment.

As we have seen in a previous section, Joel Kovel names capitalism as the root cause of the environmental problem. If capitalism is the problem, what then does Kovel propose as the solution? To begin with, Kovel unequivocally rules out any considerations of *reforming* the capitalist system. Capital is "unreformable" – "it either rules and destroys us, or is destroyed, so that we may have a lease on life" (2002, p 6). According to Kovel, capitalism must be replaced by means of an 'eco-socialist' revolution. Kovel's eco-socialism is "related to, but distinct from, the socialisms of the past century" (p 6). Like past socialisms, Kovel's eco-socialism would have producers reunited with the means of production. Unlike past socialisms, "limits to growth would be finally respected" and "nature would be recognized as having intrinsic value" (Kovel 2002 p 6).

In practice, then, Kovel's eco-socialist revolution would entail replacing capitalist, profit-oriented production with a form of socialist production, " through a restoration of use-

values open to nature's intrinsic value" (2002, p 10). Nature's intrinsic value would be reflected, for example, in an expanded utilization time of commodities through preservation, re-cycling, repair, and re-use. Such a society would emphasize volunteerism and solidarity with the larger purpose, as opposed to individual profit. Energy would be produced only through renewable sources, although ecologically appropriate technologies would be recognized as a necessary but of themselves insufficient measure. "Only a basic change in patterns of production and use can allow ecologically appropriate technologies to have their beneficial effect...this means a basic change in need patterns and in the whole way life is lived" (Kovel 2002, p 159). In summary, the necessary component of Kovel's solution is the ecologically appropriate valuation of natural inputs to the production process.

Like Kovel, Cahill's proposed society would recycle, use less energy, and produce less waste. Unlike Kovel, Cahill does not explicitly talk about use values or the valuation of natural inputs. Instead, Cahill focuses on the regulatory aspect. "A society which wanted to move seriously to a less environmentally damaging condition" writes Cahill, " would need more, not less, rules" (2002, p 93). Cahill's rules would be based on, and would enforce, the concept of putting the common good before individual or even family wants and needs. The promotion of such values would be enhanced by regulations, however this public enforcement would require the support, commitment, and goodwill of society at large. "The transition to a sustainable society" explains Cahill, "cannot be an imposed process but must be based upon the greatest possible consensus" (2003, p 93).

R.J. Johnston also highlights political consensus as a necessary prerequisite to a truly sustainable society. According to Johnston, "true sustainability" requires political consensus on certain key conditions. Among others, these key conditions include, " democracy that transcends the nation state and the next election, bringing sacrifice to the core and regulating self-interest", and "guarantees of rights and justices to all people...so that they are allowed to consume resources in an equilibrium manner" (1999, p 254). A sustainable society would also require public policies that would "discourage conspicuous consumption, emphasize fulfillment in work, rather than work being the means to meeting material needs...and rely more on planning and less on markets" (1999, p 254). According to Johnston, these conditions challenge the foundations of the capitalist world economy and illustrate the sorts of changes that are necessary.

Before specifying his own preferred solution, T Fitzpatrick outlines what he considers to be the " five basic possible forms that a Green democracy might take" (2002, p 68). These five basic possibilities are: 1) "Green market liberalism where environmental costs are factored into the price mechanism", 2) "Green social democracy where redistributive and managerial means are employed according to the requirements of social and environmental justice", 3) " eco-socialism where the popular control and ownership of the economy is extended to the environmental preconditions of the economic activity", 4) "eco-centralisation within which there is only a limited form of democratic representation and participation", and 5) "eco-anarchism where the state is abolished and replaced by horizontal networks of egalitarian, democratic, and autonomous communities" (2002, p 68). Fitzpatrick goes on to rule out the first, fourth, and fifth options, before proposing his own theory of "eco-social welfare", a theory that integrates the second and third

possibilities. Thus, Fitzpatrick's proposed solution lies between (and integrates aspects of) what he calls Green social democracy and eco-socialism.

More precisely, Fitzpatrick's theory of eco-social welfare represents a means of transition from liberal democracy (the current dominant system) to a form of eco-socialism. Fitzpatrick views his solution as a realistic compromise, made necessary because the ultimate aim of eco-socialism is a goal at which we should aim but which we may never achieve.

In the preceding paragraphs, I have highlighted some of the most clearly articulated 'eco-socialist solutions' to the environmental problematic. I have attempted to draw out what Ophuls, Sarkar, Foster, Kovel, Cahill, Johnston, and Fitzpatrick conceptualize, in terms of systemic features, when they envision a sustainable society. The following table is a summary of the systemic characteristics that have been identified by eco-socialists as compatible with sustainable environmental management.

Table 2: Systemic Characteristics that are Inherently Compatible with Sustainable Environmental Management According to Proponents of Eco-Socialism

Systemic Characteristics that are Inherently Compatible with Sustainable Environmental Management According to Proponents of Eco-Socialism
Oligarchic governments with power to enforce regulations (Ophuls)
Presence of environmental expertise within governments (Ophuls)
Public ownership of natural resources (Sarkar, Foster) and Public Ownership of Means of Production, Planning, and Rationing (Foster, Kovel, Fitzpatrick)
Establishment of use-values which more accurately reflect nature's intrinsic value through expanded utilization time of commodities and energy supplied by renewables (Kovel)
Moral emphasis on volunteerism and solidarity, with corresponding de-emphasis on individual gain (Kovel); ethics such that common good is prized before individual needs (Cahill); regulation of self-interest and increase in ethics of sacrifice (Johnston)

More (not less) rules ; enhanced regulation and public enforcement (Cahill)
More planning, less markets (Johnston)

Reactions to Eco-Socialist Solutions

The systemic focus of eco-socialism and associated theories and solutions has generated criticisms. However, this literature devoted to criticisms of eco-socialism is fairly limited, probably because eco-socialism itself is a "fringe" position constructed largely as a critique of the mainstream. The mainstream is dominant and self-absorbed enough that such criticisms go unnoticed by the majority. When they are noticed, they are largely viewed as improbable, or impossible, and thus safely ignored.

When the solutions proposed by eco-socialists are not only noticed but also addressed, a common (and relatively easy) method of undermining these solutions is to point to historical evidence. Overwhelmingly, actually existing socialisms of the recent past have exhibited poor track records of environmental management. The environmental damage created by historic socialist states is certainly a strong point of evidence that must be considered. The following section will outline a number of arguments that have been used to rebut and dispute the validity of the eco-socialist positions as presented in the previous sections of this chapter.

As discussed above, R.J. Johnston in his book " *Nature, State and Economy*" posits that sustainable environmental solutions would have to "challenge the foundations of the capitalist world economy" (1996, p 255). While Johnston focuses his analysis on

capitalist states, he provides analytical balance by pointing out that many of his critical arguments apply to socialist states as well. " The pressures on the (socialist) state regarding environmental use are similar to those in the capitalist world" writes Johnston, "they (socialist states) must balance the imperatives of their mode of production against the damage that they do to environmental systems" (Johnston 1996, p 255).

Johnston explains that in a command economy, the same centralized state body is responsible for economic planning as well as environmental protection. The command state must weigh the environmental consequences of its economic ambitions against the economic and social objectives that might be achieved by said economic activity. In weighing the costs and benefits of economic actions, the command state must determine to what extent it is willing (and capable) of committing the extra resources that are usually necessary to diminish or eliminate negative environmental impact. Just like market-oriented states, command states are also seeking to produce an increasing range of commodities and products, with all the implications that this production has for the environment. A command economy state, therefore, weighs relative costs and benefits and makes a decision on economic versus environmental priorities. Demonstrably, the balance selected by actually-existing socialisms of the past century has favored forms of economic production with particularly devastating environmental results. Johnston refers to the large-scale mining and heavy manufacturing which dominated the national economies of Eastern Europe during four decades of central planning.

In addition to suggesting that command states and capitalist states are subject to similar environmental pressures, Johnston highlights situations that are unique to socialist states.

One of these situations is the relative inability of environmental interest and pressure groups to exert an influence on the decision making process. Johnston refers to sources that discuss this situation in the context of Eastern Europe (Carter and Turnock 1993). In these states, individuals with environmental concerns lacked access to the media and therefore lacked the possibility of mobilizing a larger population to their cause. Furthermore, scientists who recognized environmental problems and perceived a need for change were often working for the state, for example within research institutions or universities. By virtue of their incorporation within the state apparatus, their ability to contradict or counteract official policies and priorities was limited. "They competed with other, generally stronger, parts of the bureaucracy for resources and standing...and their actions have been described...as not pressure-group politics, but the politics of waiting for the open window" (Johnston 1996, p 214). Thus, from an environmental management perspective, command states have the added disadvantage of limited advocacy and controlled media.

Like Johnston, Smith (1992) takes an analytical stance that critiques the ability of both systems (capitalist and collective ownership) to sustainably manage environments. His analysis of the environmental potential of collective ownership systems is based largely on the circumstantial evidence provided by past collective ownerships. Smith concedes that theoretically, the collective control and planning functions of communist systems should provide the means necessary for the internalization of pollution externalities, the development of renewable resources, and the establishment of sustainable economic and agriculture practices. In reality, however, the environmental records of China and the

former Soviet Union suggest that, despite being theoretically better equipped, these systems were either unable or unwilling to manage their environments sustainably.

According to Smith, a number of critical systemic factors both allowed and exacerbated rampant environmental damage throughout the former Soviet Union. These factors included rapid industrial development, a disregard for pollution, and inefficient consumption of fossil fuels. Smith also quotes the inability of local governments to fight centrally imposed pollution and the power of official secrecy to conceal industrial and ministerial misdeeds. And from an intra-governmental perspective, Smith points to the relative lack of influence available to the environment ministry in comparison to other more powerful ministries such as those in charge of economic development.

In the case of China, Smith points to the lack of incentives motivating factory managers to curb pollution and inefficient resource use. Pollution counter-measures require investments that do not contribute directly to the primary domestic goal of increasing productivity. Job promotions and other forms of official recognition are often based on measures of productivity. Thus environmental stewardship by industry is effectively discouraged. The cases of both China and the Soviet Union show that whereas monopolistic concentrations of economic and political power can theoretically be opposed in liberal democracies, such opposition is made impossible when the state itself is the monopolist.

Based on the collected evidence, Smith concludes that " neither societies with high degrees of political freedom nor those with little political freedom have fared

demonstrably better at ecologically sound management" (1992, p 234). "State controlled economies are no more likely to protect the environment than are market-based capitalist economies" (1992, p 251) because "product and profit orientation, regardless of the system, drives nations in ways not conducive to sound long-term ecological management" (1992, p 239). Systemic form of ownership is irrelevant, then, because socialist states have been shown to have the same concern for profits as do capitalist private managers.

While Smith points to the weaknesses of both systems, ultimately he advocates against resorting to collective ownership systems as a means of solving environmental problems. Smith understands that a central government authority with the power and the mandate to deal definitely with environmental problems would also likely be a repressive government. For Smith, the trade-off of democracy for sound environmental management is not worth it in the end. In conclusion, then, Smith seems to accept the admittedly flawed solutions provided by the mainstream. He posits that the environmental policy process of liberal democracies such as the US will work reasonably well in some cases, but it will not work in others. Crucial determinants of success are the nature of the (policy) problem itself and the amount of media attention generated. Smith believes that the liberal democratic system will "respond well and in a timely manner ... to crisis situations and those controversies that attract a great deal of public attention" (1992, p 251).

The preceding paragraphs outline arguments of Johnston and Smith that refute the eco-socialist solutions described above. The following table summarizes these arguments.

Table 3: Refutations of Eco-Socialist Solutions

Eco-Socialist Solutions Refuted on Basis Of:
Historical evidence provided by actually-existing socialisms (Smith)
The same pressure exists in both capitalist and socialist systems to balance the imperatives of modes of production against damage done to environmental systems. Command states, like market states, are also seeking to produce an increasing range of commodities and products (Johnston)
Inability of environmental interest and pressure groups to exert an influence on the decision making process (no access to media, limited advocacy, no means of mobilizing the larger population) (Johnston)
Potential activists (scientists) are already incorporated into the state apparatus, and thus have limited ability to contradict or counteract official policies (Johnston)
Inability of local governments to fight centrally imposed pollution (Smith)
Power of the center to conceal environmental misdeeds (Smith)
Relative lack of power accorded to environment ministries as opposed to more powerful economic ministries (Smith, Johnston)
Monopolistic concentration of economic and political power in the state (Smith)

Conclusions

Without a doubt, it is important and useful to examine environmental management through a political economic lens. While I am neither a convert nor an evangelist for the eco-socialist side of the debate, I do believe that eco-socialist theory contains some fundamental truths and merits more attention than it is currently given in mainstream environmental literature. In my opinion, eco-socialist theory contributes to the important task of identifying the necessary structural preconditions that must exist in order for humankind to achieve sustainable environmental management.

Chapter Three
Implementation

Policy Implementation as a Component of Sustainable Environmental Management

This study is designed to probe the truth of the eco-socialist logic that leads to the conclusion that sustainable environmental management should be relatively easier to achieve in Cuba than it is in other countries. Since the achievement of sustainable environmental management in a holistic sense is impossible to ascertain, the fieldwork portion of this study will focus on one component of sustainable environmental management: the implementation of environmental law.

The implementation of environmental policy is a particularly important stage in environmental management because it is the stage at which a vision or an idea – as mapped out on paper – is transformed into a series of actions and results. Implementation includes everything that happens between the official promulgation of a law, and its consequences intended or otherwise. Arguably, implementation is the most important stage of sustainable environmental management because it is the stage at which success or failure is most often determined (Bardach 1977).

This chapter provides an overview of the field of implementation research. Implementation research is a branch of public policy research, itself a sub-field of political science. Since its beginnings in the 1970s, implementation research has attempted to create explanatory theories that demystify, order, and render predictable the

implementation process. In basic terms, the field endeavors to explain why implementation in some cases has failed and in other cases has succeeded. The field of implementation research is relevant to this thesis because it provides conceptual models for policy implementation. These conceptual models of policy implementation will later be used as a basis for comparing and understanding my research results.

This chapter will begin by defining what is meant, throughout this study, by the term 'implementation'. Then a brief history of implementation research will be outlined, demonstrating the major theoretical breakthroughs and the major theoretical disputes in the field. A variety of conceptual models will be introduced and two of these, the Sabatier-Mazmanian model (Sabatier and Mazmanian 1981a) and the Winter model (Winter 1990), will be explained in greater detail. The Sabatier-Mazmanian model is an influential model that summarizes earlier work in implementation research and is a seminal landmark of the field. The Winter model is a comprehensive framework which successfully synthesizes the two predominant approaches ('top-down' and 'bottom-up') to implementation research. Because of their prominence as seminal works, these two models will be used as important points of reference later in this thesis.

Policy Implementation: A Definition

Since this thesis takes as its focus the policy implementation stage of environmental management, it is necessary to define what is meant by the term 'implementation'.

As stated above, implementation research is a branch of public policy research. According to Talib Younis, "studies of public policy have traditionally been divided into three stages: policy formation and design, policy implementation, and policy evaluation" (1990, p 3). Thus implementation is an intermediary stage between the initial stage of design and the final stage of evaluation. Sabatier and Mazmanian define public policy implementation as "that which takes place between the formal enactment of a program by a legislative body...and its intended or unintended impacts" (1981a, p xi). Their definition corresponds almost exactly with that of Younis, who says, "Implementation is what happens between the determination of policy objectives and their transformation into changes in the real world" (1990, p 15). Sabatier and Mazmanian further their description of implementation by breaking it down into smaller stages. "The implementation process normally runs through a number of stages beginning with the passage of the basic statute, followed by the policy outputs (decisions) of implementing agencies ...and the compliance of target groups with those decisions" (1981a, p 5). In focusing on implementation, therefore, this thesis will not focus on policy creation or the politics of passing legislation. It will focus on the policy stages that fall squarely under implementation; namely, everything that happens from the involvement of implementing agencies to the actions of target groups.

The field of implementation research is characterized by a fundamental dichotomy in theoretical approaches. The dichotomy is represented by 'top-down' implementation scholars on one hand and 'bottom-up' implementation scholars on the other. Each side of the divide defines implementation differently, in accordance with their particular perspective. Top-down theorists profess a view of implementation that is narrower and

more straightforward than their counterparts. Because they view policy formation (and thus policy makers) as the most crucial determinant of policy success, they see implementation as a fairly straightforward application of the policy by implementers (bureaucrats) as directed by the policy makers. Bottom-up theorists, who consider that implementation success lies largely in the hands of street-level implementers and target groups, view implementation as a much more complicated and multifaceted process whose success is dependent on variety of factors.

A more balanced view of implementation that melds the top-down and bottom-up approaches is presented by Palumbo and Calista (1990). They see implementation as a "series of interactions and interpretations between the outputs of policy formation and the effects of organizational and inter-organizational impacts, between the latter and street-level bureaucratic behaviors, and between the latter and target-group behaviors. At best, then, implementation is a series of junction points that produces outcomes which cannot be predicted from policy intentions" (1990, p xiv). The iterative nature of implementation pointed out by Palumbo and Calista is echoed by Barrett and Fudge, who see implementation as " a policy / action continuum in which interactive and negotiative process is taking place over time, between those seeking to put policy into effect and those upon whom action depends" (1981, p 25).

Like Palumbo and Calista, and Barrett and Fudge, this thesis attempts to understand implementation from both the top-down and the bottom-up perspectives. Both perspectives are valid, and taken together they contribute to a more thorough understanding of implementation.

History of Implementation Research

First Generation of Implementation Research

Implementation research emerged as a distinct sub-field of public policy analysis in the early 1970s. Its emergence as an independent area of research was prompted by the recognition that the implementation stage has an independent and often determining effect on policy outcomes. Whereas previous public policy analysis had concentrated on policy formulation as the most critical factor of policy success, implementation research was based on the new realization that even well formulated policies were subject to failure during the crucial implementation phase.

The first generation of implementation studies comprised predominantly descriptive case studies. These case studies typically consisted of detailed accounts of how single policies were carried out. The classic example of a first generation study, often heralded as the study that pioneered implementation research, is Pressman and Wildavsky's *Implementation* (1973). *Implementation* reviewed the apparent failure in Oakland, in the late 1960s, of a large USA federal job creation policy. Pressman and Wildavsky's study was typical of first generation implementation research in that it was highly descriptive, entirely case-specific, and assumed a top-down approach.

The top-down approach characteristic of first generation implementation research has also been called the policy-centered approach and the policy-makers perspective since it

"assumes that policy is formulated at the top, this then being translated into instructions for those who will implement the policy at the bottom" (Younis 1990, p 5). In other words, the top-down approach begins its analysis with a defined policy decision made by (usually central) government officials. From this starting point, the top-down approach then asks: 1) to what extent the policy objectives are obtained over time and 2) what are the principal factors affecting policy outputs and impacts (Sabatier 1986). The top-down approach emphasizes traditional hierarchical lines of control, and correspondingly de-emphasizes the agency of field-level policy implementers and target groups.

The end of first generation implementation research was heralded by increasing criticism of the top-down approach. First generation studies were criticized as being atheoretical, case-specific, non-cumulative and pessimistic (Goggin et al. 1990). Furthermore, the top-down approach was criticized for its inability to account for the growing evidence of policy modification and distortion by field level policy implementers and target groups (Goggin et al. 1990).

Many of the important insights provided by first generation implementation research remain relevant to this day. However, recognition of the limitations of the top-down approach sparked the advance of the bottom-up approach and the passing of implementation research into its second generation.

Second Generation of Implementation Research

The second generation of implementation research is characterized by two features. The first feature is the development of the bottom-up approach. The second feature is a focus on constructing theoretical frameworks that attempts to pull together the insights of the scattered case studies that characterize first generation implementation research.

In complete contrast to the top-down approach, the bottom-up approach adopts as its analytical focus the agency of individuals who constitute implementing bodies, street-level bureaucrats, and the targeted public (Younis 1990). In other words, the bottom-up approach examines difficulties in policy implementation encountered mainly at the street or field level. The approach is also called 'backward-mapping', because it focuses on the delivery point of policy services, whereas the top-down approach focuses on policy makers and policy formulation.

The bottom-up approach was pioneered by Weatherley and Lipsky's study entitled *Street–Level Bureaucrats and Institutional Innovation: Implementing Special Education Reform* (1977). This study looked at the implementation of a Massachusetts law requiring school districts to identify, assess, and make plans for children with special needs. The study found that the policy increased school official's paper burden and overall workload. As a direct result, personnel were forced to cut corners, ration resources, and define tasks in unforeseen ways in order to meet the new policy demands. Weatherley and Lipsky concluded that street-level bureaucrats are often forced to develop their own coping devices; and that these coping devices have the effect of simplifying and often distorting

the aims of policymakers. Weatherley and Lipsky thus recommend that policymakers should not seek complete control or absolute compliance. Rather, policy makers should capitalize on human resourcefulness, and should allow street-level implementers to use their professional experience to find feasible implementation strategies.

Another second generation implementation scholar who contributed to the theoretical development of the bottom-up approach was Eugene Bardach. His book entitled *The Implementation Game* (1977) developed a game framework which described implementation in the context of games, players, stakes, strategies, tactics, resources, rules of play, and communication. Bardach observed that implementation games are largely defensive, with actors being more concerned with what they might lose than what they might win. According to Bardach, policy implementation is usually regarded as a threat to established interests. This gives rise to a scenario of maneuvers and counter maneuvers by implicated actors. As a result, the written intention of policies is often delayed, diverted, dissipated, or outrightly modified during the implementation process (Bardach 1977).

According to Sabatier (1986), Hjern and Porter (1981) developed the most coherent methodology for conducting implementation research from a bottom-up perspective. The bottom-up approach of Hjern and Porter takes as its starting point the network of actors involved in service delivery and identifies the goals, strategies, activities, and contacts of these actors. It then uses these contacts to identify an ever-expanding network of local, regional, and then national actors involved in the implementation of the relevant policy or policies. This 'expanding network' approach allows Hjern and Porter (1981) to sweep

their analysis from a street-level or bottom-up perspective to a policy-maker or top-down perspective.

The bottom-up approach was criticized for a number of reasons, but its most fundamental limitation is considered to be its lack of explicit theory. Because it starts with the perceptions and opinions of street-level participants, the approach is incapable of recognizing factors which the participants do not themselves expressly recognize or identify. According to Sabatier (1986), Hjern and Porter (1981) suffer from the same limitations as proponents of grounded theory in that "their methodology is a useful starting point...but needs to be related via an explicit theory to social, economic, and legal factors which structure the perceptions, resources, and participation of actors" (Sabatier 1986, p 35).

As mentioned above, the other characteristic feature of second generation implementation studies was the development of analytical frameworks and models to guide research on implementation (Goggin et al. 1990).

The first framework model of implementation was developed by Van Meter and Van Horn in 1975. Van Meter and Van Horn identify seven factors as being key to the implementation of policy. These factors include: 1) policy standards and resources (funds), 2) support for policies in the political environment, 3) economic and social conditions, 4) characteristics of the implementing agencies, 5) communication within and among implementing agencies, 6) incentives to promote compliance, and 7) policy dispositions of implementing officials (Van Meter and Van Horn 1975). The Van Meter

and Van Horn model, while seen as a step in the right direction, is criticized for being based on "essentially amorphous categories rather than easily operationalized variables" and for "not identifying which variables are controlled by various actors and therefore unlikely to be of much use to policy practitioners" (Sabatier and Mazmanian 1981a, p 5).

Van Meter and Van Horn's framework was eclipsed by Sabatier and Mazmanian's *Framework of Analysis* (Sabatier and Mazmanian 1981a). Sabatier and Mazmanian's framework is a seminal work in implementation research, and it represents an attempt to create a comprehensive theoretical model by integrating the findings of numerous previous case studies. In the Introduction to their book *Effective Policy Implementation* (1981a), Mazmanian and Sabatier claim that the field of implementation research " is not cumulative...each (study) is focused on a narrow slice of the implementation process. As a result implementation studies has reached a plateau where we now know much about the missing link in numerous policy areas and programs, but little about how to generalize these findings.." (1981a, p xi). This state of affairs, they say, has given rise to their efforts to develop a general conceptual model of the implementation process that can be used to guide future research. Their intent, with regards to the *Framework of Analysis,* is to isolate and identify the macro-level variables that affect the implementation process.

Importantly, Sabatier and Mazmanian's framework identifies "the principal set of variables that can either assure or impede successful implementation, and the value each must take if a program is to be effectively implemented" (1981a, p xi). Sabatier and Mazmanian's framework is a very influential model that greatly impacted subsequent implementation research. The Sabatier - Mazmanian framework continues to be referred

to today as a seminal work of the field and is invariably on the reading list of public policy classes. It will be used to inform the research methodology and the analysis of the field research portion of this thesis. The Sabatier – Mazmanian framework will thus be discussed in greater detail later in this chapter.

Third Generation of Implementation Research

The third generation of implementation research is characterized by a movement away from the sharp dichotomization of top-down versus bottom-up approaches. Third generation implementation scholarship is tempered by the realization that while neither approach offers a complete and satisfactory explanation of implementation, both approaches have merit and contain important observations. Thus the third generation is comprised largely of attempts to synthesize, or at least render complementary, the two approaches. In 2000, O'Toole observed that "virtually all analysts have moved past the rather sterile top-down/ bottom-up dispute, and some helpful proposals for synthetic or contingent perspectives have been offered" (p 267).

In trying to connect top to bottom, third generation researchers generally propose new models as replacements of the older, second-generation models. The most influential third generation framework models are those proposed by Paul Sabatier (1986), and Soren Winter (1990).

Sabatier's 1986 framework model was the first attempt to combine top-down and bottom-up approaches. From the bottom-up philosophy, Sabatier incorporates the practice of

starting with a policy problem as opposed to a distinct law or policy. He adopts as well the bottom-up emphasis on understanding the perspectives and strategies of all major categories of actors, both public and private. Sabatier's framework then combines this bottom-up starting point with a top-down preoccupation for socio-economic conditions and legal instruments, and with a top-down preference for utilizing abstract theoretical models in an attempt to construct and test theory. Sabatier's 1986 framework model focuses on policy oriented learning, and thus highlights feedback loops which cause eventual policy change (Sabatier 1986).

Soren Winter's implementation model adds to implementation theory by "identifying the most promising theoretical elements that have contributed to our understanding of implementation – as well as a few variables that have received too little attention – all of which ought to be included as part of a more general theory of policy implementation" (1990, p 20). Like the Sabatier and Mazmanian model of 1981, this model explicitly identifies the key factors that Winter believes determine implementation outcome. According to Winter's model, the key factors that determine implementation outcome are: 1) the character of the policy formation process prior to the law or decision to be implemented, 2) organizational or inter-organizational implementation behavior, 3) street-level bureaucratic behavior, and 4) the response of target groups. Like the Sabatier and Mazmanian model, Winter's model will be used to inform the research methodology of this thesis. It also will be discussed in greater detail later in this chapter.

Goggin et al. contend that the unique trait of third generation research is its research design (1990, p 19). As opposed to previous generations of implementation research, the

third generation used explicit theoretical models. The third generation was also characterized by an exhaustive search for reliable predictors and indicators of implementation success. According to Goggin et al., third generation research was distinct from previous generations of implementation research because it started with theoretically derived hypotheses, it analyzed data using appropriate qualitative and statistical procedures, and it provided case studies for testing them (Goggin et al., 1990).

Beyond the Third Generation: Still Relevant In the 21st Century?

After a wave of vigorous scholarly activity throughout the 1970s, 1980s, and early 1990s, implementation research has been largely abandoned. Most of the previously prominent voices have left this research area. The annual number of publications including the term "implementation" in their title has drastically decreased. Recently, even if a given study is substantially about implementation, scholars are calling it something else, such as regulatory enforcement, inter-governmental relations, or new institutionalist public policy research. The reasons behind the apparent abandonment of implementation research vary. Some scholars profess that implementation research has outlived its usefulness (Sabatier and Jenkins Smith 1993). Others, referring to the oft-repeated critique of lack of conceptual clarity, have moved on to the study of policy design (Ingram 1990). Still others have labeled implementation as an intellectual dead end and a literature lacking in any consensual theory (DeLeon 1997).

Today, there is a fundamental lack of consensus as to whether implementation studies as a distinct branch of policy studies should continue to be pursued. Lester and Goggin (1990) classify contemporary opinion on the subject into four categories represented by various researchers. The four categories are 'Reformers', 'Testers', 'Skeptics', and 'Terminators'. Reformers believe that implementation research should continue, but with modified conceptual and/or methodological approaches. Testers believe that implementation research should continue to be studied using the conceptual and methodological approaches of the past. Skeptics are quite negative about the continuation of the study of implementation as it is currently being conducted, and see no need to pursue implementation unless significant changes are made. Terminators want to discontinue implementation research altogether, arguing that this part of the policy cycle should be analyzed from an entirely different perspective (Lester and Goggin 1990).

Lester and Goggin themselves seem to be optimistic 'Reformers'. They concur that implementation research has not created a theoretical breakthrough or a common analytical framework, and that it suffers from 'too many variables' syndrome. However, they maintain that implementation research overall has increased understanding of the complexities of putting policies into place and of the barriers to policy achievement. They maintain also that policy implementation continues to hold much practical interest for policymakers because implementation remains a major stumbling block in the policy process. They argue therefore for the return of scholarly efforts to implementation research, and for a renewed devotion towards a modern theoretical breakthrough (Lester and Goggin 1990).

I contend that implementation research, past and future, is important; particularly because it has the potential to be distinctly relevant for environmental management. In the case of this thesis, the 'variables' and/or 'factors' identified by framework implementation models are very useful because they provide a summary of implementation experience against which the results of the Cuba case study can be compared.

Sabatier and Mazmanian's Policy Implementation Model

As stated previously, the Sabatier - Mazmanian model is considered to be a seminal work in implementation research. It is an important model because it integrates the findings and observations of a number of detailed implementation studies done over the course of the decade during which implementation research was at its peak – the 1970s. Their model, published in 1981, summarizes much of the previous work done in the field and in so doing, ushered implementation research into its next definitive phase.

The studies that inform the Sabatier - Mazmanian model were all undertaken in the United States by American researchers. The studies looked at implementation across a variety of sectors, ranging from education to urban planning, job creation, civil rights, environmental quality, and health services. Furthermore, the studies focused almost exclusively on traditional regulatory policies in which government agencies sought to alter or modify the behavior of target groups (Sabatier and Mazmanian 1981a). The Sabatier - Mazmanian model, therefore, has a specific context. In terms of place, it is context specific to the United States of America. In terms of time, it is specific to the late

1960s and early 1970s. While not specific to a certain sector of policy, it is specific to policies that are regulatory in nature.

The Sabatier - Mazmanian model identifies a list of independent variables considered to either assure or impede successful implementation. The model is thus important to this thesis because it provides a comprehensive and detailed list of variables that have, in the past, exerted an important influence on implementation success within a specific context. The list of variables provided by Sabatier and Mazmanian can be compared against variables determined to be influential in other implementation contexts. The degree of similarity (or divergence) between variables should give an indication of how the different contexts influence the implementation process. As the visual diagram of the model shows, Sabatier and Mazmanian group their variables into three categories: 1) those related to the nature of the problem that the policy addresses, 2) those related to the construction and attributes of the policy itself, and 3) those related to the surroundings and/or setting in which the policy will be promulgated.

In the following paragraphs, the Sabatier – Mazmanian model is explained in greater detail and each category of variables is discussed. In particular, I focus on those variables that are related to the external characteristics of the policy setting. I only briefly describe the variables related to the tractability of the policy problem and the variables related to policy formation. Only variables related to external setting are of interest to this study, given this study's concern with the influence of political economy on sustainable environmental management. Furthermore, only variables related to external setting will be used as a basis of comparison for the results of the Cuba case study.

'Tractability of the Problem' Variables

The first grouping of independent variables comprises those related to the nature or "tractability" of the problem that the policy addresses. In brief, this grouping of variables refers to Sabatier and Mazmanian's observation that a policy becomes more difficult to implement in the absence of a ***valid causal theory*** and/or in the absence of adequate technology. Such policies are often beset with controversy over the underlying science.

Policy-Specific Variables

The second grouping of independent variables comprises those related specifically to the crafting of the policy itself. I agree with Sabatier and Mazmanian that the first two of these variables (clear and consistent objectives, and incorporation of adequate causal theory) are clearly related to the crafting of policy. However the last five variables listed in this group (financial resources, hierarchical integration with and among implementing agencies, decision rules of implementing agencies, commitment of implementing official, and formal access by outsiders) are arguably connected to external characteristics of the policy setting. I will thus describe Sabatier and Mazmanian's interpretation of these variables in greater detail.

According to Sabatier and Mazmanian, a policy will achieve a greater deal of implementation success if ***adequate financial resources are available to the implementing agency***. Sabatier and Mazmanian have observed that a "threshold level of

funding is necessary for there to be any possibility of achieving statutory objectives, and the level of funding above this threshold is...proportional to the probability of achieving those objectives" (1981a, p 11).

Sabatier and Mazmanian also focus on the importance of ***hierarchical integration with and among implementing agencies***. They claim that one of the principal obstacles to policy implementation is the difficulty of achieving coordinated action within and between agencies. The problem, they state, is particularly acute when federal bodies rely on regional and/or local bodies to carry out the everyday functions of policy implementation; and when numerous semiautonomous bureaucracies are involved in the implementation effort. As a result, the probable success of a policy is often inversely related to the number of veto points. Veto points are "those occasions in which an actor has the capacity to impede the achievement of statutory objectives" (Sabatier and Mazmanian 1981a, p 12). The greater the number of veto points, the greater the chance that policy implementation will be delayed and/or completely derailed.

Sabatier and Mazmanian observe that a policy's chances of success are improved when the formal ***decision-rules of the implementing agencies are stipulated*** and when the task of policy implementation is placed in the hands of ***implementing agencies that are strongly committed to the achievement*** of the policy objectives. Policies require implementers "who are not merely neutral but sufficiently persistent to develop new regulations and operating procedures, and to enforce them in the face of resistance" (Sabatier and Mazmanian 1981a, p 13). Thus, it is desirable to assign responsibility for implementation to agencies whose existing policy orientation is compatible with the new

policy, and/or to agencies that will place high priority on the new policy. These characteristics are most likely "when a new agency is created specifically to administer the statute" or when implementation is assigned to "a prestigious existing agency that perceives the new mandate to be compatible with its traditional orientation" (Sabatier and Mazmanian 1981a, p 13). In summary, then, the implementing agency must be open-minded to the new policy as well as keen to implement it.

The final variable in this grouping is the ***participation in implementation decisions by outsiders***. According to Sabatier and Mazmanian, statutes that make it easy for target group participation (in judicial reviews or as interveners in implementing agency proceedings, for example) are more likely to have their objectives attained.

Non-Statutory Exogenous Variables

The third and final group of independent variables listed by Sabatier and Mazmanian are those that they consider to be external or exogenous to the policy. In other words, these variables represent external characteristics of the setting in which the policy is being promulgated.

According to Sabatier and Mazmanian, the implementation of a policy will often be negatively affected by ***variations in socio-economic conditions***, such as those over time and between jurisdictions. Regardless of the initial momentum bolstering a policy, it is inevitable that competing concerns will arise over time. The relative importance of the first policy will thus be perceived less acutely. Shifts in popular attention towards

competing socioeconomic issues are likely to "diminish political support for allocating scarce resources to the original statute (Sabatier and Mazmanian 1981a, p 16). In addition to variations over time, socioeconomic variations across regions necessitate that a degree of local discretion be accorded to local implementing bodies. According to Sabatier and Mazmanian, an increase in local discretion also decreases the consistency of compliance with the original policy objectives.

Sabatier and Mazmanian have also observed that the ***amount and persistence of media attention*** to a policy problem has a strong impact on ***popular support*** for a policy, and thus on its chances of success. The nature of this impact can either help or hinder successful implementation. For example, media attention that is favorable towards a policy has the unique ability to bolster popular support and thus increase policy implementation compliance. Critical media attention can have the opposite effect.

A third independent variable listed in this category of the Sabatier – Mazmanian model relates to the *attitudes and resources of target groups*. According to Sabatier and Mazmanian, policy implementation is adversely affected when the beneficiaries of behavior change are less powerful and less organized than the group targeted for behavior change. In other words, "the opponents of the mandated change (often) have the resources and incentives to intervene actively in the implementation process" (1981a, p 18). Their resources and expertise may enable them to appeal to judicial courts, to the implementing agency, and/or to public opinion. These opponents of mandated change have a vested interest in persisting with their opposition, and are often willing and able to mount pervasive and persuasive campaigns in their favor. As a result, "it has long been

noted...that an unbalanced political environment necessitates some accommodation with the interests of the target group and thus less departure from the status quo than originally envisaged..." (Sabatier and Mazmanian 1981a, p 18).

Another exogenous independent variable listed by Sabatier and Mazmanian is the ***support of sovereigns*** of implementing institutions. The sovereign of an implementing agency is, according to Sabatier and Mazmanian, an institution with power over the agency's legal and/or financial resources. This variable is most relevant in situations where the implementing agency is responsible to multiple sovereigns who provide conflicting directives. In such situations, state Sabatier and Mazmanian, the implementing agency will "ultimately lean toward the directives of the sovereign who will most affect its legal and financial resources over time" (1981a, p 18). In other words, the primary loyalty of any agency (implementing or otherwise) is towards the body with most control over its vital resources. Ultimately, then, the sovereign body has enormous control over the implementation process.

The final exogenous variable listed by Sabatier and Mazmanian is the ***commitment of agency officials*** to the realization of the policy objectives. The commitment of agency officials is itself a function of many circumstances, including skill, professional norms, personal values, and agency political culture. As mentioned earlier in the policy-specific variables, again Sabatier and Mazmanian stress that the probability of successful implementation is highest "in a new agency with high visibility that was created after an intense political campaign" (1981a, p 20).

Soren Winter's Implementation Model

Soren Winter's implementation model, constructed nine years after the Sabatier - Mazmanian model, takes a similar approach in that it identifies key factors that determine implementation outcome. Winter's model is an important contribution to implementation theory because, unlike the Sabatier-Mazmanian model, Winter explicitly attempts to overcome the top-down versus bottom-up dichotomization that characterized earlier research. Thus, Winter's model attempts to integrate the top-down and bottom-up approaches to implementation research. In comparison with the Sabatier-Mazmanian model, Winter's also has the added advantage of being younger and thus able to incorporate advances made in the field after the older model was published. According to Winter, his model "approaches accumulation in implementation theory by identifying the most promising theoretical elements that have contributed to our understanding..." (Winter 1990, p 20). Winter's model, therefore, represents a greater wealth or accumulation of implementation research.

It should be noted also that Soren Winter is a Danish scholar and the majority of his personal research into the implementation process has been in the Danish context. Furthermore, his model draws on a combination of American and Western European implementation scholarship. In comparison to the Sabatier - Mazmanian's model, the Winter model thus incorporates implementation experiences from a broader geographical scope.

According to Winter, the key factors affecting implementation can be grouped into four broad categories, which are; 1) the character of the policy formation process prior to the law or decision to be implemented, 2) the behaviour within and among implementation agencies, 3) the behavior of street-level bureaucrats, and 4) the response of target groups. In the following sections, each category of factors will be elaborated and explained. As with the Sabatier and Mazmanian model, I focus on those variables that are related to the external characteristics of the policy setting. Thus, I do not focus on factors listed under 'Policy Formation Process' or on the 'Results'. Instead, I focus on those variables listed by Winter in the box titled 'Implementation Process'.

The Implementation Process

Winter's model hypothesizes that implementation outputs and outcomes are influenced by three factors particular to the implementation process. The first of these factors is the ***behavior among and between implementing agencies.***

'Behavior among and between implementing agencies' takes bureaucratic organizations as its level of analysis. This demonstrates Winter's recognition that many implementation studies (including Palumbo and Calista 1990 and Lester et al. 1987) focus almost exclusively on institutional interests and institutional conflicts as the central variables explaining implementation outcome. Like Palumbo and Calista and Lester et al., Winter pragmatically recognizes that policy implementation requires the participation of one or more organizations, which may be either public or private. Because the institutional interests of organizations are not always in accordance with the policy

objectives in question, organizations may give priority to goals that actually conflict with the policy. Drawing on the work of Bardach (1977), Winter describes the institutional interests of bureaucracies: "Bureaucracies have interests of their own to protect...they seek their own survival and growth, are reluctant to abandon traditions and routines, are attached to previously established programs, and have loyalty to traditional coalition partners" (Winter 1990, p 27). In essence, Winter projects that implementation failures are more likely if implementation requires the participation of organizations whose institutional interests and incentives are in conflict with the policy goals.

Winter identifies the ***behavior of street-level bureaucrats*** as another important factor affecting the implementation process. By including this street-level analysis, Winter counterbalances his earlier organizational level of analysis and implicitly incorporates a bottom-up perspective. Essentially, Winter stipulates that individual actors are an important level of analysis because individuals working within organizations don't always honor organizational interests in doing their work. In fact, individual field workers are often motivated by interests other than institutional ones (1990, p 30). In explaining the impact of this factor, Winter draws heavily on Michael Lipsky's (1978) study, which was the first to treat street–level bureaucrats as the real policymakers. Winter refers to Lipsky's assertions that 1) laws and programs are nothing but statements and have no social existence until they are translated into action aimed at delivering services or regulating behavior, and 2) most programs require street-level bureaucrats to perform delivery or control functions. It follows, therefore, that street-level bureaucrats are extremely influential in the implementation process.

Winter asserts that street-level behavior is highly influenced by resources including human, financial, and time. Quoting Weatherley and Lipsky, Winter points out that street-level bureaucrats "fairly universally...feel that their resources are chronically and seriously insufficient to meet the demands placed on them" (Weatherley and Lipsky 1977, p 31). Typically, street-level bureaucrats respond to resource insufficiencies by employing both conscious and subconscious coping strategies. Coping strategies include approaches such as deliberately limiting information about available services, making clients wait, making access to services difficult, and concentrating on a limited number of select clients. As expounded by Winter, street-level bureaucrats tend to give priority to easy, programmed, routine cases at the expense of more complicated, non-programmed, and time consuming cases. As well, street-level bureaucrats give higher priority to cases where the client is demanding a decision than to cases involving preventive action, reaching out, or follow-up activities (Winter 1990).

According to Winter, the coping strategies employed by street-level bureaucrats constitute an important behavior that affects implementation in a systematic and predictable way. "Such coping strategies are so common ...that the implementation of policy programs is distorted in a systematic way. Various studies have demonstrated that these strategies are employed by very different professions within very different policy programs" (Winter 1990, p 32).

And yet, Winter has observed that the street-level explanation is too narrow to fully explain implementation on its own. Thus he has incorporated ***target group behavior*** as a third factor that is critical to the implementation process. Target groups are major actors

in the implementation process, he asserts, because target group behavior constitutes the primary focus of most policies.

In explaining how target group behavior influences implementation, Winter points to Sabatier and Mazmanian's assertion that the probability of implementation failure increases with the amount of behavioral modification required (Sabatier and Mazmanian 1981a). Furthermore, the amount of behavioral modification required is a function of both the number of people in the target group and the degree of change required of them. "As a general rule, the successful implementation of a statute is more likely when its prescriptions are in accord with already existing target group behaviors and norms" (Winter 1990, p 34).

Winter also points to the importance of communication and education in influencing target group responses to policy mandates, particularly in cases where a considerable portion of the statutes and rights are not known to the target group (Winter 1990, p 34).

Also according to Winter, target group behavior is somewhat conditioned by whether the policy aims at regulation or service provision. Service oriented policies are more likely to enjoy goal attainment than regulatory policies because target groups can expect to receive greater benefits. In contrast, compliance with policy regulations often involves considerable target group costs and/or sacrifices that will impede compliance (Winter 1990, p 35).

Comparison of Sabatier - Mazmanian and Winter Models

Overall, the Sabatier - Mazmanian model and the Winter model have a great deal in common. Fundamentally, they view implementation from the same perspective; that is, as a process that is helped or hindered by a host of different variables. They both clearly differentiate between variables particular to policy construction and those that refer to the external environment in which the policy is to be promulgated. In terms of context, both models represent implementation experience in the modern Western world. Even in the variables identified by each model, there is a considerable amount of overlap. While there are differences in vocabulary, priority, and nuance, substantively the models depend on a very similar list of variables. Part of the overlap is undoubtedly due to the fact that the Winter model draws to a certain extent on the Sabatier-Mazmanian model. The models discuss many of the same variables. In some instances, as with the variable entitled 'Causal Theory' in both models, there is a direct corollary. In many other cases the overlap exists but is indirect. In other words, both models often make the same argument, yet the argument is worded or organized differently within each model. In only a few cases, one model lists a variable that is not treated at all by the other model.

For example, the Sabatier-Mazmanian variables referred to as 'veto points', 'decision rules of implementing agencies', and 'media attention' are not discussed within the Winter model. This is consistent with Sabatier and Mazmanian's preference for the top-down approach. Overall, their analysis takes a more heavily institutional perspective. Winter, in contrast, balances his institutional analysis by providing equal focus on street-

level and target group behavior. Winter also places more emphasis on the roles of individuals during the policy formation phase.

Overall, the models are more similar than they are different. Taken together, they provide a basis against which the results of the Cuba case study can be compared.

Relevance of Both Models to Data Collection and Analysis

Both of the models described above depend on the same fundamental operating assumption: that implementation is a process that is helped or hindered by a number of independent variables. This study shares that fundamental assumption. Based on this assumption, the Cuba case study aims to establish a list of independent external variables that are helping and/or hindering the implementation of Cuban Law 81.

Both the Sabatier - Mazmanian and Winter models make a distinction between variables which are external (or exogenous) to a policy, and those which are specific to the policy problem and/or the construction of the policy itself. For the purposes of this study, only external variables will be considered. External variables are the focus of this study because this study sets out to understand how systemic political and economic structures influence policy implementation.

In terms of the Sabatier - Mazmanian model, this study is concerned only with the eleven variables that are related to the external characteristics of the policy setting. These variables are: 1) financial resources, 2) hierarchical integration with and among

implementing agencies, 3) decision rules of implementing agencies, 4) commitment of implementing officials, 5) formal access by outsiders, 6) socioeconomic conditions, 7) media attention to the problem, 8) public opinion and public support, 9) attitudes and resources of target groups, 10) support from sovereigns, and 11) commitment and leadership skills of implementing officials. In terms of the Winter model, this study is concerned only with the three external variables that fall under 'Implementation Process' (as opposed to those which fall under 'Policy Formation Process'). These variables are: 1) organizational and inter-organizational behavior, 2) street-level bureaucratic behavior, and 3) target group behavior. As discussed in Chapter Eight, these are the variables that will be compared against the results of the Cuba case study.

Winter's emphasis on incorporating top-down and bottom-up theory contains an important directive for data collection for the Cuba case study. Specifically, all effort will be made to collect data representing the perspectives of implementing agencies, street-level bureaucrats, and target groups.

Finally, the fact that both models represent the North American/West European implementation experience provides a base against which the Cuban implementation experience can be compared. As established above, the data to be collected is a list (with characterization) of independent variables deemed to help and/or hinder the implementation of Cuban Law 81. The data collected by the Cuba case study will be compared to those variables listed in the models. This comparison will demonstrate how different or similar is the Cuban implementation experience to that of North America and

Western Europe. From this, it is hoped that inferences can be made as to the influence of systemic political economic characteristics on sustainable environmental management.

In summary, then, the Sabatier-Mazmanian and Winter models provide a conceptual framework which informs the research methodology of this study, and against which the results of the Cuba case study can be compared.

Chapter Four
Cuba as a Testing Ground for Eco-Socialist Theory

Cuba – A Testing Ground for Eco-Socialist Theory

As discussed in Chapter Two, eco-socialist theory posits that 'socialist' political economies are inherently better structured to achieve sustainable environmental management. It makes sense, therefore, that eco-socialist theories are best tested in societies that more closely exhibit the 'socialist' ideal. In other words, eco-socialist theories are best tested in societies that possess a large number of the systemic characteristics that eco-socialists identify as being inherently compatible with sustainable environmental management.

I recognize the difficulty of identifying an actually existing political arrangement as a socialist political economy. It can be argued that no existing nations qualify as pure 'socialisms'. I think it is intellectually more honest to envision nations as placed along a spectrum (ranging from ideologically 'pure' capitalism to ideologically 'pure' socialism) in accordance with their individual mix of political economic characteristics. Given this image of a spectrum, Cuba is a nation that inhabits, comparatively, a socialist position on the spectrum. Cuba's political economy exhibits a number of the systemic characteristics that eco-socialists identify as being inherently compatible with sustainable environmental management. Thus I have chosen Cuba as the location of the research on which this thesis is based.

Table 2, on page 30 of this study, is a summary of systemic characteristics identified by eco-socialists as being compatible with sustainable environmental management. These systemic characteristics include: 1) an oligarchic government with the power to enforce regulations, 2) the presence of environmental expertise within governments, 3) public ownership of natural resources and public ownership of the means of production, planning, and rationing, 4) establishment of use-values which more accurately reflect nature's intrinsic value through expanded utilization time of commodities and energy supplied by renewables, 5) socio-cultural morality which emphasizes volunteerism, solidarity, public good, and self sacrifice, 6) enhanced regulation and enforcement, and 7) central planning. In the following paragraphs, I will demonstrate the Cuba exhibits many of these characteristics.

Cuba – An Oligarchic Form of Government

According to Webster's Dictionary, an oligarchy is a form of government in which supreme power is placed in the hands of a few persons. In other words, power in an oligarchic government is concentrated at the top. The Cuban political situation since 1959 can accurately be called an oligarchy because political and economic power is concentrated in two elite areas: the Central Committee of the Cuba Communist Party (PCC), and the Council of Ministers of the National Assembly. In reality, the actual number of individuals represented by these two groups is limited because there is almost complete overlap between both the PCC and the National Assembly. According to Houck, "some ninety percent of assembly delegates are Party members, as are all or

nearly all high government officials" (2000, p 11). Furthermore, both the PCC and the National Assembly are dominated by one man who has been the political leader of Cuba for the past 45 years. Fidel Castro Ruz is the President of the National Assembly, the President of the Council of Ministers, the Chairman of the Council of State, the Commander-in-Chief of the Revolutionary Armed Forces (FAR), and the First Secretary of the PCC. Castro, along with a handful of others (including Castro's brother General Raul Castro Ruz who is the First Vice President of the Council of Ministers) retains ultimate political and economic authority in Cuba.

The realpolitik functioning of the National Assembly demonstrates how a few political elite exercise ultimate authority. The National Assembly is the supreme body of state power and the only constitutional and legislative authority of the republic (Garcia Brigos 2001). The National Assembly is the body legally empowered by the Constitution to debate and pass legislation. In addition to passing laws, it approves the national economic plan and budget developed by the Council of State between sessions; it controls and monitors the National Government ministries and state organs; and it supervises the municipal and provincial assemblies (Roman 1999). The National Assembly has biannual plenary sessions that are approximately two days in length. During the sessions, legislative proposals prepared between sessions by the Council of State are presented for ratification by the general chamber. Historically, there has been a lack of debate and critical contributions on the part of the deputies during the plenary sessions. According to Roman, "due to time constraints they (the deputies) are discouraged from intervening at length in the debate (the exception being Castro), and there is not enough time for serious discussion to be able to understand and modify legislation" (1999, p 84). "There is an

underlying apprehension of contradicting, questioning, or demanding responses from Castro, or of continuing to state a view to which the leadership objects" (Roman 1999, p 86). This observation is echoed by Reed, who described the Assembly as "given over to pronouncements rather than debate" (1992, p 114). In the words of one assembly delegate to the 4th Party Congress, "...we vote mechanically, even on the national budget...we have the tendency to pass legislation simply as a vote of confidence in the commission that drafted it" (Reed 1992, p 115).

The Council of State, which prepares the legislative proposals between sessions, has 31 seats. High-ranking PCC officials have historically occupied all of these seats. Fidel Castro, who has been president of the Council of State since the office was created, has the power to nominate candidates for the remaining thirty seats. Historically, Castro's nominees for these remaining thirty seats have been ratified by unanimous or near-unanimous vote. Among the top PCC members elected to the Council of State, Raúl Castro (Fidel's brother) customarily occupies the first vice presidency.

By controlling the Council of State, Castro and his closest advisors also dominate the National Assembly. Ultimately, then, these few people preside over the National Assembly's constitutionally mandated functions: to pass laws, approve national plans and budgets, control ministries and state organs; and supervise municipal and provincial assemblies. Arguably, therefore, the Cuban government functions as an oligarchy. While many Cubans would deny this statement, and while the oligarchic nature of the Cuba government remains hotly debated and contested both within and without Cuba, for the sake of this analysis I take the view that it is currently functioning as an oligarchy.

Cuba – Environmental Expertise Within Government

In terms of general education, Cuba's achievements compare favorably with the world's developed nations. Literacy rates, net primary enrollment, and public spending on education are much higher in Cuba than in most other Latin American and Caribbean countries (Mina 1987).

Given its solid base in general education, it is not surprising that Cuba is a nation of considerable scientific and environmental expertise. The University of Havana, for example, has trained natural scientists from Caribbean and Latin American countries for over a century (UNEP 1988). Between 1980 and 1984, the University of Havana graduated more than 95,000 professionals in science and technology (UNEP 1988). Furthermore, Cuba has a history of environmental study that dates back to the 19th century. Extensive surveys of Cuba's biological resources were conducted at the turn of the century by Cuban and American scientists. Until the 1960s, Harvard University maintained a Botanic Station at Cienfuegos which contained the largest living collection of tropical plants in the western hemisphere and was a leading center of tropical biology (Houck 2000).

Since the Revolution, natural and applied sciences have been held in particularly high regard and tend to be stressed in comparison to the potentially more controversial social sciences. In 1962, the Cuban Academy of Sciences was formed and it, in turn, instigated the establishment of numerous scientific institutions and societies. It has recently been

estimated that while Cuba contains only two per cent of the population of Latin America, it has eleven per cent of Latin America's scientists (Bourque 1999).

Given the public nature of the Cuban system, all of this scientific expertise resides within governmental structures. Throughout the country, the government supports over 200 scientific institutions (including research and field units), at which approximately 30,000 staff are employed (Vales Garcia 1999; Garrido Vasquez 1999). Furthermore, scientists and scientific institutions tend to hold high rank and exert considerable influence within the Cuban government.

Of the 200 scientific institutions, approximately half deal on some level with environmental issues (Vales Garcia 1999). The Cuban government thus contains a great deal of environmental expertise.

Cuba – Public Ownership and Centralized Management of Natural Resources and Means of Production

Since the Cuban Revolution of 1959, Cuba's economy has been socialist in the sense that land and means of production are publicly owned and centrally managed by a single Party and a bureaucracy that claims to represent the volition of the wider populace.

Cuba is considered to be one of the most state-sector dominated countries ever in the world, including the Soviet Union and China (Brundenius 2002). Following the Cuban Revolution of 1959, land and other means of production were progressively nationalized

through a series of policy initiatives. Via the Agrarian Reform Law of 1959, the Urban Reform Law of 1960, and the second Agrarian Reform Law of 1963, the Castro government nationalized all the significant means of production, including large agricultural estates, sugar mills, rice and sugar refineries, industrial and mining firms, and commercial and private urban properties (Brundenius 2002).

The socialist nature of the Cuban economy was firmly established in Article 14 of the Cuban Constitution of 1976, which states; "The Republic of Cuba rules by the socialist system of economy, based on the people's socialist ownership of the means of production and on the abolition of the exploitation of man by man" (OAS 1983). Article 15 of the same Constitution provides a detailed list of items considered to be state properties. "The socialist state property, which is the property of the entire people, becomes irreversibly established over the lands that do not belong to small farmers or cooperatives formed by the same; over the subsoil, mines, the natural and live resources in the marine area..., woods, water, means of communication; over the sugar mills, factories, chief means of transportation; and over all those enterprises, banks, installations and properties nationalized and expropriated from the imperialists, the landholders and the bourgeoisies; as well as over the people's farms, factories, enterprises and economic, social cultural and sports facilities..." (OAS 1983).

Thus according to this Constitution, the state and the "entire people" own not only all production goods and services, but also the majority of the nation's land and natural resources.

In the few circumstances where private ownership is permitted, the central state retains a great degree of management control. For example, farms smaller than 67 hectares and farming cooperatives are not considered to be state property. Articles 20, 21, and 24 of the 1976 Constitution recognize the ownership of small farmers of their lands and other means and instruments of production. However this ownership is conditioned by the obligation of the farmer to integrate into the national agricultural plan established by the State and to sell a part of his harvest to the State at state-determined prices (OAS 1983). Likewise, ownership of private housing is also recognized by the 1976 Constitution. Article 22 "guarantees the right to personal ownership...of the dwelling to which one has legal title..." (OAS 1983). However, such privately owned housing may not be rented, mortgaged, or encumbered and may be inherited only by an heir who does not own housing (OAS 1983). Thus even in cases where the socialist state does not claim ownership, it still maintains a great deal of control over the economic use of 'private' property, to the point where production resulting from private property is also incorporated into central state planning.

The declaration of the Special Period in 1989 brought some changes to the balance of public and private economic activity. In 1992, three years after the Special Period was declared, the Cuban National Assembly amended the Constitution in order to court potential foreign investors. A new article was added to the Constitution recognizing 'the ownership of property by joint ventures, corporations and associations established in accordance with domestic law' and a second article was modified to clarify that the 'socialist ownership of production' was limited to the 'fundamental' means of production (Perez-Lopez 1997). The Foreign Investment Law of 1995 codified the permission of

foreign investors to participate in industrial and tourism joint ventures with the Cuban state as partner. Foreign investors were permitted to own up to 49% of the firm's assets (Brundenius 2002). However, a foreign company was not permitted to own land, instead land would be leased to the company by the Cuban state.

In 1994, it was made legal to exercise some professions on an individual self-employed basis (" a cuenta propria"). Registered self-employment, however, is managed quite strictly by the State. It is not legal, for example, for these ventures to hire employees. Furthermore, self-employment is subjected to very high rates of taxation (Valdez Paz 2001).

Since the 1959 Revolution, Cuba has maintained a centralized planning system. The state performs a central overseeing role, and resource allocation is done bureaucratically. Central planning is based on five-year plans, which are in a very general sense mapped out at the Communist Party of Cuba Congresses that are convened once every five years. The PCC held party congresses in 1975 (1st Congress), 1980 (2nd Congress), 1986 (3rd Congress), 1991 (4th Congress), and 1997 (5th Congress). The congresses, typically lasting one to two weeks in length, are large gatherings of hundreds of delegates from all sectors of the PCC, as well as the top party leadership. The Congresses serve largely as a forum for the introduction of new initiatives proposed by the PCC leadership (Brundenius 2002). The general chamber of the Congress does not formulate policy; rather, its main historic function has been to ratify those plans and initiatives that were formulated in advance by the PCC leadership and associated working groups. There has not been a Party Congress since 1997. Since this last Congress, policy decisions have been

formulated in annual plans in relation to the preparation of the government annual budget (Brundenius 2002).

While broad policy directives are determined by the PCC and ratified at the Congresses, the more specific details of economic planning are overseen by the Ministry of Economy and Planning in accordance with the System for Directing and Planning the Economy (Sistema de Direccion y Planificacion de la Economia or SPDE). Government planners draw up detailed annual plans for areas including imports, exports, investments, and domestic production.(Diaz Briquets and Perez-Lopez 1998). Municipalities and Provinces are strictly subordinated to the central planning system (Alfonso 2001).

In summary, well-founded debates will continue to dispute whether or not Cuba is a 'socialist' nation. While the current Cuban system may not reflect all that is incorporated in the theoretical definition of socialism, it is nonetheless accurate to say that relative to other countries in the world, Cuba's political economy represents a unique working example of public ownership and centralized management of both the means of production and of natural resources.

Cuba – Expanded Utilization Time of Commodities

While integrated within the CMEA, Cuba was able to import many commodities from its socialist trading partners. The collapse of the socialist trading bloc, added to the already existing American embargo, engendered a situation of acute material scarcity. Cuba lost 80% of its foreign exchange receipts and the living standards of all Cubans sharply

declined (Reed 1992, Rosset and Benjamin 1994). Many previously available products became unobtainable in Cuba. As a result, Cubans were left with little options apart from reducing, re-using, and recycling. As a nation, Cubans have become adept at the art of subsistence recycling; that is, re-using and recycling existing resources to meet daily needs (Brodine 1992).

Cuba – Energy Supplied by Renewable Resources

Due to a unique combination of economic constraint and scientific capacity, Cuba in the last decade has become a world leader in the development and application of environmentally friendly technologies including renewable energy generation and organic agriculture.

Previous to 1990, Cuba's energy needs were met almost entirely by oil imports from the Soviet Union. By 1992, however, the nation's oil imports had plunged from 13,000 tons to 6,000 tons per annum (Brodine 1992). Following the completion of a national inventory of domestic energy sources, the National Assembly approved in 1993 the 'Program to Develop Domestic Sources of Energy" (Programa de Desarrollo de las Fuentes Nacionales de Energia). The objective of this Program was to rapidly enact a strategy that would help Cuba deal with the sudden reduction of imported fossil fuels. In addition to enforcing strict energy conservation measures, the Program diverted precious resources towards the research and development of renewable forms of energy. Cuban scientists began experimenting extensively with sugarcane biogas, small-scale hydroelectric installations, windmills, and solar energy (Perez de Alejo Victoria 1999

Green Cuba). Government officials continue to view conservation, biomass, mini-hydro and solar energy generation not solely as emergency measures, but as permanent alterations in the country's energy production mix (Brodine 1992).

To a commendable extent, the diversion of funding towards renewable energy has paid off. In 1992, almost 30 percent of Cuba's energy supply originated from biomass. Of Cuba's 160 sugar mills, 104 were powered by their own bagasse, a by- product of sugar production. Waste fiber from the sugar milling process was also being used to make paper and other products. Small hydro projects provided electricity for some isolated mountain communities. The government had established a Solar Institute in Santiago de Cuba. The Institute has primarily been engaged in small-scale projects such as water heating. (Brodine 1992)

At the same time, Cuba embarked upon a nation-wide conversion from conventional modern agriculture to large-scale organic farming (Rosset and Benjamin 1994). Compelled by the sudden unavailability of pesticides and chemical fertilizers, Cuba's farmers and considerable scientific infrastructure worked together to unearth and revitalize indigenous organic technologies (Gersper et al. 1993). They developed indigenous, completely home-made biopesticides and biofertilizers, and combined these with traditional methods such as ecological pest control, large-scale earthworm rearing, green manuring, and waste composting (Gersper et al. 1993). The result has been the positioning of Cuba as a world leader in organic agriculture and associated biotechnologies. In other countries, such research and development is usually more costly than the conventional purchase and application of chemicals. However in Cuba, a

considerable scientific infrastructure combined with a lack of foreign exchange has made organic methods more feasible (Collis 1995).

Compared to other countries then, Cuba is relatively advanced in terms of research and practical application of environmentally friendly renewable technologies.

Cuba – Socio-Cultural Morality

The promotion of a socio-cultural morality emphasizing volunteerism and selflessness has been prominent within Cuban national dialogue and politics since at least the end of the nineteenth century. While it can't be claimed that Cubans are less selfish and more collectively minded than people of other nations, it can be said that the general Cuban consciousness has been inundated with appeals to develop this morality. It is also accurate to say that Cuban society, particularly since the 1959 Revolution, has successfully institutionalized mass activities whose accomplishment are dependent upon this ethic.

At the vanguard of this moral movement was Jose Marti, a popular Cuban hero and martyr who died in 1895 while fighting in Cuba's second war of independence. During his lifetime, Marti expounded on his belief that society must be based on reciprocated esteem for the security and happiness of fellow humans (Marti 1891). His ideas were appreciated and revived by revolutionary Cubans throughout the twentieth century. Marti's vision of a "moral Republic" informed many of the ideals articulated by the

leaders of the 1959 Revolution, in particular the ideals of popular solidarity and selfless motivation for the greater good of the collectivity.

During the early years of the Revolution, revolutionary leaders Che Guevara and Fidel Castro publicly developed the idea of reshaping Cuban society to create a 'new man' who would reflect Marti's ideals. Guevara praised the heroism displayed by Cubans in times of crisis, and hoped that these heroic attitudes of patriotism, self-sacrifice, and productivity would be perpetuated in everyday life (Guevara 1971). Castro wanted "coming generations to receive the legacy of a very different attitude toward life...totally devoid of selfish sentiments" (Castro 1953). The development of a Cuban "conciencia" (a deep rooted conviction in one's duty to society) became a primary goal of the Revolution (Rabkin 1990).

The promotion of public and collective values can be found in numerous aspects of Post-Revolutionary law. The application of these values to environmental protection is clearly mandated in at least two instances. Article 27 of the Cuban Constitution declares "it is the duty of the citizens to contribute to the protection of the water and the atmosphere, and to the conservation of the soil, flora, fauna, and all the rich potential of nature" (Cuban Constitution article 27). Likewise, Law 33 (ley De Proteccion Del Medio Ambiente y Del Uso Racional De Los Recursos Naturales) of 1981, stated as its goal a society "where the good of man is paramount, and where the social character of property facilitates environmental protection and the rational use of natural resources" (Houck 2000). In attempting to proactively craft the ideal citizen, Cuban law clearly recognizes

that the ideal citizen contributes to the general collective good by observing a respect for the nation's environmental integrity.

Throughout the 1960's, Cubans were exhorted to actively participate and volunteer in order to improve the nation both economically and socially. One of the most visible embodiments of this movement was the national literacy campaign of 1961 and 1962. Young urban students were mobilized to move to remote rural areas where they volunteered to labor by day, and teach reading and writing by night. The success of the literacy campaign, which reduced the country's illiteracy rate from 21% to 3.1%, provided early legitimacy to the vision of selflessness and volunteerism set forth by the revolutionary leadership (Contreras 1994).

A second example of a mass mobilization that rested on principles of volunteerism and selfsacrifice was the sugar harvest of 1970. Leading up to this harvest, the government called for the production of 10 million tons of sugar. The economic plan was to reinvest the earnings from this unprecedented large harvest into technical equipment that would allow Cuba to henceforth diversify its agricultural portfolio. Although a harvest of this size had never before been achieved, extra land was diverted to the crop and the government called for mass participation from all sectors of society. While the target of 10 million tons was not reached, hundreds of thousands volunteered in the effort and it is estimated that non-professionals harvested over 50% of the record breaking 8.5 million tons (Benjamin 1997).

Since the early 1960's, emphasis has been placed on moral incentives as motivation for productive work. The idea, as explained by Fidel Castro, is not to use money to entice productivity, but to create a society wherein workers feel a moral compunction to work for the collective good (Mina 1987). The moral incentives strategy was adopted officially in 1966. The strategy wavered throughout the 1970s and early 80s when central planners experimented with Soviet-style policies of material rewards to increase production (Contreras 1994). However by 1986, the leadership expressed a sense that material incentives had demoralized and undermined the dignity and energy of Cuban people (Contreras 1994). A campaign called the "rectification of errors and negative tendencies" curtailed the use of material incentives and revitalized volunteerism mainly through microbrigades (Mina 1987). Microbrigades, groups of student and urban volunteers, donated several weeks per year to state projects such as the construction of schools, day care centers, and housing.

In summary then, political literature, political rhetoric, and even officially promulgated legislation promote a Cuban ideal of a collective society and describe the voluntaristic 'new man' upon whose shoulders the collective society is built. One-time events such as the literacy campaign and the great sugar harvest, as well as lasting phenomenon such as microbrigades and the predominance of moral over material incentives for work, are concrete illustrations that a collective consciousness and a voluntaristic ethic go beyond political rhetoric and are actually quite firmly rooted in the rank and file of Cuban society.

Conclusions

As elaborated in Chapter Two, eco-socialists have identified and described a number of the structural preconditions that they portray as being compatible with sustainable environmental management. These preconditions include 1) an oligarchic form of government, 2) environmental expertise concentrated within government, 3) public ownership of the means of production and of natural resources, 4) expanded utilization time of commodities, 5) energy supplied by renewable resources, and 6) a voluntaristic socio-cultural morality. While it is decidedly not an eco-socialist utopia, Cuba is nevertheless a nation that (relative to other countries in the world) displays many of these systemic political and economic characteristics. It follows that if eco-socialist theories are correct, sustainable environmental management should be relatively easier to achieve in Cuba than it is in other countries. This makes Cuba a suitable and exciting setting for an investigation into environmental management and accordingly it has been selected as the locus of my study and the focus of my thesis.

Chapter Five
Cuba's Law 81 – The New Face of Environmental Management in Cuba

Policy Implementation: An Important Measure of Sustainable Environmental Management in Cuba

The goal of this study is to test eco-socialist theory in the context of Cuba. As demonstrated in previous chapters, the logic of eco-socialist theory suggests that the Cuban political economy is systemically more conducive (than the dominant neoliberal model) to achieving sustainable environmental management. Since the achievement of sustainable environmental management in a holistic sense is impossible to ascertain (especially within the limited scope of this thesis) I focus on one important component of sustainable environmental management: the implementation of environmental law. The implementation of environmental law is currently a very relevant and timely topic in Cuba.

The purpose of this chapter is to demonstrate that, in the current context of Cuba, the implementation of environmental policy is a strong indicator of the country's ability to achieve sustainable environmental management. In other words, environmental policy implementation is currently a strong proxy measure of sustainable environmental management in the Cuban context. This is true because of recent successful efforts to create and pass a comprehensive framework law that attempts to address, in one work, all of Cuba's environmental issues.

The question of policy implementation is a timely and relevant topic for Cuba at the moment because in 1997, Cuba passed a new framework environmental law that was widely considered to be progressive, far-reaching, and ambitious. Compared to previously existing environmental legislation, Law 81 was revolutionary in its scope and in the authority it invested in the implementing environmental agency, CITMA. On paper, Cuban Law 81 is regarded to be one of the most thorough and progressive framework environmental laws in the world. The law is described by one observer as "more ambitious in its goals and its details than any comparable legislation in the United States or Western Europe" (Houck 2000). The very progressiveness of Law 81 begs the question of whether or not the Law's written intentions are being translated into physical reality – in other words, whether or not it is being implemented.

The fieldwork portion of this thesis aims to identify and qualify those factors – both impeding and facilitating - that are proving to be the most influential to the implementation process of Cuban Law 81 – the Law of the Environment. It is important therefore to outline the scope as well as the historical context of the law. The following sections will describe, first, the current state of the Cuban environment, secondly, the historical context in which Law 81 was implemented, and thirdly, Law 81 itself.

State of the Cuban Environment

Cuba is the largest and most biologically diverse island of the Greater Antilles. It is an environment where "accidents of geography and development have concentrated rare life forms in pockets across the landscape, resulting in the highest rate of species endemism in

the hemisphere" (Houck 2002). 51% of Cuba's vascular plants, 90% of Cuba's palm species and more than 90% of Cuba's terrestrial vertebrates are endemic to the island (CITMA 2002). Cuba hosts more than a third the number of plant species, twelve times the number of mammal species, twenty-nine times the number of amphibians and reptiles, and thirty-nine times the number of bird species as the United States and Canada combined (Houck 2002). These high rates of species endemism and biodiversity are a function of the heterogeneity of the ecosystems that make up the island. Cuba is essentially a patchwork of complex and diverse ecosystems including coral reefs, wetlands, plains, mountains, cactus semi-desert, mangrove forests, virgin forest, and beaches (CITMA 2002).

According to Cuba's National Environmental Strategy (1997), soil degradation, water contamination, deforestation, and loss of biodiversity are the nation's four principal environmental problems.

Cuba's soils are being degraded mainly through erosion, salinization, and loss of plant cover. To be precise, 43.3% of Cuba's land territory is adversely affected by erosion, 14.9% is adversely affected by salinization, and 7.7% is adversely affected by serious loss of plant cover (Cuba GEO 2000). Cuba's potential for agricultural production is seriously compromised by the degraded state of much of the island's soil. In terms of agricultural potential, over 77% of the country's soils have been classified as 'non-productive', compared to 17.8% which are 'productive' and only 5.4% which are 'extremely productive' (Cuba GEO 2000). According to UNEP (2000), human activities including

the felling of trees, the expansion of sugar cane production, and the appropriation of lands for cattle grazing, are largely to blame for Cuba's soil degradation problem.

According to 'Rio + 10' , a document prepared by CITMA in advance of the Johannesburg World Summit on Sustainable Environment in 2002, most Cuban rivers and bays located in or adjacent to urban and industrial areas are heavily polluted (CITMA 2002). They are polluted largely by waste emanating from the agricultural, sugar, and food industries, as well as human sewage. The report estimates that close to sixty percent of industrial water contamination sources are entirely without treatment capacity. Furthermore, treatment equipment has fallen into grave disrepair at over half the industrial contamination sites which do have treatment capacity (CITMA 2002). In terms of urban domestic waste, the country has only five sewage treatment plants, all of which are described as of low capacity and low reliability. 'Rio + 10' estimates that only 25 – 28% of wastewater evacuated by the urban sewage systems receive treatment (CITMA 2002). On the bright side, 'Rio + 10' also notes that most sources of water contamination are organic in nature, and the pollution therefore could be remedied in the short term if the country had access to the proper equipment.

Deforestation is an environmental issue which has long been a focus of Fidel Castro's revolutionary government. As most Cuban environmental documents point out, forest cover at the time of the Revolution was 14%. Reforestation programs began immediately in 1959 but showed little progress. The 1987 Turquino Plan for reforestation was the impetus for improvement and by 2002, national forest cover has reached approximately 22% (CITMA 2002). Based on soil types, it is believed that the optimal amount of forest

cover for the country is 28% (CITMA 2002). It would seem, therefore, that the country is closing in on an optimal forest cover. However, there is concern about the survival rate of planted trees and about the lack of diversity of planted forests (CITMA 2002). Of additional concern are the broad ecological ramifications of high deforestation rates of two unique types of forest: mangroves and those associated with watersheds.

Mangrove forests are a particularly important ecosystem given their role in protecting and stabilizing coastal areas, and as a cradle for the reproduction of fish, crustaceans, mollusks, and birds. Mangrove forests cover almost 70% of the Cuban coastline, and it is estimated that between thirty to forty percent of these mangrove forests suffer from anthropological disturbances that could be avoided (Cuba GEO 2000). In addition to mangrove forests, forests that play an important role in stabilizing watershed systems are also of major concern to Cuban environmental scientists. In many of the country's important watersheds, including most famously the Cauto watershed in southwestern Cuba, rates of deforestation still exceed reforestation. The health of the entire watershed is endangered as a result (CITMA 2002).

Loss of biodiversity is also a serious environmental issue in Cuba. The 'National Study of Biological Diversity in Cuba' (1997) demonstrated that the richness of Cuban biodiversity, as expressed by high rates of species endemism (50% of vascular plants and 42% of fauna) has been compromised by extensive agricultural development in ecologically fragile areas. This has led to a situation in which 203 bird species found in Cuba (nine of which are endemic to Cuba) are considered threatened, 5 reptile species are classifies as critically endangered, and numerous plant species fall into the categories of

extinct and endangered (CITMA 2002). The 1997 'National Study of Biological Diversity in Cuba' led to the elaboration of a National Plan for the Conservation of Biological Diversity. This Plan has a number of objectives, notably to achieve conservation and sustainable use of biological diversity (CITMA 2002).

Overall, Cuba is an ecologically diverse and valuable country. The country's ecosystems are being challenged by anthropocentric intrusions which threaten primarily the integrity of the country's soils, water, forests, and biodiversity.

Environmental Management Preceding Law 81

The need for an environmental agency was first officially identified at the 1975 Communist Party Congress. One year later in 1976, Cuba established the Commission for the Protection of the Environment and the Conservation of Natural Resources (COMARNA). COMARNA was essentially an attempt at collective environmental management; it was an advisory body made up of representatives from a number of government ministries with environmental responsibilities. Thus eight ministries with primary responsibilities as disparate as public health, water supply, fisheries, and sugar all participated in this central mechanism through which all environmental matters passed. While COMARNA was demonstrably inclusive, it lacked independent authority and achieved few program results (Rey Santos 1999).

COMARNA was responsible for Law 33, an environmental law that Cuba adopted in 1981. Law 33 was a "mega-law" declared to be one of the most forward-looking

environmental statutes of its day (Houck 2000). Although hailed to be a law ahead of its time, Law 33 produced few results, a fact which is generally attributed to COMARNA's ineffective implementation mechanisms (Rey Santos 1999).

The 1992 World Environmental Summit in Rio de Janeiro appears to have been an important impetus for change. Cuba attended and responded very quickly and emphatically to Rio. At the Summit, Fidel Castro gave an impassioned speech about environment and development and before the end of that same year, the Cuban constitution was amended to include Article 27 (Rey Santos 2002). Article 27 of the Cuban Constitution expressly recognizes the necessity of a healthy environment for economic and socially sustainable development, and the importance of the environment in ensuring the survival, well-being, and security of current and future generations. It reads:

" The State protects the environment and Natural Resources of the country. It recognizes the close relation with economic and social sustainable development to make human life more rational and to ensure the survival, well-being and security of today and future generations. It is the duty of the appropriate bodies to implement this policy. It is the citizen's duty to contribute to the protection of water, atmosphere, conservation of soil, flora, fauna, and all the use of nature's potential".

After the 1992 Rio Sunnit, Cuba obtained assistance from the UN to launch a comprehensive environmental study whose objective was to diagnose Cuba's environmental problems and prospects (Houck 2000). This study served to further underline the fact that neither COMARNA nor Law #33 was capable of addressing

Cuba's increasing environmental problems and environmental ambitions. It became recognized that the collective management style of COMARNA needed to be replaced by one single agency with authority over environmental matters. Thus the functions of COMARNA and more than a dozen other bodies were consolidated in 1994 into a new Ministry of Science, Technology, and Environment (CITMA). Importantly, CITMA served to centralize responsibility for environmental policy design and implementation into one authority. Furthermore, CITMA was mandated to settle environmental issues and disagreements among agencies or to pass them on to a higher authority, the Council of State.

The significance of CITMA's mandate regarding other ministries is considerable and somewhat unprecedented. At the time of its creation, CITMA was added to a list of over twenty already existing ministries. Some of these, such as the Ministry of Fisheries, the Ministry of Sugar, and the Ministry of Agriculture, were long accustomed to having jurisdiction over their own natural resources. Others, such as the Ministry of Tourism and the Ministry of Foreign Investment, oversee activities upon which Cuba's economy depends. Still others, such as the Ministry of Economy and Planning and the Ministry of Finance and Taxation, have a degree of financial control over all of the other ministries, including CITMA. CITMA's mandates, from steering and controlling the implementation of regulatory programs, to managing agricultural and industrial waste practices, in effect authorize CITMA to meddle in the affairs of its more established sibling ministries (Houck 2000).

From the beginning, CITMA has been organized into two primary branches under a Deputy Minister for the Environment. The first branch is the Environmental Agency (*Agencia de Medio Ambiente),* which is responsible for the implementation of environmental laws. It is thus in charge of inspections, permits, environmental impact assessments, and the management of protected areas. The second branch of CITMA is the Environmental Policy Directorate, which is charged with developing policy initiatives and coordination with other agencies. The Environmental Policy Directorate was primarily responsible for drafting, negotiating, promulgating, and implementing Law 81.

Law 81

After more than two years of consultation among CITMA, other ministries and local officials, Cuba enacted Law 81 (The Law of the Environment) in July 1997.
While it was born to a certain degree out of the earlier Law 33, Law 81 went much further and was revolutionary in its sweep, its scope, and in the authority it invested in the new environmental agency, CITMA. The law was described by one observer as "more ambitious in its goals and its details than any comparable legislation in the United States or Western Europe" (Houck 2000).

Following a tradition established in other Latin American countries, Law 81is a comprehensive framework environmental law. In other words, its is an overarching law that attempts to address, at a general level, all environmental issues. As explained by Houck (above), this is quite different than the precedent established in North America and Europe, where distinct environmental issues are usually addressed by separate policies

and programs. As a framework law, Law 81 is extremely lengthy and comprises 14 titles and 163 articles. It embraces air, water, waste, noise, toxic substances, historic preservation, biological diversity, national parks, forests, wildlife refuges, coastal management, education, research and technology, environmental impact assessment and planning, inspection, enforcement, and penalty regimes (Houck 2000).

The text of Law 81 is divided into four basic sections. The first section expounds upon general environmental principles and concepts. The second section outlines the institutional framework of the law while the third section identifies instruments of environmental management. The fourth and final section describes the various environmental spheres that are protected by the Law.

The first section, including Articles 1 through 9, expounds upon a number of general principles and basic concepts. First, a healthy environment is recognized as a fundamental human right (Article 4), and protection of the environment is declared to be a civic duty (Articles 3 and 4). Protection of the environment is also described as an obligation and responsibility of the State. Environmental principles such as the precautionary principle and the principle of prevention are upheld, while the public's right to information and to participate in environmental decision-making are also acknowledged. In Article 7, it is proclaimed that the State will fix in its budget the necessary finances to adequately attend to environmental programs, without adversely affecting other programs. Article 9 lists the objectives of the law. They are listed as follows: 1) to create a judicial context which favors the protection and development of socioeconomic activities which are compatible with environmental protection, 2) to

establish guiding principles as well as mechanisms for the efficient coordination between distinct agencies / ministries, 3) to promote civic participation in environmental protection and sustainable development, 4) to develop public environmental awareness, 5) to regulate the development of mechanisms for environmental evaluation, vigilance, and control, and 6) to promote care for human health and the elevation of quality of life.

The second section, comprising Articles 10 through 17, develops the institutional framework in which the law will be exercised. This section describes first of all the attributions and powers of CITMA. CITMA is charged with, among other things, the responsibility to create policy and to oversee its implementation; to oversee sectoral environmental strategies developed by other ministries; to mediate between state agencies to ensure the rational use of natural resources; and to administer protected areas. Article 13 goes on to list the rights and responsibilities of other state bodies and state agencies. In particular, the duties of those ministries responsible for the administration and control of natural resources is highlighted. These ministries are obligated to prepare and implement sectoral environmental strategies in cooperation with CITMA, and to draw upon the latest science and technical norms in order to mitigate environmental impacts. Article 14 declares that companies and other juridical persons can also be held responsible for environmental protection. Articles 15 and 16 direct the local organs of Popular Power to "direct, coordinate, and control" the application of environmental legislation at the local level. Article 17 declares that the Council of Ministers and the Executive Committee must continue to support the realization of further supporting legislation.

Law 81 provides new tools for environmental management and control. The third section, including Articles 18 to 80, describes these new instruments of environmental administration. These include: the National Environmental Strategy, Law 81, environmental licensing (Articles 24 to 26), environmental impact evaluation (Articles 27 to 33), an environmental information system (Articles 34 to 38), a state environmental inspection system (Articles 39 to 45), environmental education (Articles 46 to 56), scientific investigation and technological innovation (Articles 57 to 60), economic instruments (Articles 61 to 64), a National Fund for the Environment (Articles 65 and 66), administrative sanctions (Articles 67 to 69), a system of civil responsibility (Articles 70 to 74), and a penal regime (Article 75).

This third section of Law 81 accords to CITMA some real implementation 'teeth'. It does this first of all by giving legal status to the environmental impact review process. Secondly, it legally requires other agencies to obtain environmental licenses for activities as diverse as tourist development, mining, land use, and foreign investment. CITMA is given the power to develop a system of environmental inspections and enforcement. This includes (but is not limited to) the authority to issue compliance orders, set deadlines for achieving compliance, suspend licenses (temporarily or permanently), order waste removal, refer violations for criminal prosecution, and assign penalties for environmental violations. Facilities are required to submit requested information and must grant access to project sites. Last but certainly not least, while Article 71 confers on all persons and entities the right to claim money damages and restoration for environmental harm, only CITMA and the Attorney General may act in defense of the general social interest in environmental protection.

The final section of Law 81 is also by far the largest. Articles 81 to 163 address a variety of specific environmental spheres, including; biological diversity (Articles 84 to 88), the National System of Protected Areas (Articles 89 to 91), waters and aquatic ecosystems (Articles 92 to 105), terrestrial ecosystems (Articles 106 to 115), wild flora and fauna (Articles 116 to 117) , the atmosphere (Articles 118 to 119), mineral resources (Articles 120 to 124), energy resources (Articles 125 to 128), natural disasters and other catastrophes (Articles 129 to 131), agriculture (Articles 132 to 134), tourism (Articles 135 to 141), cultural patrimony (Articles 142 to 146) , essential public services (Articles 148 to 151), noises and vibrations (Articles152), dangerous and radioactive wastes (Articles 153 to 155), toxic chemical products (Articles 156 to 157) , and the workplace (Articles 158 to 163).

Conclusions

This chapter demonstrates that implementation of environmental policy is currently a critical aspect of sustainable environmental management in Cuba. Currently in Cuba, efforts at addressing environmental management are related to the implementation of the new framework environmental law, Law 81. For the sake of analysis, I posit that given this current Cuban context, the process of achieving successful environmental policy implementation is a suitable proxy measure for the process of achieving sustainable environmental management in Cuba in general.

Chapter Six
Methodology of Cuba Case Study

Broad Theoretical Objective

The broad theoretical objective of this study is to gain an understanding of the influence of political economy on sustainable environmental management.

An understanding of the influence of political economy on sustainable environmental management is achieved by comparing the answer to the specific research question to the two models of implementation described in Chapter Three. In other words, an understanding of the influence of political economy on sustainable environmental management is obtained through comparison of the results of the Cuba case study to the Sabatier - Mazmanian and Winter models.

This comparison will yield theoretical insight because the implementation models describe factors that influence implementation in liberal, market-oriented economies while the data collected in Cuba provides factors that influence implementation in a centralized command economy. A comparison of the process of environmental policy implementation a central command economy against the same process in liberal market based economies will yield insight into the influence of political economy on sustainable environmental management because, for the sake of this analysis, environmental policy implementation is considered an important component of overall sustainable

environmental management and thus as a valid proxy measure of sustainable environmental management.

Specific Research Question

The specific research question addressed by the in-field data collection of the Cuba case study is: What are the major factors influencing the implementation of Cuba's Law 81?

This specific research question was addressed using the methodological approach of the case study. Within the overall methodological approach of the case study, a number of data collection techniques (interviews, questionnaires, community case studies, and participant observation) were used.

Hypothesis - Specific Research Question

I hypothesize that the factors identified by the Cuba case study as relevant to the implementation of Cuban Law 81 will be substantially different from those variables listed in the Sabatier - Mazmanian and Winter models.

They will be substantially but not entirely different. Some variables listed by Winter and/or Sabatier-Mazmanian will be seen to be entirely unimportant in the Cuban context. Alternatively, variables not even mentioned in the framework models may turn out to be highly influential in this Cuban case. And quite possibly, some variables will be the same but the nature of their influence (ie, help or hinder) will be different.

The Cuba Case Study

The specific research question, 'What are the major factors influencing the implementation of Cuba's Law 81?' is addressed using the methodological approach of the case study. The case study is broad in scope, a logical and unavoidable ramification of the fact that Law 81 (a typical framework law) is itself very broad in scope. It follows necessarily that the factors that both facilitate and impede its implementation are also very wide-ranging. The broad scope of the case study is also deemed necessary because the research objective of this thesis sets out to draw conclusions and make comparisons primarily at the national level. At issue are national political economic structures, and the influence of these on the implementation of national environmental policy and sustainable environmental management.

Case study methodology is appropriate to this study for two main reasons. Firstly, case studies are typically used to investigate a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident (Yin 1984). Accordingly, the implementation of Law 81 is a contemporary and on-going phenomenon that is examined in the field. Secondly, case studies typically examine the interplay of a large number of variables, thus enabling a detailed contextual analysis of a single phenomenon (Yin 1984). Accordingly, this case study examines a large number of variables that influence the implementation of Law 81.

This Cuba case study combines aspects of both 'snapshot' and 'comparative' case studies. Jensen and Rodgers (2001) identified five different types of case studies: 'snapshot', 'longitudinal', 'pre-post', 'patchwork' and 'comparative'. They describe the snapshot case study as a detailed, objective study of one research subject at one singular point in time. A longitudinal case study looks at one research subject at multiple points in time, while a pre-post case study examines one research subject at two time points separated by a critical event. Patchwork studies are multiple case studies of the same research subject, and comparative case studies are multiple studies of multiple research subjects for the purpose of cross-unit comparison. This study makes use of both snapshot and comparative case study methodology. The Cuba case study is typical of the snapshot case study because it provides a detailed and contextualized study of one research subject (the implementation of Cuban Law 81) at one period in time (early 2003). However this snapshot case study will be compared to implementation models that effectively summarize the results of other case studies. As a result, this study benefits from the cross-unit comparison enabled by comparative case studies. This study, then, combines aspects of both snapshot and comparative case studies.

To improve their credibility, case studies often make use of a variety of data gathering methods (Yin 1984, p 23). Accordingly, within the overall methodological approach of the Cuba case study, four separate data collection techniques are used. These techniques included: 1) semi-standardized, semi-structured interviews, 2) questionnaires, 3) community case study analysis, and 4) participant observation.

Semi-Standardized, Semi-Structured Interviews

Of the four data collection techniques employed in this thesis, formal semi-standardized interviews is the primary technique. The interviews form the methodological backbone of the field research, while the questionnaires, community case studies, and participant observation provide additional contextual depth. Interviewing is treated as the primary technique because the data thus collected responds directly to the research question.

The research question is not a question for which a single answer is possible. The ideal answer to the research question will involve a list of multiple factors, as well as a description of the nature of the influence of each factor (facilitate or impede). The purpose of the semi-standardized interviews was thus to collect a variety of individual perspectives on the research question, which could be aggregated to provide a multifaceted and holistic answer. In other words, the objective of each formal interview was to elucidate what each expert understood to be the comparative importance and the nature of factors most influential to the implementation of Law 81. In aggregate, the objective of the formal interviews as a data collection technique was to provide a contextualized list of factors as reported from various informed perspectives within Cuban society.

As detailed above, the interviews were both semi-standardized and semi-structured. They were semi-standardized because at least three questions were common to every interview while the remaining prepared questions differed in accordance with the professional

position and experience of the interviewee. The interviews were semi-structured in the sense that the interviews were treated as conversations whose directions were charted by the interviewee as much as the interviewer. While I (as the interviewer) entered each interview with a prepared list of open-ended questions, the questions were treated as guidelines and prompts to the achievement of a relaxed yet directed conversation. In an effort to encourage spontaneous and genuine responses, I avoided as much as possible imposing my own agenda and assumptions onto the interview. The prepared, open-ended questions served to loosely define the area to be explored, within which the interviewees were encouraged to expound on their own individual perspectives and experiences. Throughout, I attempted to remain open-minded to the emergence of perspectives and factors very different from those expected or previously encountered.

In total, seventeen interviews were conducted. In the interest of achieving balanced and multi-faceted data, an initial goal was to interview in equal proportion representatives of the three interest groups identified by Winter: implementation officials, street-level bureaucrats, and target groups. This proved to be an impossible task, for reasons that are discussed in further detail below. Ultimately, the seventeen interviewees were comprised of: officials of the Cuban Ministry of Science, Technology, and Environment (CITMA); officials of the Cuban Ministry of Economy and Planning; Professors of Law, Economy, and Marine Biology of the University of Havana; Professors of Law and Sociology of the University of Oriente; employees of Cuban non-governmental organizations; representatives of international non-governmental organizations; an officer of the Canadian International Development Agency (CIDA); and a freelance English teacher with university level training in environmental sciences. The majority of the people

interviewed are professionals whose daily work incorporates some aspect of environmental management. Each interviewee is demonstrably familiar with the general research topic, and is considered to be a key informant with unique expertise on a particular facet of environmental management in Cuba.

The following table lists the seventeen interviewees, provides information about their formal profession, and gives the date and location of the interview.

Table 4: List of Interviewees

	Interviewee	Profession	Date and Location
1.	Dra. Eulalia Via Montes	Professor and Investigator Faculty of Law University of Havana	Jan 31, 2003 Havana
2.	Lise Filiatrault	CIDA Development Officer Havana, Cuba	Feb 4, 2003 Havana
3.	Ana Maria Suarez	Center for Marine Investigations (CIM)	Feb 4, 2003 Havana
4.	Orlando Rey Santos	Director Environmental Policy CITMA	Feb 6, 2003 Havana
5.	Teresa Borges	Specialist Environment Directorate CITMA	Feb 6, 2003 Havana
6.	Michael Bliemsreider	WWF representative	Feb 14, 2003 Havana
7.	Linda Neumann	Representative Bicycles Crossing Borders	Feb 24, 2003 Havana
8.	Elisa Eva Garcia	Sabana-Camaguey Project Global Environment Fund UNDP	Feb 25, 2003 Havana
9.	Dr. Alfredo Ham Masso	Economist Ministry of Economy and Planning	March 4, 2003 Havana
10.	Karen Bernard	Representative for the Caribbean Oxfam Canada	March 6, 2003 Havana

11.	Josefina Contreras Miranda	English Teacher Resident of Marianao, Havana	March 7, 2003 Havana
12.	MSc. Miguel Abad Salazar	Director BIOECO (Centro Oriental de Ecosistemas y Biodiversidad)	March 20, 2003 Santiago de Cuba
13.	Belkis Mataran	Lawyer BIOECO (Centro Oriental de Ecosistemas y Biodiversidad)	March 20, 2003 Santiago de Cuba
14.	Mayalena Griales	Sociologist Protected Areas Division BIOECO (Centro Oriental de Ecosistemas y Biodiversidad)	March 21, 2003 Santiago de Cuba
15.	Dr. Humberto Palacios	Professor and Investigator Faculty of Law University of Oriente	March 21, 2003 Santiago de Cuba
16.	Dra. Neris Rodriquez Mato	Director Cuba – Caribbean Center University of Oriente	March 27, 2003 Santiago de Cuba
17.	Dr. Juan Llanes Reguiro	Professor of Environmental Economics Department of Economics University of Havana	April 14, 2003 Havana

The identity of the interviewees, and thus the composition of the overall interviewee profile, was limited by the sampling strategy that I chose to work within. Snowball sampling was selected as a way of identifying potential interviewees because it works particularly well within the professional culture of Cuba. In this culture, 'coldcall' interviews are generally not welcome. Professionals are accustomed to a formal system of networking, and typically meet each other at organized events or through mutual

colleagues. Furthermore, foreigners with a stated research agenda tend to be greeted with caution. Thus snowball sampling, a technique of progressively identifying future interview candidates based on introductions from current interviewees, ensured that I was formally introduced to each potential interviewee before I requested an interview with them.

In keeping with the snowball sampling process, I started with a small number of potential interviewees who satisfied the criteria of being well acquainted with some aspect of Cuban environmental management. I was able to identify these people before arriving in Cuba because they were participants in an ongoing environmental management project which involves Dalhousie University, Saint Mary's University, the University of Havana, the University of Cienfuegos, and the University of Oriente (called the Integrated Coastal Zone Management Project). Once interviewed, the initial participants helped to locate other potential interviewees using their academic and professional networks.

According to the ethical research standards of Saint Mary's University, all of the formal interviews began with a brief introduction to the purpose and nature of the research project, and to the potential risks and benefits associated with being an interviewee. Subsequently, each interviewee was informed that confidentiality would be maintained such that their identity would not be traceable to the reported research results, and that they were welcome at any point to discontinue the interview. At this point, their permission to use audio recording equipment was requested Approximately three quarters of the interviewees requested that the audio recording equipment not be used. In

these instances, I relied on handmade notes to record the content of the ensuing conversation.

Questionnaires

Questionnaires were introduced as a complement to the formal interviews after the first five interviews had already been completed. In other words, questionnaires were added as a data collection technique after I had already completed a third of the interviews. I decided to add the questionnaire at this later stage in the research because I wanted a better understanding of the comparative importance of factors and it was clear that this type of comparative analysis had not been emerging spontaneously from the formal interview process. Thus the questionnaires were designed and administered with the intention of complementing, and assigning comparative importance to, the data that was surfacing in the formal interviews. In total, twelve questionnaires were completed.

The questionnaires (please see Appendix A for a replica of the questionnaire in Spanish) consist mainly of a summarized list of those factors that had been identified as influential by the first five interviewees. Questionnaire respondents were asked to rate the comparative importance of the listed factors by assigning to the factors a grade between zero and ten. A designation of zero signified that the influence of a given factor was of no importance; while a designation of ten signified that the influence of a given factor was of key importance.

After asking respondents to rate the factors, the questionnaire posed two questions. The first question asked respondents to name other factors that had not been listed, which they considered to be of high influence. The second question asked respondents to explain the nature of the influence of the factor(s) that they had ranked as having the highest influence.

In each case, the questionnaire was given after the interview was completed. This was to ensure that the questionnaire did not interfere with or discourage the introduction of new, novel viewpoints. In other words, the questionnaire was introduced after the interview to ensure that the factors listed on the questionnaire did not compromise the spontaneity or originality of the interview responses.

Community Case Studies

Six case studies by six different Cuban authors were collected and analyzed. All six case studies were chosen because they examine in detail the social and environmental reality of a particular community or pair of communities. While none of these case studies was written with the specific intention of outlining factors that influence the implementation of environmental legislation per se, they nonetheless contribute a very relevant perspective to this thesis. They are relevant because they provide insightful, in-depth descriptions of factors that challenge each community's ability to address its environmental issues. Furthermore, each presents an invaluable level of detail and insight that was only achievable because the Cuban author in each case was intimately familiar with the subject community.

The following table lists the case studies and details including author, community name and province, and source of the document.

Table 5: List of Community Case Studies

	Title of Case Study	Author; Affiliation	Community / Province	Source
1.	'Educacion Ambiental en la Reserva de la Biosfera de Bacanao'	Profesora Asistente Marta Rosa Munoz; FLACSO-Cuba, University of Havana	Baconao, Santiago de Cuba	FLACSO report / Ile journal
2.	'Propuesta de una Estrategia de Educacion Ambiental Para Pobladores de Una Zona Montanosa: Experiencia en la Comunidad de Ocujal del Turquino'	Dra. Neris Rodriquez Matos; Cuba – Caribbean Center, University of Oriente	Ocujal del Turquino, Granma	Notes from unpublished report
3.	'Estudio Comparativo Sobre El Funcionamiento de los Consejos Populares Libertad y Pogolloti-Finlay-Belen del Municipio Marianao'	Profesor Asistente, Roberto Almaguer Guerrero, FLACSO-Cuba, University of Havana	Marianao, Havana	FLACSO Cuaderno de Trabajo: Comunidad y Desarrollo. Teoria y Practica de Nuestros Dias.
4.	'Creacion de Un Modelo Para El Manejo de los Recursos Costeros por las Comunidades en Cuba: Comunidad Baracoa'	Profesora Beatriz Diaz Gonzalez, FLACSO-Cuba, University of Havana	Baracoa, Havana	FLACSO Cuaderno de Trabajo: Comunidad y Desarrollo. Teoria y Practica de Nuestros Dias. (photocopied)
5.	'Influencia del Desarrollo Turistico en el Medio Ambiente en la Comunidad Aguada La	Lic. Adrian Aquilera Garcia; Masters Student, FLACSO-Cuba	Aguada la Piedra, Holguin	FLACSO Thesis for Master en Desarrollo

	Piedra, Provincia Holguin'			Social Caribeno, 1998
6.	'Diagnostico Socio-Ambiental Del Municipio Plaza de la Revolucion'	*Lic. Gariria de la Moz; Masters Student, FLACSO-Cuba*	Municipio de Plaza, Ciudad de Havana, Havana	FLACSO Thesis for Master en Desarrollo Social Caribeno, 1998

Five of the six case studies listed in the above table came from the office of FLACSO - Cuba (Facultad Latinoamericana de Ciencias Sociales - Cuba) in Havana. FLACSO-Cuba was kind enough to grant me full access to their in-house collection of original documents. The FLACSO collection is comprised mainly of theses written by students in the Masters of Social Development program and research reports authored by FLACSO staff. The FLACSO collection contained numerous excellent studies, however I considered only five to be directly relevant to this thesis.

One of the case studies listed above was authored by a woman who was also an interviewee and a questionnaire respondent for this thesis. She informed me of her study and lent me one of her personal copies. Her study remains unpublished but can be found in the office of the Cuba – Caribbean Center of Oriente University in Santiago de Cuba.

Participant Observation

The data collection phase of this research project unfolded over a period of four months, during which I lived in Cuba. Over the course of these four months, I had the opportunity to participate in a variety of formal and informal activities that provided insight into the

central research question. Of these activities, those of particular value to the research are listed below.

Social Science Research Methods Workshop

I had the opportunity to attend a three-day workshop that took place at the University of Havana and was an activity of the fore-mentioned Integrated Coastal Zone Management project. Participants in the workshop were social scientists and natural scientists from the three leading universities in Cuba (University of Havana, University of Cienfuegos, and University of Oriente), as well as from Saint Mary's University and Dalhousie University. The objective of the workshop was to discuss qualitative and interdisciplinary research methodologies, and the role of these methodologies in the current Cuban research context. The workshop provided a rich and relevant source of information for this study because I was exposed to debates, discussions, and presentations by leading Cuban academics on topics including community participation, community education, interdisciplinary research, participative resource management, and the role of social research in contemporary Cuba.

Preparation of a Development Project Proposal

I had the opportunity to work jointly with two professors of the University of Oriente in the preparation of a project proposal. The objective of the proposed project, which is "to achieve a socio-environmental diagnostic and to develop a methodology to increase environmental-juridical community knowledge", is very similar to those issues addressed

by this study. The experience of working jointly with Cubans who are knowledgeable, experienced, and personally concerned with this subject area was an invaluable experience for me. Because the elaboration of the project proposal occurred over a week-long period, I was able to explore many topics to a depth and length that the shorter, formal interviews could not permit.

Informal conversations

During the four months of data collection, I was able to converse informally with a variety of people who constituted the familiar faces of everyday life. Such people included members of two host families, a Spanish language tutor, a number of neighbors, and fellow university students. I made it a priority to avail of all opportunities to discuss the research topic in an informal setting. Thus many conversations that cannot be classified as formal interviews but rather as informal participant observation have informed this research.

Observation of Physical Environments

As a result of living in and visiting a selection of communities, I was able to observe and at least superficially appreciate the surrounding physical environment in terms of its health and its relationship with the local economy. This first-hand observation of the physical environments of a variety of rural and urban communities was an important component of the research methodology because it allowed for triangulation of research data. In other words, this superficial appraisal of physical environments served as a

complement to, and a verification of, environmental information obtained through the interviews and the documentary analyses. For this reason, I visited the majority of the communities which feature as the subject of case studies collected as part of the data analysis. These communities both visited and featured in case studies include Baconao, Baracoa, Marianao, and Plaza. Other communities visited include Bayamo, Santo Domingo, Santa Maria, Vinales, Santiago de Cuba (Centro), and Varadero.

Presentation of Preliminary Results and Solicitation of Critical Feedback

Near the end of the data collection phase of the research project, I formally presented the preliminary results and preliminary analysis during a seminar at the University of Havana. Although all of the environmental management professionals who had participated in the formal interviews were invited to attend, only three actually attended. Both during and after the presentation, I encouraged and solicited critical feedback. Because the location of the formal presentation precluded the possibility of attendance by interviewees from outside of Havana city, the preliminary report was also sent by email to a number of the interviewees residing in Santiago de Cuba. Again, critical feedback was solicited and encouraged.

Conclusions

This chapter describes in specific and comprehensive detail the data collection techniques that were used to inform the Cuba case study. In total, four data collection techniques were applied. These include: 1) interviews, 2) questionnaires, 3) community case studies,

and 4) participant observation. The data collected via these techniques is applied, in the following chapter, to answering the specific research question: What are the major factors influencing the implementation of Cuba's Law 81?

Chapter Seven
Results and Analysis of Cuba Case Study

Introduction

The purpose of this chapter is twofold. Firstly, it is to outline the results of the four data collection techniques that were applied to the Cuba case study. Secondly, it is to present my analysis of those results.

Results of Interviews

Over the course of the interviews, the interviewees identified a wide variety of factors that, in their opinion, influence the implementation of Law 81. The table below provides a brief outline of the factors identified in each individual interview. I accepted that a factor was identified as an important influence by the interviewee if: 1) it was elaborated upon in great detail, and/or 2) its importance was indicated directly using specific vocabulary (i.e. the "most important factor is...").

Table 6: By Interview, Factors Identified as Influential to the Implementation of Law 81

Interview A	1) Cooperation and participation (buy in) of the various Ministries
	2) Political will of the state
	3) Socialist organization of society, particularly economics, such that there is one community of common interests
	4) The respect of foreign investors for Cuban environmental regulations

	5) Environmental education and awareness of high-ranking executives
	6) Use and interpretation of Decree Law 200, which lays out the individual punishments which can be assigned to people implicated in breaking environmental laws
	7) CITMA's application of the environmental management tools accorded by the Law 81 (inspections, EIAs, and licenses)
	8) Cuban penal code
Interview B	1) Cuba's strictness in making foreign investors obey environmental standards
	2) Economic necessity (via impact on stringent consumption levels)
Interview C	1) The power of the environmental tools accorded to CITMA in the Law (for example, vis-à-vis the tourism industry)
	2) Environmental education
Interview D	1) High level political will
	2) Cuban penal code
	3) CITMA's capacity to inspect and monitor
	4) Scientific competence
	5) Inter-ministerial cooperation
Interview E	1) Political will
	2) Inter-ministerial cooperation
Interview F	1) Political will at the local level to enforce environmental regulations
	2) The ability of domestic (state) enterprises to comply with strict environmental standards
	3) The willingness of foreign investors to comply with strict environmental standards
	4) The nature of the socialist planned economy (leads to fewer conflicts between multiple resource users)
	5) Economic difficulties, lack of finances, leading directly to environmental pollution
Interview G	1) Cuba's proven ability to make foreign investors follow all imposed regulations, including environmental regulations
	2) The degree to which various Ministries invest in and follow their sectoral environmental strategies
	3) Incentives of socialist organization – i.e., lack of economic motivation to break environmental regulations (for personal gain)
	4) Culture of high respect for and obedience of authority
	5) Necessity of high levels of enforcement to get people to obey regulations in instances when following regulations makes life more difficult
Interview H	1) Empowerment of local authorities to resolve local environmental conflicts
	2) Financial resources
	3) Inter-ministerial cooperation

	4) Environmental education of the general public
	5) Ability of CITMA to regulate coastal development
Interview I	1) Popular participation in public administration
	2) Social development in the forms of universal access to education and health
	3) Social ethic which promotes quality of life and human dignity over economic objectives
	4) Social ethic which prizes public good over personal profit
	5) The economic crisis and the American trade embargo
Interview J	1) Foreign investors must obey Cuban environmental standards
	2) Lack of environmental consciousness in the general public
	3) Lack of central awareness of local (peripheral) context
Interview K	1) Breach between central policy makers and the local reality
	2) Environmental education leading to the formation of an environmental culture
	3) Citizens perception of the adequacy of material and financial resources devoted to environmental management by the state
	4) Political will from higher levels
Interview L	1) Degree of economic necessity; degree to which basic needs are met
	2) Ability and willingness of state entities and enterprises to comply
	3) Environmental management tools accorded to CITMA in Law 81
Interview M	1) Breach, in terms of level of education and information, between the center and the periphery
	2) Environmental education
	3) Actual participation of local community citizens in environmental management
	4) Lack of financial resources
Interview N	1) Genuine local participation in environmental planning
Interview O	1) The compliance of foreign investors with Cuba's environmental regulations
	2) Cuba's penal code
Interview P	1) The nature of socialist organization which lends itself naturally to a higher level of popular participation
Interview Q	1) International politics (political desire to earn international prestige in this area)
	2) Military interests
	3) CITMA's ability to conduct inspections at the local level

Analysis of Interview Results

Table 6 (above) outlines the factors that were named by each individual interviewee. In total, more than 60 individual factors were mentioned. When all of these factors are closely examined, however, it becomes apparent that there is a great deal of overlap.

The following table takes factors out of the context of the specific interview in which they were mentioned, and groups similar ideas into clusters. This table thus shows the degree of overlap between interviews. It also demonstrates that the 60 individual factors, when grouped into clusters, actually condense logically into a much smaller number of factors. The column on the left indicates the number of interviews in which the factor was mentioned.

Table 7: Clusters of Factors Similar to Multiple Interviews

Number of Interviews	Factors Identified
4	The importance of the cooperation and participation (buy in) of the various **Ministries** *(from Interview A)*
	Inter-**ministerial** cooperation *(from Interview D)*
	Inter-**ministerial** cooperation *(from Interview E)*
	The degree to which various **Ministries** invest in and follow their sectoral environmental strategies *(from Interview G)*
	Inter-**ministerial** cooperation *(from Interview H)*
6	**Political Will** of the state *(from Interview A)*
	Political Will *(from Interview D)*
	Political Will *(from Interview E)*
	Political will at the local level to enforce environmental regulations at the local level *(from Interview F)*
	Political will from higher levels *(from Interview K)*
	International politics – **political desire** to earn international prestige in this area *(from Interview Q)*

7	**Socialist** organization of society, particularly **economics**, such that there is one community of common interests *(from Interview A)*
	Nature of the **socialist planned economy** (leads to fewer conflicts between multiple resource users) *(from Interview F)*
	Incentives of **socialist** organization – i.e., lack of **economic motivation** to break environmental regulations (for personal gain) *(from Interview G)*
	Social development in form of universal access to education and health *(from Interview I)*
	Social ethic which promotes quality of life and human dignity over economic objectives *(from Interview I)*
	Social ethic which prizes public good over personal profit *(from Interview I)*
	The nature of **socialist organization** lends itself naturally to a higher level of popular participation *(from Interview P)*
6	The respect of **foreign investors** for Cuban environmental regulations *(from Interview A)*
	Cuba's strictness in making **foreign investors** obey environmental standards *(from Interview B)*
	The willingness of **foreign investors** to comply with strict environmental standards *(from Interview F)*
	Cuba's proven ability to make **foreign investors** follow all imposed regulations, including environmental regulations *(from Interview G)*
	Foreign investors must obey Cuban environmental standards *(from Interview J)*
	The compliance of **foreign investors** with Cuba's environmental regulations *(from Interview O)*
6	**Environmental education and awareness** of high-ranking executives *(from Interview A)*
	Environmental education *(from Interview C)*
	Environmental education of the general public *(from Interview H)*
	Lack of **environmental consciousness** in the general public *(from Interview J)*
	Environmental education leading to the formation of an **environmental culture** *(from Interview K)*
	Environmental education *(from Interview M)*
4	Use and interpretation of **Decree Law 200**, which lays out the individual **punishments** which can be assigned to people implicated in breaking environmental laws *(from Interview A)*
	The **Cuban penal code** *(from Interview A)*
	Cuban penal code *(from Interview D)*
	Cuba's penal code *(from Interview O)*
6	**CITMA's** application of the **environmental management tools** accorded by the Law 81 (inspections, EIAs, and licenses) *(from Interview A)*
	The power of the **environmental tools accorded to CITMA** in the Law (for example, vis-à-vis the tourism industry) *(from Interview C)*

	CITMA's capacity to inspect and monitor *(from Interview D)*
	Ability of CITMA to regulate coastal development *(from Interview H)*
	The **environmental management tools accorded to CITMA** in Law 81 *(from Interview L)*
	CITMA's ability to conduct inspections at the local level *(from Interview Q)*
7	**Economic necessity** (via impact on stringent consumption levels) *(from Interview B)*
	Economic difficulties, lack of finances, leading directly to environmental pollution *(from Interview F)*
	Financial resources *(from Interview H)*
	The **economic crisis** and the American trade embargo *(from Interview I)*
	Citizens perception of the **adequacy of material and financial resources** devoted to environmental management by the state *(from Interview K)*
	Degree of **economic necessity**; degree to which basic needs are met *(from Interview L)*
	Lack of **financial resources** *(from Interview M)*
3	Lack of **central** awareness of local **(peripheral)** context *(from Interview J)*
	Breach between **central** policy makers and the **local** reality *(from Interview K)*
	Breach, in terms of level of education and information, between the **center** and the **periphery** *(from Interview M)*
5	The involvement of organs of **Popular Power** *(from Interview A)*
	Popular participation in public administration *(from Interview I)*
	Actual **participation** of **local** community citizens in environmental management *(from Interview M)*
	Genuine **local participation** in environmental planning *(from Interview N)*
	The nature of socialist organization lends itself naturally to a higher level of **popular participation** *(from Interview P)*
1	Scientific competence *(from Interview D)*
1	Culture of high respect for and obedience of authority *(from Interview G)*
1	Necessity of high levels of enforcement to get people to obey regulations in instances when following regulations makes life more difficult *(from Interview G)*
1	Empowerment of local authorities to resolve environmental conflicts *(from Interview H)*
1	Military interests *(from Interview Q)*

The above table demonstrates that many factors were mentioned in multiple interviews. In all, 10 factors were highlighted more than once. The following table ranks the factors in order of the number of times they were mentioned in distinct interviews.

Table 8: Ranking of Factors Identified by Interviewees (by Number of Times Identified)

Ranking	Number of times factor was identified	Factor
1	7	Financial and material resources
1	7	Socialist organization of society
2	6	Political will
2	6	Foreign investment
2	6	Environmental education / consciousness
2	6	CITMA's application of environmental management tools accorded by Law 81
3	5	Popular / local participation
4	4	Inter-ministerial cooperation
4	4	Cuban penal code / Decree Law 200
5	3	Relationship between center and periphery
6	2	Effectiveness of People's Councils

The above tables demonstrate the frequency with which factors were named throughout the entire interview process. Frequency provides some indication of the importance of a factor.

In order to understand the nature of the influence of the factor, however, it is necessary to refer to the text of the interviews. It was during the interviews that the interviewees had the opportunity to explain their understanding of how the various factors influenced the implementation of environmental legislation. The following sections present the nature of the factors as conceived by the interviewees, and provide context and quotes taken from the original interviews.

Financial and Material Resources

The perennial lack of financial and material resources endured by Cubans was a recurring theme throughout many of the interviews. The actual nature of the influence of this lack of resources however, was not treated consistently. In other words, each of the interviewees demonstrated a distinct perception of the way in which Cuba's lack of resources influences the nations efforts to implement environmental legislation.

Most interviewees agreed that the omnipresent lack of financial resources hindered the successful implementation of environmental policy.

For example, one interviewee pointed out that Cuba is still a developing country in which many people are struggling to meet their daily basic needs. He felt that the struggle for daily existence would always take precedence over the dictates of environmental legislation. He provided the example of people who cut wood from the forest even when this harvesting is prohibited. "When people do not have fuel for cooking, they must by force cut down wood from the forest. When people don't have enough to survive, you can't enforce a law that deprives them of a way to survive"[1].

Another interviewee provided a similar example. She talked about the plight faced by many farmers who have to meet established production levels. At the same time, they

[1] My translation and paraphrase, based on hand-written interview notes

must obey environmental regulations that can impede production. This interviewee felt that farmers would always choose to maximize their economic returns, even if this meant blatantly disobeying environmentally inspired regulations.

A third interviewee highlighted the lack of financial resources available in remote rural areas in particular. According to her, environmental regulations can be largely ignored in remote rural areas because there is no money to support monitoring and enforcement in these areas.

A fourth interviewee also focused on the lack of material resources at local levels. She, however, spoke specifically about the urban situation. She described a sense of disdain and disgust among urban citizens who feel that the government is not investing at all in creating healthy urban environments. She felt that until the government freed up financial resources and invested visibly in the urban environments, local citizens would not contribute personally to cleaning up the urban environment. For example, regulations have been passed which prohibit the raising of small livestock, (such as poultry, pigs, and goats) in many urban zones. The small livestock have been prohibited for reasons related to environmental sanitation. At the same time, in these same zones, human sewage is often running uncovered through the outdated sewage system and garbage has been left uncollected in the street. The result, explained this interviewee, is a situation in which individual citizens feel no motivation to make personal sacrifices for the environment, when it is clear that no larger state investment is being made. In other words, environmental regulation of individuals is largely pointless until the adequate resources are allocated by the Cuban state. As the interviewee said: 'Whether they have an

environmental conscience or not, people will not contribute, and will definitely not sacrifice on a personal level...unless the state makes it possible by providing the finances, physical resources, and infrastructure"[2].

A fifth interviewee explained that Cuba can't afford to fight pollution because curbing pollution is a very costly undertaking. In most cases, the Cuban government simply cannot afford to upgrade old technologies or to invest in expensive but greener new technologies. A good deal of Cuba's industries, he pointed out, are still functioning with outdated Soviet technology. All types of machinery are run by old diesel engines, and too much electricity is produced with crude Cuban oil, which is high in sulfur. Transportation, according to the interviewee, creates a similar problem. Cuban cities have bad air quality because Cuba cannot afford technologies such as high performance engines and lead-free gasoline. A high percentage of the cars found on Cuban streets are many decades old. Overall, this interviewee felt that it would be impossible to enforce many of the lofty environmental standards set by Law 81, because the necessary finances are simply not there to make it possible.

As the above paragraphs demonstrate, most interviewees viewed financial and material scarcity as a restraint upon Cuba's successful implementation of Law 81. In two separate instances however, interviewees pointed to economic necessity as a factor that actually motivated the implementation of environmental policy.

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[2] My translation and paraphrase, based on hand-written interview notes

In one of these cases, an interviewee described Cuba's system for implementing environmental impact assessments (EIA's). According to the rules of this system, only Cuban entities approved and listed by the government may be hired to conduct EIA's. Furthermore, EIA's are a required precursor to any form of development. This is a solid way, therefore, of earning much-needed foreign currency from foreign investors attempting to enter into joint development investments. In this situation, the government is eager to implement the applicable sections of Law 81 because in so doing it can earn much-needed currency.

Another interviewee also had the idea that economic hardship has contributed, in the Cuban case, to successful implementation of environmental regulations. Her reasoning was based on national level development strategies, and she considered that "economic stringency is a large part of the explanation for Cuba's comparatively cleaner development"[3]. She pointed to Cuba's investments in the fields of organic agriculture and alternative energy, and to the fact that the development of these green technologies has grown in direct response to the economic hardships of the Special Period. She stated that 'whether the original motivation is environmental or not, the end result is the same' (author's paraphrase). The end result, according to this interviewee, is a much cleaner and more sustainable mode of economic development.

According to the number of times it was mentioned, 'financial and material resources' is an important influence on the implementation of the Cuban framework law. As the

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[3] My paraphrase, based on hand-written interview notes (interview in English)

preceding paragraphs show, however, there was not total accord as to the nature of this influence. While most people considered financial scarcity to be a hindrance, particularly at the local level, others saw it as a factor motivating the implementation of environmental legislation.

Socialist Organization of Society

Seven of the interviewees made reference to the idea that various characteristics of socialism make such a system inherently more receptive to the implementation of environmental regulations.

The first of these inherent characteristics is a lack of motivation for personal profit. According to a number of the interviewees, the very organization of a socialist society results in an intrinsic absence of individual economic motivation to disobey environmental regulations. Said one interviewee: "in a socialist state such as Cuba there are no competing economic interests who would fight against environmental legislation based on their own selfish motive for profit"[4]. Another interviewee concurred, stating; "here, there is a lack of economic incentive to break the rules"[5]. A third interviewee expounded on the idea, explaining that the absence of personal monetary incentive leads to a greater social cohesion around the issue of environmental protection:

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[4] My translation, based on audio recording of interview

[5] My translation and paraphrase, based on hand-written interview notes

> "We are not in that type of country where powerful, private interests appear -who don't want to lose benefits, or business, and who want their operating costs always to be lower. In those countries this is the source of contradictions – personal interests against social interests. In our country society is designed such that we are a community of interests in terms of environmental protection. In our type of social organization, there is a much greater guarantee that laws will be obeyed because there are no conflicts." [6]

The same interviewee went on to explain that when environmental violations do happen, they are due to personal deviation rather than an inherent contradiction in the political economic system.

> "... there are violations at a personal or individual level, of a citizen because he or she makes a decision to help solve an issue or problem more rapidly... but its not the same as a violation that is committed for personal benefit... the benefit from this does not go into that person's bank account, no, its to make things go quicker... I am not denying that sometimes a factory director, for example, decides to dump waste into a river ...but that is an error committed by him, its not a political economic problem..." [7]

According to the above, then, environmental violations are occasional aberrations, rather than systemic occurrences, because there is no personal financial profit to be gained from environmental violations. Individuals are occasionally motivated to commit an environmental violation in order to solve an issue or problem more rapidly.

While the previous interviewee felt that environmental violations are not economically motivated and are therefore not systemic, another interviewee agreed on the first point yet differentiated on the second. He spoke of incentives such as saving time and earning a

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[6] My translation, based on audio recording of interview

[7] My translation, based on audio recording of interview

professional reputation, which might tempt an employee to disregard environmental policies.

> "Success here is largely based on image, on reputation. You must have heard of awards given to good workers, they are called "trabajador de vanguardia". To get caught breaking a law, and to get fired and to lose your job, that is the worst. But on the other hand, it takes a long time to get things processed, to do things officially. So if you can get away with breaking an environmental regulation to speed things up and be successful at your job, well, that would be good for you as long as you didn't get caught." [8]

Another interpretation of the influence of socialist organization was expressed by an interviewee who described a process referred to as 'compatabilization'. 'Compatabilization' is a process of multi-level consultation and consensus-building that is used, for example, when new protected areas are proposed. This interviewee considered 'compatabilization' to be an inherent feature of socialist organization that, like the absence of personal economic motivation, encourages widespread compliance with environmental regulations.

> "Elsewhere, in other countries, there is a lot of user conflict around natural resources as a result of conflicting and/or overlapping needs. In Cuba this doesn't happen as a feature of the fact that everything is state run. All the users, the actors (such as the miners, the foresters, the farmers, the fishermen) participate through consultation in decision making. There is a process called 'compatabilization' which is about making a proposal or a proposed regulation compatible for everyone." [9]

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[8] My paraphrase, based on audio recording of interview (interview in English)

[9] My paraphrase, based on audio recording of interview (interview in English)

He was not the only interviewee to highlight participation and consensual decision-making as features of the Cuban socialist system. Another interviewee pointed to the various forums that are particular to socialist societies and that also promote high levels of participation and consensus. According to her, people are encouraged to participate in decision-making through their workplace and through their neighborhood CDR (Comite por la Defensa de la Revolucion). Women in particular are encouraged to speak out at meetings of the local branch of the national women's organization known as the FMC (Federacion des Mujeres Cubanas).

Yet another interviewee raised the issue of socialist ethics and morality. According to him, an inherent feature of socialism is an ethical emphasis on quality of life over economic incentives, and on public good over individual gain. Whereas some of the above arguments pointed to the lack of economic incentives, this argument is about much more than economics. This interviewee is pointing to a set of moral values that he believes are taught and propagated within a socialist society. In his opinion, this moral emphasis on self-sacrifice and the public good naturally extends to a heightened environmental consciousness and thus facilitates the implementation of environmental regulations.

Overall, interviewees felt that the nature of socialist organization had an impact of the implementation of environmental regulations in four distinct ways. Firstly, socialist organization offers no individual profit incentive to violate environmental regulations. Secondly, socialist organization promotes environmental violations as attempts to

circumnavigate cumbersome bureaucratic procedures. Thirdly, socialist organization promotes compliance with environmental regulations by encouraging participation and consensual decision-making. And finally, socialist ethics naturally create a public morality that is conducive to environmental stewardship.

Political Will

While the idea of 'political will' surfaced casually in a large number of the interviews, in at least six interviews it was expounded upon in great detail. Overall, political will was seen as a necessary element of the implementation of environmental legislation. High-level (as opposed to local level) political will was seen as particularly crucial in the Cuban context.

Two of the interviewees who stressed the importance of political will as a factor had been involved in the creation and drafting of Law 81. They both attributed the impetus behind Law 81 directly to Fidel Castro. According to their accounts, Mr. Castro initiated the creation of the framework environmental law shortly after his return from the 1992 Earth Summit in Rio de Janeiro. They considered that Mr. Castro had taken a strong personal interest in the creation of Law 81, and this personal interest had led to the comparatively speedy promulgation of a relatively impressive piece of legislation. Both interviewees conceded, however, that Castro's show of support during the preliminary stages would not be enough guarantee longer-term results. They both opined that the successful implementation of Law 81 has been and will continue to be largely dependant on Mr. Castro's continued personal interest and support.

One interviewee, who is an employee of CITMA, stressed the importance to CITMA of high-level political support. CITMA, he explained, needs tangible political support in order to do its work. This interviewee went to great lengths to distinguish tangible political support from symbolic displays of political will. According to him, symbolic displays are of little practical value, particularly given the Cuban situation in which the state is the owner of most enterprises. The interviewee pointed out that as an owner, the state has a very active role to play in supporting environmental legislation; and furthermore, state managers would always take their cue from political signals from above. Thus CITMA, in its dealings with state-owned enterprises, finds itself very reliant on the backing of high-level political decision makers.

Another interviewee, who has often represented Cuba at international environmental conferences, spoke candidly about his perception of Cuba's political desire to win international allies and prestige through environmental channels. Environmental progressiveness, he said, is a political pawn being cultivated and displayed in an effort to offset Cuba's more contentious positions in areas such as economics and human rights. Thus there is a very real political desire to appear to be abreast and on pace with the most developed countries in terms of international environmental standards. This political support, in his opinion, benefits domestic reality only insofar as that domestic reality contributs to the international image. In other words, the political support that he felt was so important to the implementation of Law 81 could only be counted on insofar as it was connected to Cuba's international image.

As the preceding paragraphs demonstrate, most interviewees considered that high-level political support had an extremely important influence on the implementation of Law 81. A much smaller number of interviewees raised the issue of political will at the local level. They consider that local political will is both very important and extremely lacking in the Cuban reality. One interviewee, who works for an international NGO, compared Cuba to other countries in which he has worked. He observed in Cuba a surprisingly high and even systematic exploitation of loopholes and bending of the rules at the local level. He attributed this exploitation of loopholes and bending of rules directly to a lack of local political will to monitor and enforce regulations at the local level.

Foreign Investment

Of the six interviewees who discussed at length the nature of the influence of foreign investment, five considered that foreign investment in Cuba is characterized by a high level of compliance with environmental legislation. This compliance was attributed to a firm maintenance of control by the Cuban state vis-à-vis the activities of joint ventures, and to the fact that international investors normally follow self-imposed international standards.

The stance of the Cuban government towards foreign investors was described in very similar ways by both Cuban interviewees and expatriate interviewees. One Cuban interviewee described the following scenario:

> "To the investors who disobey environmental regulations, sometimes the authorities will say: we are taking your license and when you have fixed this up you can have the license again. But when what is occurring is really inadmissible, they will revoke the license and the foreign investor will have to leave. Because sometimes they do try – the Germans who come, or the Spanish – and they think that because Cuba is an underdeveloped country, we will prefer to have environmental impacts rather than to lose a business partner. But no. Although we have many needs, in Cuba we do not sell our environment."[10]

The above observation was echoed by an expatriate diplomat working in Cuba. As she explained:

> "Cuba is not truly open for business as is commonly touted; indeed it is difficult to do business in Cuba because the Cubans are firm with their demands and in what they will allow. They are especially firm on social and environmental standards. Cubans can't be bought."[11]

The above observations were firmly supported by an interviewee who is an expatriate running a small not-for-profit development organization. Her organization supports itself financially by renting bicycles to tourists. Because of this business aspect, according to her the organization is treated bureaucratically much like a foreign investment. During her interview, she described the length and detail of some of these bureaucratic procedures:

> "...we did have to go through all the permits – permits regulating price, and location, etcetera, and I can tell you that that took a year and a half. And we are still working on some things. But from talking to business people here, there are a lot of people that come here to do business and they spend a few years investing in the set up without getting any return,

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[10] My translation, based on audio recording of interview

[11] My paraphrase, based on hand-written interview notes (interview in English)

> and finally they give up and go home. Cuba's not like any other country that way, it is very special, very unique. It's a hard place for foreign investors...." [12]

Thus, the majority of the interviewees agreed that foreign investments do not pose a serious risk to Cuba's environmental well-being. While the three interviewees quoted above attribute this positive result to the uncompromising stance of the Cuban state, a fourth interviewee thought it was due to international standards. As an example, he pointed to the three nickel mines which operate out of the industrial town of Moa. One of these nickel mines is a joint venture with the Canadian company Sheritt. The two other mines are owned solely by the Cuban state. This interviewee believed that the Sheritt mine was vastly superior to the Cuban mines in terms of environmental standards. He explained:

> "In Moa, Sheritt follows the laws.... it seems that Sheritt as an international company has international environmental regulations and standards that it follows. On the other hand, the two state mines are causing pollution, are dumping pollution into the Moa river. They're not getting fined – the state can't really fine itself. But with joint ventures I think that the law is applied."[13]

With one notable exception, I encountered consensus on this perception of the Cuban government as a tough and uncompromising host to foreign investors. The exception was a lone interviewee who offered a notable counterpoint to the quotations above:

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[12] My paraphrase, based on hand-written interview notes (interview in English)

[13] My translation and paraphrase, based on hand-written interview notes

> "...we need to understand that Cuba is quite anxious to attract foreign investors and to keep foreign investors, and if foreign investors meet up with an investment climate that they don't like they can easily go elsewhere. But it is important to note the forms of punishment that are imposed when environmental policy is broken by a foreign investor – there are forms of administrative punishments and fines, but there is nothing like imprisonment." [14]

As the above quote demonstrates, this interviewee pointed to the Cuban economy's dependence on foreign investment, and suggested that Cuba's instruments for penalizing environmental transgressions are not strong enough. The topic of penalization was raised in a number of interviews and will be elaborated in a section to follow.

Whether due to international standards or to the firmness of the Cuban state, it was the opinion of most interviewees that foreign investments are in line with environmental regulations. Thus the practice of allowing foreign investment does not seem to pose a particular challenge to the successful implementation of Law 81. If indeed the Cuban state's firmness is responsible for this environmental compliance, then it may be seen as an example of Law 81 being successfully implemented.

Environmental Education

For six of the people interviewed, environmental education is a factor that has a direct relation to the successful implementation of environmental legislation. The existence of a fairly low level of environmental knowledge and consciousness among the general population was pointed out a number of times. One interviewee stated that, "There is not

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[14] My translation and paraphrase, based on hand-written interview notes

a lot of environmental will or conscience at the grassroots level"[15]. Confirmed another, "At the moment the biggest issue is the lack of knowledge of environmental regulations, of the Environmental Law 81, maybe not a complete lack of knowledge but there is really in some cases very little knowledge of it in the communities"[16]. A third interviewee considered that a lack of environmental knowledge is not just a problem of the grassroots but also of the higher levels of administration:

> "Now, directors and executives must, in the design of their economic strategies, integrate the environmental dimension. And this necessitates a change in mentality. Because these people are university graduates, perhaps excellent students, perhaps excellent executives, but they have no environmental education, and for them environment means loving nature. Flowers, little plants, parrots, etc., but not really appreciating what constitutes really the protection of the environment. What is more, these people consider that if they have to occupy themselves with environmental concerns, they will lose time and this will affect national production." [17]

There was agreement among interviewees about a recent and notable increase in environmental education and thus environmental awareness. One interviewee directly linked these increases to the promulgation of Law 81. She noted a significant improvement in general levels of environmental awareness since the Law 81 has come into effect. She felt that schools, particularly at elementary and junior levels, have been incorporating new environmental education programs in response to the new law.

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[15] My translation and paraphrase, based on hand-written interview notes

[16] My translation, based on audio recording of interview

[17] My translation, based on audio recording of interview

Another interviewee also attributed the introduction of environmental education to recently promulgated environmental policy. "Thanks in part to the new policies, consciousness is being raised. We are starting to see the beginnings of a new mentality among the current younger generations, who are receiving environmental education as part of their school curriculum..."[18]. A third interviewee also pointed out that environmental education is now a topic introduced to school-age children. However, she regarded this education as insufficient given the lack of environmentally conscious behavior modeled in the home environment:

> "As soon as the kids come into the home after school is over, they learn, imitate, and participate in the typical behaviors of the family. Once in the home, what has been told to them in school is secondary compared to the daily, regular family habits. Children act in their lives as they are taught to act by their families, it doesn't matter to them what they are told in school, we all learn from our families" [19]

Overall, the interviewees were in agreement on the following three points: 1) that environmental education contributes to the successful implementation of environmental legislation, 2) that environmental education is growing in Cuba, and 3) despite recent improvements, Cubans in general are still not receiving enough environmental education.

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[18] My translation, based on hand-written interview notes

[19] My translation, based on audio recording of interview

Environmental Management Tools Accorded to CITMA

Law 81 accords ultimate responsibility for national environmental management to the Ministry of Science, Technology, and Environment (CITMA). It does so by way of a host of environmental management tools, including environmental impact assessments, environmental licenses, and environmental inspections. The importance of these management tools to the national implementation of Law 81 and other environmental regulations was highlighted by six of the interviewees.

One interviewee described the management tools as "fundamental" and as "the biggest source of power possessed by CITMA"[20]. She pointed to Article 18 of Law 81, wherein all organs of the state are instructed to coordinate and collaborate with CITMA. She explained that CITMA's ability to grant or to withhold environmental licenses gives it power over all the other Ministries and organs of the state. After explaining CITMA's power as elaborated within the law, she provided some insight into how CITMA exerts this authority in actuality:

> "I am a friend of (a high ranking official at CITMA)...and when she first started to work there, she told me; here we are doing diplomatic work, in order to work here you must have a calm and patient nature, you can't be impulsive. You have to be able to dialogue, and then go back for more dialogue, and again and again, until you achieve understanding. Your first reaction cannot be, I'm going to take this to the Council of Ministers! No... you have to converse, share, coordinate... until something mutually

[20] My translation, based on audio recording of interview

> acceptable is organized. If agreement cannot be reached, then CITMA can make the ultimate decision."[21]

The other interviewees focused less on CITMA's diplomatic responsibilities and more on CITMA's improving competence in using EIAs, licenses, and inspections. Many shared a sense that CITMA's use of the environmental tools was creating visible improvements. Said one interviewee:

> "Since 1997 there have been many instruments introduced, such as the EIAs and government inspections and the issuance of environmental licenses and such, and I would say that especially in the beginning there was abuse of these instruments at all levels. But consciousness and competence are growing and the enforcement bodies are strengthening, so they are becoming more competent and things are improving." [22]

Another interviewee, a marine scientist, linked CITMA's environmental management tools to improved procedures she has observed in the development of the coastal tourism industry.

> "Every time a new hotel is built, CITMA does an EIA and issues a license. Often in order to obtain the license the builders have to comply with recommendations made by CITMA. For example, in Veradero there used to be one hundred and twenty eight buildings directly on the dunes. This was fifty years ago. Now there are eighteen. Soon there will only be six remaining, and these six will remain for historical reasons." [23]

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[21] My translation, based on audio recording of interview

[22] My translation, based on audio recording of interview

[23] My translation and paraphrase, based on hand-written interview notes

In summary, it was argued by the interviewees that CITMA's use and mastery of these management tools has a large actual and potential influence on the implementation of environmental legislation.

Inter-Ministerial Coordination

Four interviewees placed emphasis on the importance of the various national Ministries.

According to one interviewee who had been involved in the creation and the writing of Law 81, it was understood from the outset that Ministries would be key players in the implementation of Law 81.

> "The law project was circulated to all the different Ministries, that is, they were sent copies when it was still in its proposal stage, so that they could air their criticisms. This was very important because the Ministries are the first who have to fulfill the law's obligations. And as well they had to verify that the law responded to Cuban needs. As a result there was a period in which many versions were made... because the ministries had many criterion, and they were considered, and the law was re-elaborated, and it was perfected." [24]

The above quote refers to the Ministries as the first who have to fulfill the law's obligations. Indeed, Law 81 requires that all ministries, particularly those with some jurisdiction over a natural resource, design and implement sectoral environmental strategies. One of the interviewees, an expatriate directing a development NGO, referred

[24] My translation, based on audio recording of interview

to the sectoral strategy of the Ministry that is responsible for overseeing and cooperating with her NGO.

> "Our Cuban partner has drawn up - like all of the other Ministries - an environmental strategy. And a few of the points in the Strategy have to do with atmospheric pollution and particulate pollution, such as that emanating from vehicles. But I have been here two years and I can say that absolutely nothing has been done about that. In fact, I would say that it has become worse, and that the (partner) has itself made the situation worse, by putting lots of big trucks onto the streets." [25]

In addition to designing and implementing sectoral strategies, the Ministries are required by Law 81 to cooperate on various fronts amongst themselves and with CITMA. One interviewee discussed the need for better coordination and cooperation between Ministries with jurisdictions over natural resources (such as fisheries, soils, etc):

> "There needs to be more coordination between Ministries which have responsibilities for various natural resources, for example, Ministries of Fisheries, Agriculture, Interior, Public Health. All of these ministries collect information, do inspections, and have some regulatory powers, but there is little coordination between them. That is a role that CITMA, as a more independent body, should play." [26]

Both of the preceding quotes demonstrate a sense of disappointment with the performance of the Ministries thus far. In terms of both sectoral environmental strategies and inter-ministerial cooperation, most interviewees felt that substantial improvement was needed. On interviewee, however, offered a more optimistic view:

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[25] My paraphrase, based on hand-written interview notes (interview in English)

[26] My translation, based on audio recording of interview

> "There has been disobedience of the law, lack of implementation of the law, at the highest levels of administration, not just at the lower levels. But little by little all the organizations and government bodies that protect the environment are being strengthened, and things have been improving." [27]

In summary, both the participation and the coordination of Ministries are integral to the implementation of Law 81.

The Cuban Penal Code

The role of the Cuban penal code in the implementation of environmental legislation was a subject of discussion in three of the interviews; notably, the two interviewees who are Professors of Law each highlighted the topic.

According to one of these professors, the Cuban penal code should be "perfected" and "better organized". At the moment, "the penal code is not prepared to recognize that among the biggest violators of environmental legislation are the state enterprises"[28]. For this reason, the penal code should be amended to "implicate not only physical people, but also juridical persons, in other words corporations, firms, Ministries, etc. Because of course it is these bodies, who have more powerful technology at their disposal, who can do the most damage" [29].

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[27] My translation and paraphrase, based on hand-written interview notes

[28] My translation and paraphrase, based on hand-written interview notes

[29] My translation and paraphrase, based on hand-written interview notes

The second professor made a similar point: "It is important to note the forms of punishment that are imposed when environmental policy is broken by a foreign investor – there are forms of administrative punishments and fines, but there is nothing like imprisonment." [30]

She also elaborated on the orientation of the penal code towards crimes of an economic nature, as opposed to crimes of an environmental nature.

> "At the moment we don't actually include environmental infractions in our code. For example, while the code might address water contamination, water contamination only becomes an issue when, for example, cows come to drink the water and die because it is polluted. Now that's a crime because the cows died and they were state property and this is a crime against the national economy. But the water contamination alone is not treated by the code, and that's very important." [31]

Popular / Local Participation

Five interviewees stressed the importance of local participation in environmental management and each one shared in the belief that direct community participation fundamentally enables local compliance with environmental legislation.

An interviewee who was involved in the initial drafting and editing of Law 81 explained that popular participation had been written into the Law. She reflected, " Everyone (on

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[30] My translation, based on audio recording of interview

[31] My translation, based on audio recording of interview

the drafting project) knew that environmental problems should be analyzed globally but must be solved locally. This recognition is very much in evidence – is written into – the Law"[32].

There was a significant divergence of opinions among the interviewees, however, concerning the Law's success thus far in enabling and promoting local participation. One interviewee explained that the structures of socialist society inherently encourage and facilitate popular participation in environmental decision-making:

> "In a socialist state such as Cuba, there are more structures that exist and that are designed to promote public participation. The state is of the people as well as for the people. People are encouraged to participate in many different forums: through the workplace, through their neighborhood CDR (Comite por la Defensa de la Revolucion), through the local branch of FMC (Federacion Mujeres Cubanas). Often one person participates in more than one forum, so their voice can be simultaneously heard in many places."[33]

A second interviewee was less satisfied with actual levels of community participation: "What we still need to work on" she opined, "is the creation of a collective spirit, through contact of central decision makers with the communities where these decisions will actually be implemented"[34]. Her interest in enhanced popular participation is a serious one; at the time of the interview she was working on a thesis examining population participation in agro-ecological decisions in Siboney. As she explained during the interview, the agricultural workers of Siboney are faced with conflicting demands. On

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[32] My translation, based on audio recording of interview

[33] My translation and paraphrase, based on hand written interview notes

one hand they must follow the environmental regulations and on the other hand they need to meet production imperatives. At the time of this interview, she was hoping that her thesis would actually help to change existing regulations such that consultation with local levels become a mandatory requirement in Siboney. She felt that "they (the local agricultural workers) need to be a part of the decision making so that these things (the conflicting demands) can be reconciled" [35].

A third interviewee cited her own employment as proof of the environmental community's recent but expanding commitment to popular participation:

> "They (the protected areas staff) cared about the numbers and health of trees and birds: they did not take into consideration the existence or the role of people. This became obvious to my organization and that is why they hired me, a sociologist, to become a member of the project team. It was clear that you just can't develop and make plans for a protected area without having direct and intimate contact with the local persons. It was becoming clear also that exclusion of local people, both from their resources and from the planning process, had a much larger effect than had been anticipated, and that exclusion actually augmented pressures exerted on the natural resources. Exclusion quite simply resulted in regulations not being followed." [36]

Thus according to these interviews, the importance of popular participation is well recognized in Cuba. However the lack of agreement over the actual level of involvement of communities indicates that there may be a great deal of regional and circumstantial variability.

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[34] My translation and paraphrase, based on hand written interview notes

[35] My translation and paraphrase, based on hand written interview notes

[36] My translation, based on audio recording of interview

Communication between Center and Periphery

Three interviewees made specific reference to what they perceived as a lack of communication between the central government and local communities. Said one interviewee: "Central priorities are not always sensitive or calibrated to the local context" [37]. She offered an example of this lack of communication that resulted in a missed environmental opportunity.

> "... in its mission to boost national food production, the Ministry of Agriculture disburses free chemical fertilizers to farmers. This actually has the effect of undermining the Centers for the Reproduction of Biological Pesticides, which have been established by farmers cooperatives in various locations throughout the country, and which are producing, at a very low cost, biological pesticides, and they are selling them to farmers at an extremely low cost. This might be more attractive to small farmers if the Ministry of Agriculture wasn't giving out free chemical fertilizers. But as I said before, the Ministry's priority is to promote bulk and speed in food production." [38]

Another interviewee described a breach that she perceives as "separating people who are scientists that work in the area of environment, and also policy or law makers who work in the area of environment, from the actual popular public." [39] In her opinion, Cuba's expertise in areas such as recycling and alternative energy has not trickled down to the grassroots levels. She felt that Cuba's budding international reputation for environmental

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[37] My translation and paraphrase, based on hand written interview notes

[38] My paraphrase, based on hand-written interview notes (interview in English)

expertise is ironic and ill-deserved, because ordinary, everyday Cubans have little knowledge or awareness of strategies such as recycling and alternative energy.

A third interviewee made reference to the necessity of improving popular knowledge of juridical issues. She viewed Law 81 as a demonstration of the fact that high-ranking political will is the single biggest impetus behind environmental management and environmental regulations in Cuba. According to her, the challenge for the present and near future is to bring some of these regulations into the communities, and to actually ensure that local communities know that these regulations exist.

The Role of The People's Councils

The importance of the most local of the Organs of Popular Power, the People's Councils, was raised in two interviews. Before elaborating on the interviewee's comments about the People's Councils, I will first provide some background information about the People's Councils.

Since 1975, Cuba has had three levels of representative government: the National Assembly, provincial assemblies, and municipal assemblies. Collectively, these assemblies (known as the 'Organs of People's Power' or 'Organos del Poder Popular') are intended to allow for meaningful participatory democracy. In particular, the municipal assemblies are theoretically supposed to represent the will and opinions of the

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[39] My translation and paraphrase, based on hand written interview notes

people. The municipal level is the only level at which electoral candidates are directly and competitively elected by their neighbors in the electoral district.

The municipal assemblies are charged with the task of directing and monitoring all economic, social, educational and public health activities in the municipality (Valdes Paz 2001). The municipal delegates are expected to entertain and resolve complaints and suggestions received from their constituents. Constituents have the opportunity to meet with delegates once a week during delegate office hours, and twice a year for formal accountability ('plantamiento') sessions.

In the early 1990's, an attempt to address ongoing complaints about the accessibility of municipal assemblies led to the creation of People's Councils. People's Councils, which became part of the Cuban Constitution in 1992, are made up of municipal delegates of approximately 10 adjoining municipal electoral districts, as well as local representatives of mass organizations and state enterprises. People's Councils represent an attempt to bring municipal government to the common people, by being more accessible to neighborhoods in urban areas, and to isolated locations in rural areas. The mandate of the councils includes dealing with constituent complaints ('plantamientos'), overseeing local economic activities, monitoring local administrators, fighting corruption, and mobilizing the local public (Valdes Paz 2001).

The above paragraphs provide a brief introduction to Cuba's People's Councils. As mentioned above, two interviewees described the importance of the People's Councils to the implementation of environmental legislation.

In the first instance, the interviewee pointed out that Law 81 had been designed with appreciation of the power of the People's Councils in mind. The second interviewee, a sociologist working directly on environmental issues in communities, described the People's Councils as the key decision makers in every Cuban Community:

> "We began (our project) by visiting the communities, by getting to know the people there, by engaging in small talk and by introducing ourselves and our objectives to the local representatives of the municipal people's power. Without the approval and support of the representatives, no project can proceed in any community. This recognition and support is absolutely fundamental."[40]

This recognition of the pivotal role exercised by the People's Councils surfaced repeatedly in the community case studies.

Reliability of Interview Data

An analysis of the interviews would not be complete without a discussion of the reliability of the data thus produced. A purely positivist perspective would treat the interview data as accounts of an objectively verifiable reality. However, an investigation into the implementation of a framework environmental law will never yield one objectively verifiable reality because the aggregate of circumstances making up the act of implementation are too vast and varied. Instead, I prefer to view the interviews as constructed accounts of personal experiences. In aggregate, these individual accounts

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[40] My translation, based on audio recording of interview

present a valuable and reliable version of events from a number of identifiable perspectives. Thus, the interview data is in actuality a collection of individual perspectives.

Given the importance of individual perspective to the interview data, it is important to understand as much as possible the cultural identity of the interviewees. Of the seventeen people interviewed, eleven are female and six are male. Twelve are residents of Havana city and five are residents of Santiago city. Four are university professors, three are Ministry bureaucrats, five are research scientists, four are expatriate INGO staff or diplomats, and one is a freelance language teacher. Based on these obvious characteristics, the interviewees are predominantly female, urban, well educated professionals who work in the environmental field.

To understand the influence of these characteristics on individual perspective, it is interesting to note the correlation of certain evident characteristics such gender, location, and profession with the interview results.

Place of residence of the interviewees seems to have greatly influenced interviewees' perspectives. Without exception, all of the interviewees are from one of Cuba's two biggest cities: Havana or Santiago de Cuba. Thus, the perspective emerging from the interviews is an urban one. As mentioned above, twelve of the interviewees are residents of Havana and five are residents of Santiago. A comparison of the interview results by region shows that the biggest difference is Havana residents' heightened sensitivity to inter-ministerial cooperation and political will. As Table 7 demonstrates, 'political will'

was named as an influential factor in six individual interviews. Having been named six times, it was one of the most frequently identified influential factors. Notably, all six of the interviewees who discussed 'political will' are from Havana. Similarly, 'inter-ministerial cooperation' was named as an influential factor by four interviewees, again all from Havana. Neither factor was mentioned by any of the Santiago interviewees. My interpretation of this is quite simplistic. Because Havana, as the nation's capital, is the political and bureaucratic headquarters of the country, it is not surprising that Havana's citizens are more exposed and thus more aware of the intricacies of political will and inter-ministerial cooperation.

It is also possible that interviewees have different perspectives based on gender. Of the seventeen interviewees, eleven are female and six are male. A comparison of factors named by women to those named by men suggests that with one notable exception, there is very little difference. The sole exception was the factor 'environmental education'. It was named as an important influence by six interviewees, and all six were women. None of the male interviewees highlighted environmental education as an influential factor. This may suggest that, among the people interviewed, women are more aware of and concerned about the importance of education.

Profession seems to have a small influence on perspective. As detailed above, the seventeen interviewees represent four distinct professions: four university professors, three bureaucrats, five research scientists, and four expatriates employed as diplomats or INGO staff. To investigate the influence of profession, I compared the influential factors listed by members of each profession. In this case, attention to the influence of foreign

investment is the only notable difference in the distribution of answers across the professions. The influence of foreign investment was highlighted predominantly by the expatriate group. This seems to confirm what was stated in the interviews: namely, that foreign investments in the form of joint ventures do not cause noted negative environmental consequences. In other words, foreign investors seem to be outside of the radar of the Cuban environmental professionals interviewed because foreign investors comply with the regulations and thus do not cause any problems. It is possible that the expatriates group was motivated to comment on this as a matter of interest and pride.

As stated above, I view the interview data not as accounts of an objectively verifiable reality, but rather as constructed accounts of personal experiences. Data collected via interview process is constructed by both the interviewer and the interviewee. Variables such as the setting of the interview and the interviewer/interviewee dynamic influence the way the information is constructed and presented by the interviewee, and influence the way the information is heard and interpreted by the interviewer. One of the most obvious dynamics that may well have influenced the interviews was my status as a foreign student openly doing social research. A second obvious dynamic was my capacity in the language of the interviews; Spanish is not my first language whereas Spanish is the mother tongue of most of the interviewees. A third (less obvious but nonetheless omnipresent) dynamic was the undercurrent of ingrained caution that always seems to temper political conversation in Cuba. These dynamics, and many more of which I may not even have been aware, undoubtedly influenced the way that data was imparted by the interviewees and received by myself, the interviewer.

Results of Questionnaires

As explained previously, twelve questionnaires were administered and completed. The questionnaires (see Appendix A) consist mainly of a list of factors that the respondents were asked to rank in order of the importance of their influence. The following table shows the compiled results of all the questionnaires. The first column displays the factors that were listed on the questionnaire. The second column shows the numerical values that were assigned to each factor by each of the twelve respondents. A designation of zero signified that the influence of a given factor was of no importance; while a designation of ten signified that the influence of a given factor was of key importance.

Table 9: Number Values Assigned to Factors Listed on Questionnaire

Factors listed on Questionnaire	Number values assigned by all twelve respondents
1) Availability of financial resources	10,10,8,5,10,10,5,5,8,7,9,9
2) Coordination and cooperation amongst the various national ministries	10,10,7,5,5,5,5,5,5,5,7,5
3) The intention of each Ministry to execute its own Sectoral Environmental Strategy	5,6,3,5,5,5,10,7,5,5,3,3
4) Centralized economic planning and the resulting absence of private economic interests	5,7,1,10,5,10,7,5,10,5,1,3
5) The national strategy for territorial planning developed by the Ministry of Economy and Planning	5,6,3,5,5,5,5,5,5,5,3,3
6) Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	5,6,10,2,5,10,5,5,7,5,10,5
7) A relatively low level of consumption and an emphasis on green technologies such as organic agriculture and alternative energy	5,6,8,5,5,5,10,5,5,5,8,5
8) The national capacity to mitigate and retire old, obsolete technologies and replace these	5,4,5,5,5,10,10,5,5,5,5,5

with modern technologies	
9) State capacity to maintain control over foreign investors	5,7,8,5,5,10,10,5,5,5,8,5
10) CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	10,5,10,9,5,10,5,5,5,5,10,9
11) An environmental consciousness amongst high-ranking authorities in ministries and state enterprises	5,7,6,5,5,5,7,5,5,5,6,5
12) The power to impose fines and/or sanctions against enterprises that break the law	5,9,6,5,5,5,5,5,5,5,6,5
13) A feeling of national pride in the preservation of natural resources	5,7,7,5,5,5,5,5,5,5,7,5
14) High-ranking political will	5,10,10,5,5,10,7,5,5,5,10,9
15) Exploitation of natural resources for the purpose of meeting basic survival needs	5,5,6,5,7,5,5,7,5,5,6,7
16) Local / community participation in environmental management decision making	5,5,5,5,10,10,5,10,10,10,5,3
17) A culture of environmental consciousness at the local level	10,5,7,5,10,5,5,10,10,9,7,3

Analysis of Questionnaire Results

Table 9 (above) shows the factors listed on the questionnaires as well as their scores. In order to understand and interpret these questionnaire results, the following table (Table 10) shows the factors and their scores as well as three additional interpretive columns.

As with Table 9, the first column of Table 10 displays the factors that were listed on the questionnaire and the second column of Table 10 shows the numeric rankings out of ten that were assigned to each factor by the twelve respondents. The third column displays both the cumulative and average value of each factor. The cumulative value is the total of the number values assigned by all twelve respondents. The highest possible cumulative

value is 120 (if a factor received a score of ten from all twelve respondents) and the lowest possible is 0 (if a factor received zero from all respondents). The average value, displayed in brackets, is the cumulative value divided by the number of respondents. The maximum possible average value is 10, while the minimum possible is 0. The fourth column is a ranking of the factors based on cumulative value. The factor with the highest cumulative score is ranked first, and the factor with the lowest cumulative score is ranked last. The fifth column shows the number of questionnaires on which the factor was indicated to be of key importance. In other words, it shows the number of respondents who assigned a value of nine or ten to that factor. A single factor could have been assigned key importance a maximum of twelve times.

Table 10: Cumulative Results of Questionnaires

Factors listed on Questionnaire	Number values assigned by all twelve respondents	Cumulative value (average value)	Ranking by cumulative value	Number of times considered "key" (9 or 10)
1) Availability of financial resources	10,10,8,5,10,10,5,5,8,7,9,9	96 (8)	#1	6/12
2) Coordination and cooperation amongst the various national ministries	10,10,7,5,5,5,5,5,5,5,7,5	74 (6.2)	#7	2/12
3) The intention of each Ministry to execute its own Sectoral Environmental Strategy	5,6,3,5,5,5,10,7,5,5,3,3	62 (5.2)	#12	1/12
4) Centralized economic planning and the resulting absence of private economic interests	5,7,1,10,5,10,7,5,10,5,1,3	69 (5.75)	#9	3/12
5) The national strategy for territorial planning developed by the Ministry of Economy and Planning	5,6,3,5,5,5,5,5,5,3,3	55 (4.6)	#13	0/12

6) Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	5,6,10,2,5, 10,5,5,7,5, 10,5	75 (6.25)	#6	3/12
7) A relatively low level of consumption and an emphasis on green technologies such as organic agriculture and alternative energy	5,6,8,5,5, 5,10,5,5,5, 8,5	72 (6)	#8	1/12
8) The national capacity to mitigate and retire old, obsolete technologies and replace these with modern technologies	5,4,5,5,5, 10,10,5,5,5 ,5,5	69 (5.75)	#9	2/12
9) State capacity to maintain control over foreign investors	5,7,8,5,5, 10,10,5,5,5 ,8,5	78 (6.5)	#5	2/12
10) CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	10,5,10,9,5 ,10,5,5,5,5, 10,9	84 (7)	#3	6/12
11) An environmental consciousness amongst high-ranking authorities in ministries and state enterprises	5,7,6,5,5, 5,7,5,5,5, 6,5	66 (5.5)	#11	0/12
12) The power to impose fines and/or sanctions against enterprises that break the law	5,9,6,5,5, 5,5,5,5,5, 6,5	66 (5.5)	#11	1/12
13) A feeling of national pride in the preservation of natural resources	5,7,7,5,5, 5,5,5,5,5, 7,5	66 (5.5)	#11	0/12
14) High-ranking political will	5,10,10,5,5 ,10,7,5,5,5, 10,9	86 (7.2)	#2	5/12
15) Exploitation of natural resources for the purpose of meeting basic survival needs	5,5,6,5,7, 5,5,7,5,5, 6,7	68 (5.6)	#10	0/12
16) Local / community participation in environmental management decision making	5,5,5,5,10, 10,5,10,10, 10,5,3	83 (6.9)	#4	5/12
17) A culture of environmental consciousness at the local level	10,5,7,5,10 ,5,5,10,10, 9,7,3	86 (7.2)	#2	5/12

Based on cumulative scores as shown in the above table, the five most important factors which influence the implementation of Cuban environmental legislation are as follows:

1. Availability of financial resources,
2. High-ranking political will,
3. A culture of environmental consciousness at the local level,
4. CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level, and
5. Local / community participation in environmental management decision-making.

These top five factors had average scores of 8, 7.2, 7.2, 7, and 6.9 respectively. It is reasonable to be satisfied that an average score of 7 denotes significant importance, given that a score of 0 indicated "no importance" while a score of 10 indicated "key importance".

Cumulative and average values alone do not provide sufficient insight into the questionnaire results. By blending all individual responses into one group response, cumulative and average scores obscure insight into how individuals approached the questionnaire. They aren't capable, for example, of showing the number of times a factor was assigned a 9 or a 10 by individual respondents. This is vital information because (as per the instructions given on the questionnaire) a 9 or a 10 indicated that the respondent considered that factor to be of key importance. The fifth column in the table above does show the number of times a factor was assigned a 9 or a 10. Based on this measurement, the five most important factors are the same as above. They do, however, fall into a slightly different order, as follows:

1. Availability of financial resources,
2. CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level,
3. High-ranking political will,
4. Local / community participation in environmental management decision making, and
5. A culture of environmental consciousness at the local level.

It is interesting to note that "CITMA's capacity" and "local / community participation" rank higher using this measure than when ranked based on cumulative score. In contrast, "political will" and "local environmental consciousness" rank lower using this measure.

Thus far, the questionnaires have been analyzed using measures of cumulative score, average score, and indicators of key importance. An important angle that none of these measures demonstrate is the degree to which the twelve respondents differed or agreed. In other words, the cumulative, average, and key importance measures all fail to demonstrate the variance in scores assigned to each factor. For example, the factor with the highest cumulative score ("availability of financial resources" with a cumulative score of 96) was given a score of 10 by only four respondents. Conversely, three respondents assigned a value of 5 to this factor. In qualitative terms, this means that four respondents considered this factor to be of key importance while three considered it to be of only average importance. Similarly, the other factors with the highest cumulative values were assigned a score of 9 or a score of 10 only five or six times out of a possible twelve times. This demonstrates that there is a significant difference of opinions amongst interviewees as to which factors are the 'key' or 'most important' factors. It is reasonable to consider

therefore that factors with high levels of variance are more contentious whereas factors with little variance are more commonly agreed upon.

The following table shows the result of a calculation of variance for each factor[41].

Table 11: Per Factor, Variance in Individual Interviewee Answers

Factors	**Variance**
1) Availability of financial resources	3.83
2) Coordination and cooperation amongst the various national ministries	3.47
3) The intention of each Ministry to execute its own Sectoral Environmental Strategy	3.47
4) Centralized economic planning and the resulting absence of private economic interests	9.35
5) The national strategy for territorial planning developed by the Ministry of Economy and Planning	0.91
6) Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	5.85
7) A relatively low level of consumption and an emphasis on green technologies such as organic agriculture and alternative energy	2.66
8) The national capacity to mitigate and retire old, obsolete technologies and replace these with modern technologies	3.68
9) State capacity to maintain control over foreign investors	3.75
10) CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	5.6
11) An environmental consciousness amongst high-ranking authorities in ministries and state enterprises	0.58
12) The power to impose fines and/or sanctions against enterprises that break the law	1.25
13) A feeling of national pride in the preservation of natural resources	0.75
14) High-ranking political will	5.31
15) Exploitation of natural resources for the purpose of meeting basic survival needs	0.73
16) Local / community participation in environmental management decision making	7.07
17) A culture of environmental consciousness at the local level	5.97

[41] Variance is calculated as the average squared deviation of each number in a distribution from the mean of the distribution.

Table 11 shows that factor #4, "Centralized economic planning and the resulting absence of private economic interests", received the most highly varied responses. Factors #16, #17, #6, #10, and #14 also received responses that were far from unanimous. On the other hand, respondents displayed a high level of agreement with respect to factors # 5, #11, #13, and #15.

For the most part, factors with high levels of variance were also factors that ranked high based on cumulative score. Unanimously, factors with low levels of variance ranked quite low based on cumulative score. This strongly suggests that respondents were in agreement as to which factors are of minor importance. Conversely, respondents were more likely to disagree about which factors are of "key" importance.

This variance in opinion about "key" factors is an interesting result that might be partially explained by trends within the questionnaire responses. One potential explanation for the variance is regional difference of opinion. As mentioned, of the twelve questionnaire respondents seven are from the capital city of Havana while five are from Cuba's secondary city, Santiago de Cuba. The two cities lie at opposite ends of the island, separated by a geographical distance of approximately 800 kilometres. The following table attempts to compare the responses of respondents from Havana to those from Santiago de Cuba.

The first column lists all the factors that were rated a 9 or a 10 by at least one respondent from Havana. The second column notes the number of Havana respondents, out of a

possible total of seven, who rated this factor a 9 or a 10. It then shows the percentage of Havana respondents who rated this factor a 9 or a 10. The third column lists all the factors that were rated a 9 or a 10 by at least one respondent from Santiago. The fourth column notes the number of Santiago respondents, out of a possible total of seven, who rated this factor a 9 or a 10. It then shows the percentage of Santiago respondents who rated this factor a 9 or a 10.

Table 12: Comparison of Key Questionnaire Factors, Havana vs. Santiago Respondents

HAVANA (7 respondents)		SANTIAGO (5 respondents)	
Factors rated 9 or 10		Factors rated 9 or 10	
Availability of financial resources	5 / 7 71.4%	Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	2 / 5 40%
Centralized economic planning and the resulting absence of private economic interests	2 / 7 28.6 %	High-ranking political will	2 / 5 40%
Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	1/7 14.3%	CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	2 / 5 40%
The national capacity to mitigate and retire old, obsolete technologies and replace these with modern technologies	2 / 7 28.6 %	Local / community participation in environmental management decision making	3 / 5 60%
State capacity to maintain control over foreign investors	2 / 7 28.6 %	Culture of environmental consciousness at the local level	3/5 60 %
CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the	4 / 7 57.1%	Availability of financial resources	1 / 5 20%

local level			
Local / community participation in environmental management decision making	2 / 7 28.6%	Centralized economic planning and the resulting absence of private economic interests	1 / 5 20%
The intention of each Ministry to execute its own Sectoral Environmental Strategy	1 / 7 14.3%		
A relatively low level of consumption and an emphasis on green technologies such as organic agriculture and alternative energy	1 / 7 14.3%		
Coordination and cooperation amongst the various national ministries	2 / 7 28.6 %		
Culture of environmental consciousness at the local level	2 / 7 28.6 %		
High-ranking political will	2 / 7 28.6 %		
The power to impose fines and/or sanctions against enterprises that break the law	1 / 7 14.3%		

The above table suggests that Havana respondents overall are more concerned with the availability of financial resources and with the capacities of CITMA, and that Santiago respondents in general are more cognizant of local participation and local environmental consciousness. Given the small number of respondents and the absence of a control group, it is impossible to determine whether the apparent regional differences hinted by this table are actually statistically significant. However, I feel that these apparent regional differences are worth noting because they make sense within the context of Cuba. Havana, the capital city, is the centre of national government and the home of all national Ministries. Santiago de Cuba, Cuba's geographically distant second city, prides itself on a cultural and political individuality that is purposefully unique from that of Havana. It is

not altogether surprising that Havana respondents perceive the implementation of environmental legislation as a more top-down, bureaucratic exercise. Similarly, it makes sense that residents of Santiago are more attuned to the importance of target group participation and buy-in to the implementation process. While this apparent regional variation is by no means absolute, it is an interesting possibility that may explain some of the variability in questionnaire responses.

A second potential explanation for this variance is a difference of opinion originating from gender. The following table compares the answers of female respondents to the answers of male respondents. Of the twelve questionnaire respondents, five were male and seven were female.

The first column lists all the factors that were rated a 9 or a 10 by at least one male respondent. The second column notes the number of male respondents (out of a possible total of five) who rated this factor a 9 or a 10. It then shows the percentage of male respondents who rated this factor a 9 or a 10. The third column lists all the factors that were rated a 9 or a 10 by at least one female respondent. The fourth column notes the number of female respondents (out of a possible total of seven) who rated this factor a 9 or a 10. It then shows the percentage of female respondents who rated this factor a 9 or a 10.

Table 13: Comparison of Key Questionnaire Factors, Male vs. Female Respondents

MALE (5 respondents)		FEMALE (7 respondents)	
Availability of financial resources	3 / 5 60%	Availability of financial resources	4 / 7 57.1%

Centralized economic planning and the resulting absence of private economic interests	1 / 5 20%	The intention of each Ministry to execute its own sectoral Environmental Strategy	1 / 7 14.3%
Cuba's high level of scientific education and the influence of scientists on the development and creation of policies	3 / 5 60%	A relatively low level of consumption and an emphasis on green technologies such as organic agriculture and alternative energy	1 / 7 14.3%
The national capacity to mitigate and retire old, obsolete technologies and replace these with modern technologies	1 / 5 20%	The national capacity to mitigate and retire old, obsolete technologies and replace these with modern technologies	1 / 7 14.3%
State capacity to maintain control over foreign investors	1 / 5 20%	State capacity to maintain control over foreign investors	1 / 7 14.3%
CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	4 / 5 80%	Coordination and cooperation amongst the various national ministries	1 / 7 14.3%
Local / community participation in environmental management decision making	2 / 5 40%	CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level	1 / 7 14.3%
High-ranking political will	3 / 5 60%	A wide culture of environmental consciousness at the local level	5 / 7 71.4%
Coordination and cooperation amongst the various national ministries	1 / 5 20%	Centralized economic planning and the resulting absence of private economic interests	2 / 7 28.6%
The power to impose fines and/or sanctions against enterprises that break the law	1 / 5 20%	Local / community participation in environmental management decision making	4 / 7 57.1%
A wide culture of environmental consciousness at the local level	1 / 5 20%		

The above table shows that the male respondents tended to consider financial resources, scientific ability and influence, CITMA's capacities, and political will as the most influential factors. The female respondents, on the other hand, appear to prioritize the importance of financial resources, local environmental consciousness, and local participation. Again, the small number of respondents and the absence of a control group make it difficult to declare with certainty that these apparent gender differences are reliable.

Overall, the questionnaires fulfilled their intended function of providing supporting detail and context to the interview data. Whereas the interviews provided qualitative and descriptive information, the questionnaires served to highlight the most important data and to uncover trends in opinion across respondents. In summary, the questionnaires solidly demonstrate that the five most important factors influencing the implementation of environmental legislation, according to the respondents, are (in no special order)

- Availability of financial resources,
- High-ranking political will,
- A culture of environmental consciousness at the local level,
- CITMA's capacity to make use of environmental management instruments such as EIAs, environmental licenses, and environmental inspections at the local level, and
- Local / community participation in environmental management decision-making.

The questionnaires also solidly demonstrate that respondents largely agree about factors of modest importance but display more variance in opinion about factors of "key"

importance. Finally, the questionnaires strongly suggest that there are regional and gendered trends in opinion about the relative importance of the listed factors.

Results of Community Case Studies

Six case studies reported by six separate Cuban authors were analyzed in order to provide snapshots of real community situations and to understand what factors play a role in the implementation of environmental legislation in these particular communities. Summary descriptions of these six community case studies can be found in Appendix B.

The following table lists the case studies and summarizes the factors that, according to the analysis of the authors, influence the community's ability to resolve environmental problems identified at the community level.

Table 14. Factors Identified as Influential by Community Case Studies

	Case Study	Factors
1.	'Educacion Ambiental en la Reserva de la Biosfera de Bacanao' – Marta Rosa Munoz	▪ political will ▪ qualified technical personnel / institutions ▪ environmental education / consciousness at community level ▪ level of satisfaction of basic needs
2.	'Propuesta de una Estrategia de Educacion Ambiental Para Pobladores de Una Zona Montanosa: Experiencia en la Comunidad de Ocujal del Turquino'; Dra. Neris Rodriquez Matos	▪ popular environmental education ▪ level of satisfaction of basic needs
3.	'Estudio Comparativo	▪ effectiveness of People's Councils at resolving

	Sobre El Funcionamiento de los Consejos Populares Libertad y Pogolloti-Finlay-Belen del Municipio Marianao'; Roberto Almaguer Guerrero	people's complaints ▪ availability of material resources ▪ degree of hierarchy and centralization of bureaucracy within the Organs of Peoples Power
4.	'Creacion de Un Modelo Para El Manejo de los Recursos Costeros por las Comunidades en Cuba: Comunidad Baracoa'; Beatriz Diaz Gonzalez	▪ degree of community participation ▪ effectiveness of People's Councils at resolving people's complaints ▪ financial and material scarcity engendered by the Special Period ▪ level to which basic needs are satisfied
5.	'Influencia del Desarrollo Turistico en el Medio Ambiente en la Comunidad Aguada La Piedra, Provincia Holguin'; Adrian Aquilera Garcia	▪ community involvement / participation ▪ degree of economic diversification vs. dependence on one sector
6.	'Diagnostico Socio-Ambiental Del Municipio Plaza de la Revolucion'; Lic. Gariria de la Moz	▪ political will ▪ availability of technological and financial resources ▪ environmental education / consciousness at community level

Analysis of Community Case Studies Results

Table 14 (above) lists the case studies and summarizes the factors that were highlighted in each case study as influential to a community's ability to resolve environmental problems. A close read of the factors named in each case study shows that, despite the usage of slightly different vocabulary, the case study authors are naming a small number of factors over and over again. In other words, the list of factors condenses very neatly

into just a few categories of similar ideas. The following table demonstrates these categories.

Table 15: Frequency of Factors Identified by Community Case Studies

	Factor	# of case studies that emphasized this factor	Case Studies which emphasized this factor
1	Availability of material and financial resources	3/6	#3 Marianao; #4 Baracoa; #6 Plaza
2	Level of satisfaction of basic needs	3/6	#1 Baconao ; #2 Ocujal del Turquino; #3 Baracoa
3	Local environmental consciousness / education	3/6	#1 Baconao; #2 Ocujal del Turquino; #6 Plaza
4	Political will	2/6	#1 Baconao; #2 Plaza
5	Effectiveness of People's Councils	2/6	#3 Marianao; #4 Baracoa
6	Community involvement / participation	2/6	#4 Baracoa; #5 Aguada la Piedra
7	Qualified technical personnel and institutions	1/6	#1 Baconao
8	Degree of hierarchy and centralization of bureaucracy within the Organs of Peoples Power	1/6	#3 Marianao
9	Degree of economic diversification vs. dependence on one sector	1/6	#5 Aguada la Piedra

As the above table demonstrates, three factors were named in three out of the six (one half) of the case studies. The 'availability of material and financial resources', 'level of satisfaction of basic needs', and 'local environmental consciouness' stand out as the three factors named most often. Otherwise, three factors were highlighted twice. 'Political will', 'effectiveness of People's Councils', and 'community involvement / participation' were all named in two out of six case studies. The remaining three factors were mentioned in only one case study.

Table 15 demonstrates the frequency with which factors were named throughout the six case studies. The fact that a factor was highlighted in more than one case study provides an indication of the importance of that factor. However, in order to understand the nature of the influence of the factor, it is necessary to refer to the context provided in the case study. The following sections present the case study contexts in which the factors were shown to be important. Only the factors that were mentioned more than once are treated here.

Availability of Material and Financial Resources

In three of the case studies, a lack of material and financial resources was highlighted as both a cause of environmental problems and as a major hindrance to their resolution. All three authors implied that communities would be empowered to better manage their environments with the aid of more material and financial resources.

Admittedly, 'material and financial resources' is a very broad category. I use this term because the case study authors themselves used these words. Thus it is important to understand what exactly the authors are referring to.

In the Marianao case study, Almaguer Guerrero blames a 'lack of material and financial resources' for the inability of grassroots political representatives to respond meaningfully to citizen requests. The vast majority of the citizen's requests are for the maintenance and repair of fundamental public infrastructures including housing, water supply, and waste

disposal. Thus in this case, the specific material and financial resources that are lacking are public funds and materials for basic infrastructure maintenance.

The Baracoa case study chronicles this community's problems with waste collection and disposal. Diaz Gonzalez points out that Baracoa's waste collection and removal services were discontinued as a direct result of Cuba's economic collapse in the early 1990's. Thus the topic of financial and material scarcity, which is raised throughout the case study, refers broadly to all of the many public services that were lost to the austerity of the Special Period. As in Marianao, the availability of public funds and public materials to support basic services is shown to be of central importance to Baracoa's relationship with the environment.

The Plaza case study also accords central importance to the role of 'financial and material resources'. Through detailed description, Gariria de la Moz illustrates that Plaza's principal environmental troubles are largely attributable to deteriorating public infrastructures and deficient public services. In turn, the principal cause of all the deficient services, according to Gariria de la Moz, is the country's persistent financial and material shortage.

In the specific context of these case studies (Cuba after the collapse of the socialist bloc) the availability of material and financial resources is a factor that all Cubans recognize as vital. To name the 'availability of material and financial resources' as an important influence in environmental management may seem like a patently obvious generalization at first glance. But as the above paragraphs show, for all three of these authors the phrase

is representative of an all-encompassing yet precise and definable public reality. That reality of scaled back public services and crumbling infrastructures makes it impossible to minimize the negative impacts of humans on their environments.

Level of Satisfaction of Basic Needs

A number of the case studies described situations in which local residents are pushed to overuse natural resources in order to satisfy their basic needs of food, cooking, warmth, and shelter. In the rural communities of Baconao and Ocujal, the case studies describe an indiscriminate deforestation in both communities. While the communities are probably aware of the negative ramifications of this deforestation, certain members of the community are nonetheless forced by an immediate need for domestic firewood and building materials to use the forest unsustainably. In Ocujal as well, a reliance on forest products to supplement food supply has led to a destruction of natural habitats and a resulting decrease in local biodiversity. In the town of Baracoa, families are also looking for affordable sources of food. Many are thus raising livestock in their yards, despite regulations prohibiting this practice. The resulting density of livestock in an urban area has created not only a solid waste problem but also the potential for an environmental health epidemic.

As the above examples demonstrate, the degree to which a community's basic needs are met exerts a great deal of influence on that community's relationship with the surrounding environment. A community in which basic needs are not satisfied is much more likely to make the rational decision to exploit resources unsustainably for the sake

of immediate survival. Communities whose basic needs are met will have the luxury of considering a more rational, sustainable, and longer-term perspective.

Local Environmental Consciousness / Education

This factor was highlighted by three case study authors who called for increased environmental education, and for the creation of a greater civic environmental consciousness. All three case study authors seem to believe that environmental education and consciousness are key factors in encouraging communities to act as stewards of their own environments. And yet, as the previous two factors point out, the perennial lack of public resources and the need to satisfy basic needs often override all other considerations. Environmental education and consciousness, then, become important factors in relationship to activities for which there are better alternatives.

The authors of the Baconao, Ocujal, and Plaza case studies describe situations in which community members are extremely knowledgeable and proud of their local ecology, and yet continue to act in easily preventable ways that have a negative impact on said ecology.

As shown in the Baconao case study for example, most community members can name and describe an impressive number of local plant and animal species. In this sense, community members exhibit a deep interest and appreciation for the surrounding environment. At the same time, it is common practice to dump large household waste in illegal dumpsites throughout the forest, local rivers, and beaches, and to wash cars and

animals in local water holes. None of these pursuits are necessary for daily survival; all could be discontinued and similar means achieved with a better alternative. Munoz thus perceivs a disconnect between the theoretical knowledge displayed by the community, and the reality of the community's actions. She explains this disconnect as due in part to the community's "limited conceptualization of the term environment" (Munoz 2001). According to Munoz, the community's concept of environment is limited to natural components and ignores human socio-cultural and economic aspects. In her opinion, the community would benefit from environmental education that would help them to appreciate the ramifications of their own actions. In other words, she believes that environmental education would lead to a deepening of environmental consciousness and would encourage the community to reflect on environmental impacts before acting.

Matos Rodriquez makes a similar observation in Ocujal del Turquino. She reports examples of human behavior that belie a lack of insight into the connections between human actions and environmental degradation. She observes that environmental education as taught in the local schools is limited to the study of biology, such that the intrinsic relation of biology with human culture has been neglected. Thus she is a proponent of a holistic form of environmental education that would encourage people to act more responsibly.

Like the others, Gariria de la Moz calls for education programs that will sensitize Plaza residents to the ramifications of certain behaviors. Notably, he feels that education programs should stimulate feelings of identification with and responsibility for the local environment.

In summary, this factor (local environmental consciousness / education) refers to human impacts that could be prevented through increased education and the fostering of a sense of personal responsibility towards the environment.

Political Will

The importance of political will to local environmental management was mentioned in both the Baconao and the Plaza case studies. Munoz, author of the Baconao case study, observed an abundance of political will for sustainable environmental management at both the local and national levels. Given the multitude of environmental issues she also observed in Bacanoa, the implication is that political will, while necessary, is not in this case a sufficient condition for the promotion of sustainable environmental management.

Gariria de la Moz makes a similar observation. In his words, " the economic problems faced by this country are the principal cause of all the deficient services; however the political will to maintain these services is present..." (Gariria de la Moz 1998). Thus, he believes that political will is present, but that it is not sufficient in the face of the country's persistent financial and material shortages.

Effectiveness of People's Councils

The ability of People's Councils to respond to environmental complaints is the subject of the Marianao case study. It is also an important theme of the Baracoa case study.

The effectiveness of the People's Councils is extremely important in the Cuban context because People's Councils represent the average citizen's best opportunity for participation in the political process. In other words, People's Councils are one of the principle means through which citizens can participate in governance.

However, as both case studies demonstrate, People's Councils representatives are seriously constrained in their ability to respond concretely to local issues brought forward by citizens. In the vast majority of cases, the People's Councils representatives are unable to direct resources towards the issues, and furthermore are unable to insert these issues onto the Municipal Assembly's predetermined agenda. Citizen's participation, in the form of complaints and input to their representative, is thus undermined such that it is virtually meaningless.

Both authors highlight the failure of this democratic process because they feel it has a direct impact on a community's relationship with the environment. Both are of the opinion that an increase in the representatives' ability to respond concretely to citizen input would lead directly to improvements in the local environment.

Community Involvement / Participation

The importance of genuine community involvement and participation in issues pertaining to environment and development was highlighted in both the Baracoa and Aguada la Piedra case studies.

In the Baracoa case study, Diaz Gonzalez attributes the successful clean-up of the polluted lagoon to the fact that the community actively and enthusiastically took control of its own resource management. Diaz Gonzalez explains that, in the Cuban context, " no body of inspectors or system of fines can coerce a community to do something that it feels is against its interests" (Diaz Gonzalez 2003). Thus, the impetus and desire for environmental change must come from the community itself.

In the case of Aguada La Piedra, Gaviota Corporation moved into town, constructed a substantial tourism infrastructure, and changed irrevocably the physical environment of the community. According to the established residents, at no point were they informed or consulted by Gaviota Corporation about the changes that were to occur in their community. The author of this study, Gariria de la Moz, feels that many of the community's environmental and socio-cultural problems could have been averted if community members had been consulted and recruited for involvement in the planning stages.

These two case studies demonstrate two communities with very different experiences. In one, citizen participation led to successful resolution of an environmental problem. In the other, a lack of local participation contributed to the immiseration of a community. Ultimately, both case studies argue the same point: that genuine local involvement and participation have a crucial impact on a community's relationship with its environment.

Reliability of Community Case Studies Results

The six community case studies are particularly important to this thesis methodology because they provide a unique and additional level of analysis. The interviews and questionnaires invited reflections that were generic to the country as a whole; and thus provided a 'meso' level of analysis. In contrast, the case studies offer detailed descriptions of local, community-level environmental circumstances. Thus they provide a 'micro' or community level of analysis.

While the case studies do provide a micro or community level analysis, it is important not to conflate the case study author's perspective with that of the community. Each case study was written from the perspective of a researcher who is Cuban, but not a resident of the subject community. The voice of each author is not the voice of the community, although each author clearly invested time and effort to achieve detailed and intimate knowledge of the subject community. In most cases, the case study authors spent time in the community conducting interviews, administering surveys, participating in People's Councils, and making general observations. It is true that each one made a stated attempt to fairly represent the views and circumstances of the local community members, however (as with all social research) each individual author inevitably interpreted their observations through their own ideological perspective.

Similarly, the case studies do not provide a true bottom-up perspective. With the exception of the two urban case studies (Marianao and Plaza), the authors were university-educated, city-based researchers who chose to study and describe rural and

relatively traditional communities. Unavoidably, these authors' ideological perspectives are at least partially shaped by their provenance from urban, university settings; settings that are very different than the ones they are investigating. The authors themselves are not members of the target group, thus the perspective offered cannot be considered bottom-up even though the analysis is at the local level. Rather, they offer a top-down perspective on what is happening at the local level.

Another influence on the authors' analyses is academic freedom. The academic work represented in the six case studies contains a number of trends that suggest to me an ingrained habit of academic reticence. To begin with, the authors tended to characterize their work as 'socio-environmental diagnostics' or 'environmental surveys'. They emphasized factual, objective description at the expense of subjective analysis. For example, in all case studies the majority of text is devoted to descriptions of community geography, community economics, population, environmental complaints, etc. while very little text is devoted to analysis of underlying causes. I was left with the impression that factual description is safe, acceptable, and normal whereas hard-hitting analysis is potentially inflammatory and definitely unusual. For these reasons, the factors identified as influential by the case study authors may simply represent what is acceptable to propose. In other words, the factors listed may simply be toeing an invisible line of permissibility. If this is the case, then the analyses provided by these case studies may not provide the entire opinion of the case study author but rather may provide only what he or she feels safe discussing. In other words, some but not all of the truth as understood by the case study author may be represented.

Furthermore, five of the six case studies come from the office of FLACSO – Cuba (Facultad Latinoamericana de Ciencias Sociales - Cuba). It is entirely possible that the authors of these five case studies share an ideological perspective that has been shaped by association with this institution. Indeed, FLACSO-Cuba is thematically focused on certain aspects of social development. According to its website, the focus of FLACSO-Cuba is to promote original research and postgraduate education on facets of social development including quality of life, poverty, rural development, environment, gender, family relations, and politics[42]. Repeated highlighting of these themes in the case studies may be more indicative of FLACSO's influence than the actual situation in the community.

In summary, the case studies provide a list of influential factors that I will incorporate into my final analysis of the process of implementation of environmental policy in Cuba. However, I incorporate these factors with the understanding that they represent a particular point of view, as opposed to a description of an objectively verifiable reality.

Results and Analysis of Participant Observation

As described in the Methodology chapter (Chapter Six), during the time I stayed in Cuba I had the opportunity to participate in a variety of formal and informal activities that provide insight into the specific research question and the broad theoretical objective of this thesis.

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[42] The FLACSO website URL is http://www.flacso.uh.cu .

At the three-day **Social Science Research Methods Workshop**, I witnessed debates, discussions, and presentations by Cuban professors on topics including community participation, community education, interdisciplinary research, participative resource management, and the role of social research in contemporary Cuba. I observed that one point was raised over and over again by workshop participants. The point stressed with such conviction was the importance and the potential influence of the local People's Councils to all aspects of social development in Cuba. Workshop participants felt that the People's Councils are currently under-utilized, under-empowered, and generally unable to live up to the expectations that fuelled their creation as a nationwide structure. However, workshop participants seemed to believe that People's Councils, if empowered, could be a powerful democratic force that could generate positive change within the current system. Workshop participants, who were social and natural scientists from Cuba's three leading universities, emphasized that work done at the grassroots level should always be done with the approval and engagement of the local People's Council. Overall, the workshop participants strongly supported the empowerment of People's Council and reported that they seek to facilitate this empowerment through their own work.

As mentioned in Chapter Six, I assisted two professors of the University of Oriente in the **preparation of a project funding proposal**. The objective of the proposed project, as stipulated by the professors, is "to achieve a socio-environmental diagnostic and to develop a methodology to increase environmental-juridical community knowledge". In the process of working with these two professors, I learned that they are concerned about what they feel is a widespread unawareness of environmental law in rural communities.

A desire to address this lack of awareness is the motivation that is driving them to seek funding for their project idea.

Over the course of four months in Cuba, I inevitably engaged in a great number of **informal conversations** with the people who surrounded me on a daily basis. These people include two host families, a Spanish language tutor, a number of neighbors, and fellow university students. I feel that these informal conversations, which were often merely about trivial aspects of everyday life, contributed immeasurably to my perception of what it means to live in modern Cuba. These conversations were more powerful and more emotionally influential than any other data gathering technique, probably because they were spontaneous, genuine, and with people whom I had some level of personal connection. While I cannot describe any of these individual conversations in detail, I can describe some of the lasting impressions that have forever colored the way I understand Cuba.

Without exception, people characterized their everyday lives as a continual, never-ending effort to just tread water. The people I met were tired and frustrated with what they perceived as a society that had broken down. Many were incensed at the degree of bureaucratic red tape that seemed to encumber the minutiae of their lives. Almost all were engaged in one form or another of illegal black market activities such as re-selling goods stolen from the workplace, prostitution, running a private restaurant (without a license), renting rooms to tourists (without a license), and teaching Spanish (without a license). In most cases, they were engaged in these activities not for the purpose of amassing personal wealth. Rather, these activities supplemented their insufficient

official earnings to a point that they could provide a frugal yet acceptable existence for their families.

With regards to the political situation, I encountered a mixture of resigned fatigue and mistrust of any other alternatives. A number of people openly said that Cubans are merely collectively waiting for the aftermath of Fidel Castro's death. A few people were contemplating or actively working on plans to escape the country, either through a combination of travel and defection, or by water to Miami. However, while there is a great deal of frustration and dissatisfaction with the current system, there are also strong currents of nationalism. The Cubans I met were generally proud of their country's refusal to capitulate to powerful external cultural and economic influences.

While the whirlwind of impressions garnered from informal conversation are admittedly very personal and subjective, I feel that have helped me to better understand the results coming out of the interviews, the questionnaires, and the community case studies. Because in Cuba there is a degree of censorship of speech and opinion, an understanding of the broader context helps to piece together some of the blanks left out deliberately by interviewees and/or case study authors.

A fourth informal activity in which I engaged while in Cuba was an **observation of physical environments**. I visited a number of communities, both urban and rural, and including four of the six communities illustrated in the community case studies described in this thesis. Notably, I spent most of my time in and around the University of Havana - the very heart of Plaza de la Revolucion Municipality. I was thus able to confirm for

myself some of the environmental observations described in the six community case studies. For example, I can support wholeheartedly Gariria de la Moz's grim description of Plaza's environment. Without going to any great lengths to do so, I witnessed the street floods of raw sewage, the open ditches of garbage, the clandestine connections to rainwater drains, the dumping of waste into the Almendares river, and the crumbling of the Malecon seawall described in his case study. I also witnessed the El Doctor coastal lagoon and the build-up of solid waste that are both characterized in the Baracoa case study. Thus, in summary, I can verify many (although certainly not all) of the details supplied in the case studies and the interviews.

Overall Analysis of Cuba Case Study

The following table summarizes the results of the four data collection techniques (interviews, questionnaires, case studies, and participant observation) used to inform the Cuba case study.

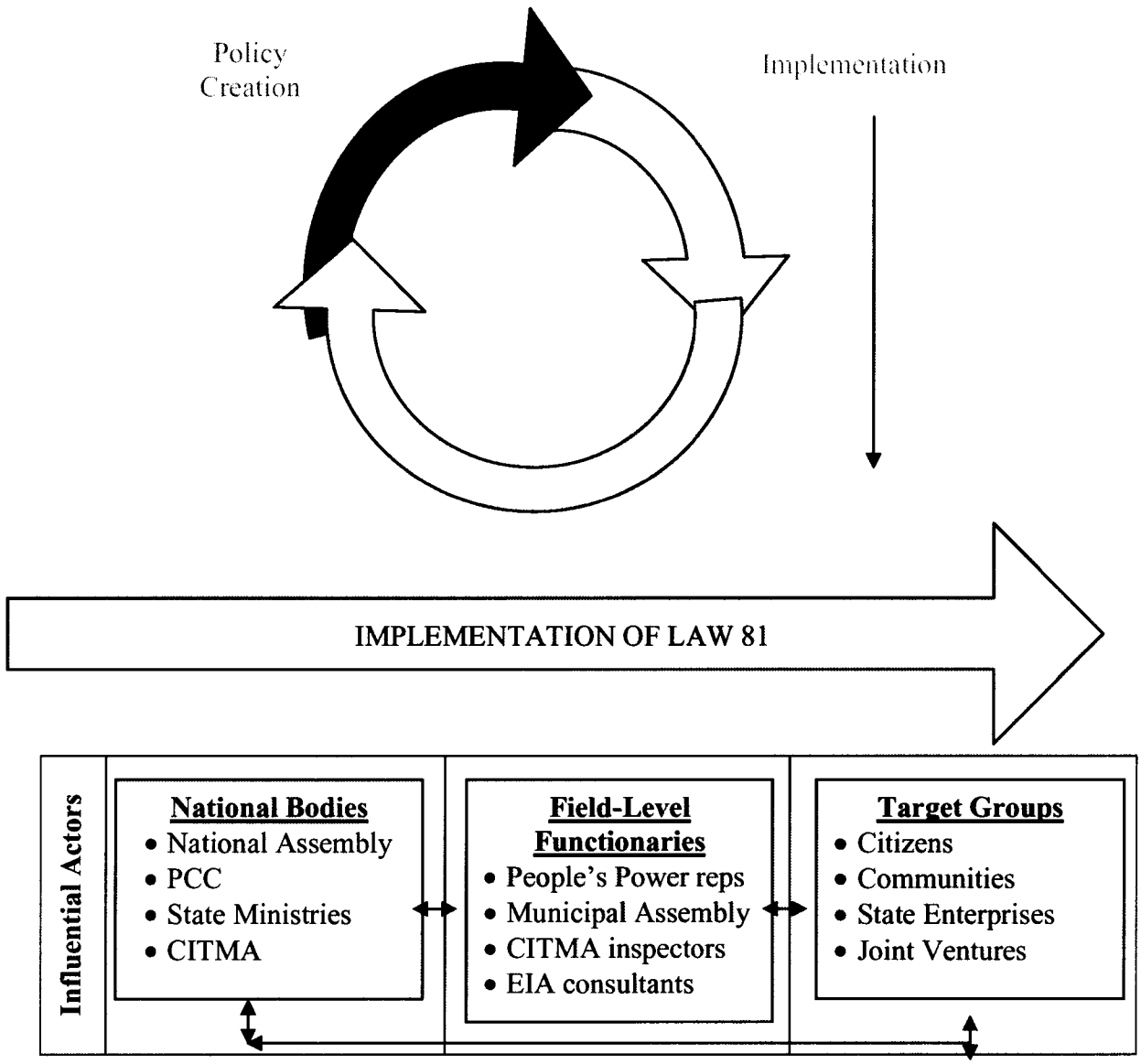
Table 16: Summary of Factors Identified by all Data Collection Methods

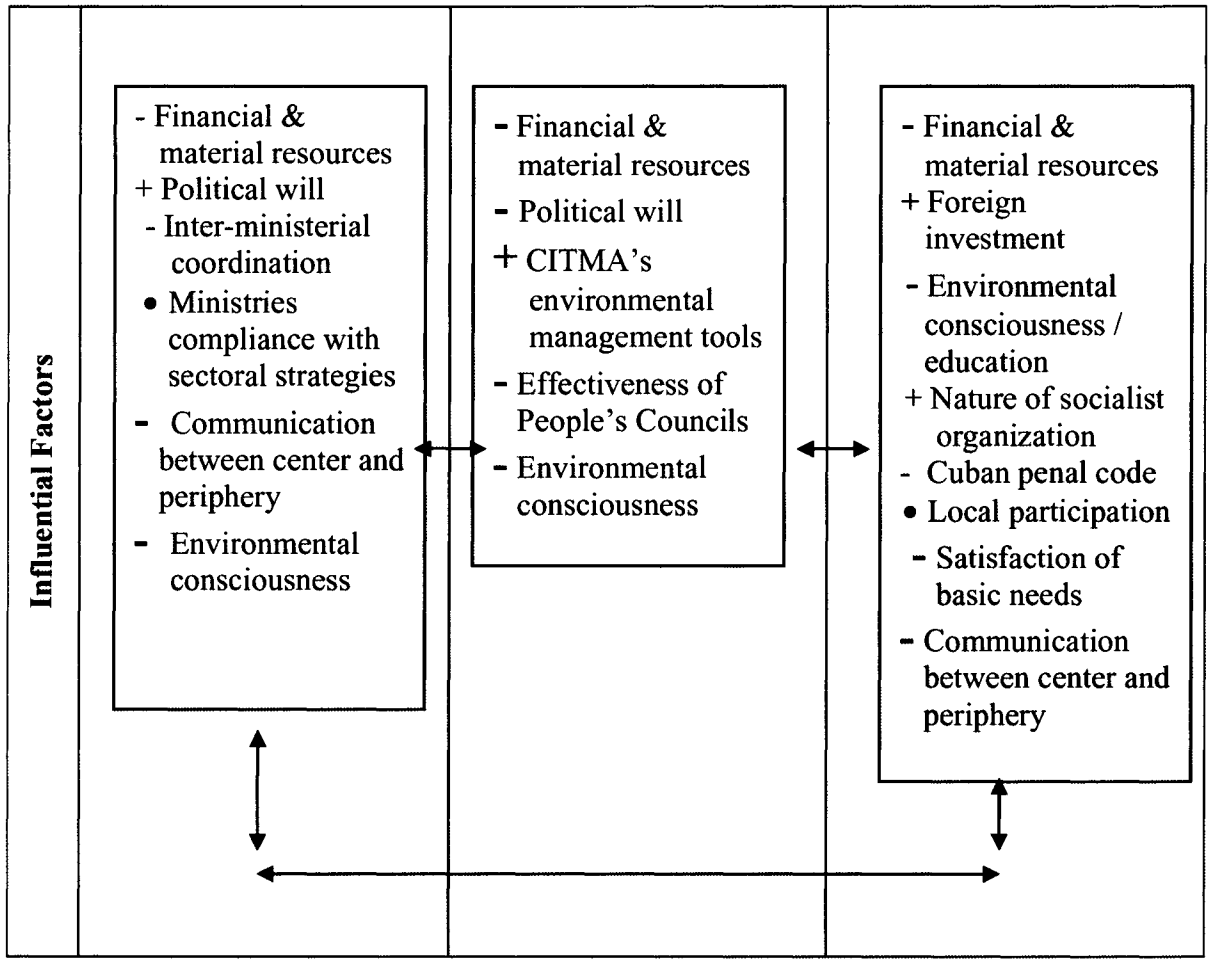
Data Collection Method	Factors Identified as Influential
Interviews	• Financial and material resources • Socialist Organization of Society • Political Will • Foreign Investment • Environmental Education • Environmental Tools of CITMA • Inter-ministerial Coordination • Cuban Penal Code • Popular / Local Participation • Communication Between Center and Periphery

	• Role of People's Councils
Questionnaires	• Availability of financial resources • High-ranking political will; • A culture of environmental consciousness at the local level; • CITMA's capacity to make use of environmental management instruments • Local / community participation in environmental management decision-making.
Community Case Studies	• Availability of material and financial resources • Level of satisfaction of basic needs • Local environmental consciousness / education • Political Will • Effectiveness of People's Councils • Community Involvement / Participation
Participant Observation	• Role of People's Councils • Layperson awareness of environmental law • General frustration / perceived failure of public systems

Taken all together, the data collected from the interviews, questionnaires, case studies, and participant observation do not summarize neatly into a single 'answer' to the research question. The fieldwork portion of this thesis aims to identify and qualify a list of factors – both impeding and facilitating - that are considered by Cuban experts to be the most influential in the implementation of Cuban Law 81 (the Law of the Environment). Cumulatively, the data represents a large and multifaceted bulk of information. One way of interpreting that information is to condense and organize it into a graphic model that represents the process of the implementation of Cuban Law 81. The following figure is a model that attempts to logically organize the major findings of the Cuba case study.

Figure 1: Implementation of Cuban Law 81





My intention in designing the above model is to graphically depict the implementation process of Law 81 such that this model can be compared with the Sabatier – Mazmanian and Winter models introduced in Chapter Three. Before proceeding with this comparison however, I will first briefly describe the model itself.

The first part of the model is a circle composed of three distinct but interlocking arrows, labeled 'Policy Creation', 'Implementation', and 'Impacts'. The goal of this image is to reiterate the location of the implementation within the overall policy process. The implementation of Law 81, as treated in this thesis, is dependent yet separate from the

creation and impact phases. This first part of the model serves therefore to bracket the limits of the implementation phase, which is the part of the policy process that this thesis is concerned with.

The second part of the model is a table that represents the actual process of implementing Cuban Law 81, as this process is depicted by the data collected in the field. In other words, the table displays the implementation of Law 81 as characterized by the interviews, questionnaires, community case studies, and participant observation.

The first row of the table suggests that all actors with a role in implementing Law 81 can be divided into three broad categories, which are: 'National Bodies', 'Field-Level Functionaries', and "Target Groups'. All groups of actors have distinct but influential roles in the implementation of Law 81.

As a category, 'National Bodies' represents the national level institutions and organizations that were brought to my attention throughout my research. Notably, these include the Cuba Communist Party (PCC), the National Assembly, a host of state ministries implicated by Law 81 (Education, Fishes, Agriculture, Economy and Planning, Defense, Forestry, etc.), and especially CITMA, the ministry specifically in charge of environmental affairs.

As a category, 'Field-Level Functionaries' represents the middlemen who form the link between the national bodies and the target groups. CITMA inspectors and EIA officers, for example, are representatives of national bodies who operate at street or field level.

People's Power and Municipal Assembly representatives, on the other hand, are supposed to represent the interests of target groups to national bodies.

Finally, 'Target Groups' is a category that represents the entities (people or communities or enterprises or organizations) who are being directly addressed, or targeted, by a policy. In the case of Law 81, ultimately all Cuban citizens and anyone who visits or does business in the country is a member of a target group. This is a result of the fact that Law 81 is a wide-ranging framework law that addresses a range of target groups throughout its various sections.

The first row of the table is punctuated by arrows whose purpose is to demonstrate the directionality of the implementation process. Generally the influence of actors on the implementation process unfolds (in terms of a timeline) from the national to the local level. In other words, national bodies exert influence earliest in the implementation process, field-level functionaries play their role in the middle stages, and target groups weigh in during the latter stages of the implementation process.

The second row of the table depicts the factors that were identified, through the data collection techniques, as influential to the implementation process. While some factors are influential at every stage of implementation, others exert a particular influence on one category of actor. For this reason, the model depicts lists of factors as being linked to categories of actors. This helps to demonstrate at which phase of implementation a factor tends to be most influential. For example, 'inter-ministerial coordination' was identified as a factor whose influence is most marked in the earlier phases of implementation when

the ministries are sorting out their various responsibilities and designing their sectoral environmental strategies. On the other hand, 'satisfaction of basic needs' is an important factor whose influence is felt at the level of target groups who sometimes must weigh their daily survival against obedience of the dictates.

I will not describe at length the nature of each of the influential factors shown in the Cuba case study model, because they have already been described in great detail throughout this chapter. However it is important to note that the model depicts the nature of the influence of each factor. Factors marked with a dash (-) are factors that are currently holding back or impeding the successful implementation of Law 81. In other words, factors marked with a dash were characterized through the data collection techniques as negative influences on the implementation effort. For example, 'financial and material resources' are currently a limiting factor in the implementation effort (although this factor certainly has the potential to be a positive factor in a different context). Factors marked with a plus sign (+) are factors that are currently facilitating or favoring the successful implementation of Law 81. In other words, they are currently a positive factor in the implementation effort. For example, as demonstrated by the Cuba case study, political will at the national level is currently a strong force that is working in favor of the implementation of Law 81. Finally, factors marked with a round bullet (•) are factors that were identified as influential, but the exact nature of that influence was controversial. In other words, there was divergence of opinions as to whether the influence of that factor is currently negative or positive in the Cuban context. For example, the compliance of Ministries with their sectoral strategies was described by interviewees as currently

insufficient, but quickly improving when compared with the past. Thus this a factor for which the nature of the influence is as yet difficult to judge.

As mentioned above, my intention in designing this model is to graphically depict the implementation process of Law 81 (as described via the data collection techniques) such that it can be compared with the Sabatier-Mazmanian and Winter models of implementation introduced in Chapter Three. The following chapter, Chapter Eight, will compare my Cuba model to the other models in an attempt to ascertain difference and similarities between the models.

Chapter Eight
Comparison of Cuba Case Study to Implementation Models

Introduction

The previous chapter presented an analysis of the Cuba case study data. As is characteristic of case studies, that analysis is very context specific. It is specific to Cuba, to the time period of the research (2003), and to Cuban Law 81. On its own, the Cuba case study presents merely a very detailed description of a limited situation. In other words, if this study were to conclude at the end of the previous chapter, the academic contribution of this study would have been simply a comprehensive description of a particular situation in a particular place at a particular time.

It is when they are compared to others that case studies can contribute to larger theoretical insights. As established earlier in this thesis, the broad theoretical objective of this research is to gain an understanding of the influence of political economy on sustainable environmental management. This objective can only be accomplished if the results of the Cuba case study are weighed against the results of comparable case studies.

This chapter is devoted to a comparison of the factors identified by the Cuba case study to the factors identified by the Sabatier -Mazmanian and Winter implementation models (both described comprehensively in Chapter Three). Such a comparison will yield insight into the influence of political economy on the implementation of environmental

legislation. This is possible because the Sabatier - Mazmanian and Winter models list factors that influence implementation in liberal, market-oriented economies while the data collected in Cuba provides factors which influence implementation in a centralized command economy. I propose that factors common to both the Cuba case study and the models can be considered as independent of political economy. Alternatively, factors that are unique to the Sabatier - Mazmanian and Winter implementation models are specific to liberal, market-oriented economies; and factors unique to the Cuba case study are more likely to be an issue in a centralized command economy.

In order to present and discuss the comparison, the following chapter is divided into four sections. The first section outlines the variables that are common to the Cuba case study and to the implementation models. The second section highlights the variables that are specific to the implementation models. The third section presents those factors that were identified only by the Cuba case study and which do not have a corollary in either the Sabatier - Mazmanian or Winter models. The fourth section is a concluding section that discusses the potential implications of the previous sections.

Factors Common to the Cuba Case Study and the Implementation Models

A comparison of the results of the Cuba case study to the implementation models demonstrates that overall, the factors that influence implementation in both contexts are more alike than they are different. Specifically, the factors which are common to both the Cuba case study and the implementation models are: financial and material resources available to the implementing agency; coordination within and among implementing

agencies; political and financial support of sovereigns; participation in implementation decisions by actors external to the implementing agency; commitment, resources, and leadership skills of implementing officials; and attitudes, resources, education, policy awareness, and degree of behavior change required of target groups.

Financial and Material Resources Available to Implementing Agency

The Sabatier - Mazmanian model identifies the need for financial resources to be available to the implementing agency. Sabatier and Mazmanian point out that financial resources are necessary for the actualization of every step the agency must take to play its role in kick-starting the implementation process. "Money is obviously critical.... (money is needed) to hire the staff and to conduct the technical analyses involved in the development of regulations, the administration of permit programs, and the monitoring of compliance" (Sabatier and Mazmanian 1981a, p 11). Having described the various activities that need to be funded, Sabatier and Mazmanian then propose a loose formula for predicting implementation success in terms of agency funding. "In general", they predict, "a threshold level of funding is necessary for there to be any possibility of achieving statutory objectives, and the level of funding above this threshold is (up to some saturation point) proportional to the probability of achieving those objectives" (1981a p 11).

The results of the Cuba case study concur with Sabatier and Mazmanian on the importance of financial resources. The interviews, case studies, and questionnaires all show that the importance of adequate financial resources is a recurring theme. The

quantitative questionnaires actually ranked 'availability of financial resources' as the single most important factor.

Coordination Within and Among Implementing Agencies

The Sabatier - Mazmanian model lists 'hierarchical integration with and among implementing agencies' as an important variable. Sabatier and Mazmanian claim that one of the principal obstacles to policy implementation is "the difficulty of obtaining coordinated action within any given agency and among the numerous semiautonomous agencies involved in most implementation efforts" (1981a p 12). The problem, they state, is particularly acute in two circumstances; 1) when numerous semiautonomous bureaucracies are involved in the implementation effort, and 2) when federal bodies rely on state and local agencies to carry out the everyday functions of policy implementation. According to Sabatier and Mazmanian, these two types of circumstances greatly increase the number of potential 'veto points'. 'Veto points' are "those occasions in which an actor has the capacity to impede the achievement of statutory objectives" (1981a p 12). Sabatier and Mazmanian conclude that the probable success of a policy is often inversely related to the number of veto points such that the greater the number of veto points, the greater the chance that policy implementation will be delayed and/or derailed.

During the data collection phase of the Cuba case study, the words 'hierarchical integration' and 'veto points' were not specifically mentioned. However, closely related concepts certainly did surface. As the Cuba model (Figure 1) shows, 'inter-ministerial coordination' emerged as an influential factor. Essentially, this factor overlaps with

Sabatier - Mazmanian's concept of hierarchical integration. As described in Chapter Seven, a number of interviewees emphasize the importance of cooperation and coordination among all state Ministries. Like Sabatier and Mazmanian, these interviewees explicitly recognize that difficulties are surfacing as a result of having numerous semiautonomous agencies involved in what needs to be a well-coordinated effort. Interviewees recognize that many individual Ministries have the power to sabotage important pieces of the overall implementation process. Expressed in another way, they are in effect recognizing the high number of veto points and the danger this poses to the implementation process.

The Winter model also focuses on relationships within and between implementing agencies. Winter pragmatically recognizes that the institutional interests of organizations are not always in accordance with the objectives of a given policy, and as such organizations may give priority to goals that actually conflict with the policy. "Bureaucracies have interests of their own to protect...they seek their own survival and growth, are reluctant to abandon traditions and routines, are attached to previously established programs, and have loyalty to traditional coalition partners" (Winter 1990, pg 27). In essence, Winter projects that implementation failures are more likely if implementation requires the participation of organizations whose institutional interests and incentives are in conflict with the policy goals.

The situation surrounding Cuban environmental policy illustrates to an uncanny degree Winter' above assertions. To begin with, the importance of an agency whose institutional interests and incentives are unreservedly in line with environmental priorities

seems to have been fully recognized by the Cuban government. As explained in greater detail in Chapter Five, the agency responsible for the implementation of Law 81 (CITMA) was newly created in 1994 as a response to the failure of its predecessor, COMARNA. The failure of COMARNA to achieve any concrete program results is attributed to the fact that it represented too many conflicting interests, and completely lacked independent authority. CITMA, in contrast, was created for the express purpose of centralizing authority for environmental policy into one agency. Thus, Cuba has learned through personal experience the importance of a fresh new environmental agency that is not attached to traditions and routines, to previously established programs, or to traditional coalition partners.

Winter's predictions regarding the institutional priorities of implementing agencies are also relevant to the Cuban situation as regards the other Ministries (aside from CITMA) who have a role to play in the implementation of Law 81. As explained in greater detail in Chapter Five, Article 13 of Law 81 specifies that other Ministries (particularly Ministries with some jurisdiction over a natural resource) are obligated to implement sectoral environmental strategies. The Cuba case study demonstrates that interviewees and case study authors feel a sense of disappointment with the performance of many of the Ministries in this regard. Most interviewees, for example, felt that substantial improvement is needed. In at least some instances, the Ministries are grappling with the very situation described above by Winter; that is, a conflict of interest between traditional institutional priorities (for example production targets) and the new environmental dictates.

As the Cuba case study highlights, the successful implementation of Law 81 depends to a large degree on the various Ministries' ability to resolve inner institutional conflicts. It also hinges on CITMA's ability to exercise authority even when this authority brings it into direct conflict with its sibling Ministries. While Law 81 gives CITMA the theoretical power to settle environmental issues and disagreements among other Ministries, the Cuba case study suggests that even Cubans with a front-row seat on the implementation of Law 81 are not yet convinced of CITMA's actual clout. It seems that CITMA has yet to face a full test of its willingness and ability to exercise authority over the other Ministries.

In conclusion, both Sabatier - Mazmanian and Winter have identified 'behavior among and between implementing agencies' as a variable of great importance in the American and Western European context. The results of the Cuba case study demonstrate that this is also an extremely important variable in the context of Cuban Law 81.

Political and Financial Support of Sovereigns to Implementing Agency

Another exogenous independent variable listed by Sabatier and Mazmanian is the support of sovereigns of implementing institutions. The sovereign of an implementing agency is (according to Sabatier and Mazmanian) an institution with power over the agency's legal and/or financial resources. In cases where an implementing agency must answer to more than one sovereign, Sabatier and Mazmanian believe that the implementing agency will follow "the directives of the sovereign who will most affect its legal and financial resources over time" (1981a pg 18).

In my research, CITMA's need for material and financial resources and the support of political will arose time and time again. In CITMA's case, the 'sovereign' who most affects its legal and financial resources over time is the Council of Ministers of the National Assembly. Thus, the dependence of implementing agencies on sovereigns as described by Sabatier and Mazmanian has a strong corollary with the results of the Cuba case study. A number of interviewees noted CITMA's ultimate dependence on high-ranking political will and the resources that go along with that will. One interviewee who is a powerful figure within CITMA specified that political support must be real and consistent, as opposed to merely symbolic.

Thus, while the situation of multiple sovereigns described by Sabatier and Mazmanian does not apply to CITMA, the basic underlying truth of dependence certainly does apply. In Cuba, as in America, an agency is destined to follow the directives of whomever controls it financial resources over the long-term.

Participation in Implementation Decisions by Actors External to the Implementing Agency

According to Sabatier and Mazmanian, the ability of actors external to the implementing agency to participate in implementation decisions is an important determinant of policy success. They observe that "statutes that provide ...for citizen participation as formal interveners in agency proceedings and as petitioners in judicial review... are more likely to have their objectives obtained" (Sabatier and Mazmanian 1981a, pp 13–14). Sabatier

and Mazmanian are advocating for the inclusion of mechanisms to facilitate this participation and thus broaden the influence of the common citizen. Thus, they have named 'the ability of actors external to the implementing agency to participate in implementation decisions' as an influential variable in implementation success (Sabatier and Mazmanian 1981a).

The Cuba case study also emphasizes the importance of local citizen's participation in implementation decisions. Results from the interviews, case studies, and questionnaires all agree on this point. Specifically, the ability of citizens to make themselves heard by political decision-makers is highlighted. A number of interviewees and authors of case studies point to the limited ability of elected People's Council representatives to perform their function as a conduit of communication from the common citizen to high-level decision makers.

In summary then, both the Cuba case study and the Sabatier - Mazmanian model agree that actors external to the implementation agency should be able to participate in implementation decisions. However, the challenges that undermine the participation of external actors are different in each context. According to the Sabatier - Mazmanian model, in the American context the existence of powerful and coordinated interests such as corporations present a challenge to the participation of the common citizen. In effect, the voice of the common citizen is often overpowered by more powerful corporate interests. According to the Cuba case study, in the Cuban context the participation of external actors is compromised by the weakness of the one structure meant to facilitate

citizen participation: the People's Councils. In both contexts then, external participation is recognized as both an important and yet flawed process.

Commitment, Resources, and Leadership Skills of Implementing Officials (Street-level)

In his model, Winter identifies the 'behavior of street-level bureaucrats' as one of three variables that most influence the implementation process. According to Winter's explanation, individuals working within organizations don't always honor organizational interests in their work; in fact, they are often motivated by interests other than institutional ones. Furthermore, Winter asserts that street-level behavior is highly influenced by resources – including human, financial, and time. Quoting Weatherley and Lipsky (1977), Winter points out that street-level bureaucrats "fairly universally...feel that their resources are chronically and seriously insufficient to meet the demands placed on them" (Winter p 31). His analysis illustrates that street-level bureaucrats respond to resource insufficiencies by employing conscious and subconscious coping strategies such as deliberately limiting information about available services, making clients wait, making access to services difficult, and concentrating on a limited number of select clients.

My research demonstrates that there are two distinct groups of street-level bureaucrats whose actions strongly influence the implementation of Law 81. The first group consists of CITMA's field-level employees who carry out the agency's inspection and monitoring activities. The second group consists of those elected to serve as district representatives on the People's Councils and Municipal Assemblies. According to the Cuba case study, Cuban experts recognize that the performance of these groups is critical to the successful

implementation of Law 81. In other words, the capacity of each of these groups to do the tasks that have been assigned them is an important determinant of the Law's outcomes. In the Cuban context, this capacity is very much in doubt; furthermore, it is in doubt for the exact reasons that Winter has above described.

For example, CITMA's field-level inspectors are often motivated by interests other than institutional ones. One of the non-institutional motivations that compels field inspectors is loyalty to local communities. As described by Diaz-Gonzalez, author of the Baracoa community case study: "...numerous observations demonstrate that no body of inspectors or system of fines can coerce a community to do something that it feels is against its interests. This is especially true because local inspectors are also a part of the community and they are tied to it through various links and compromises; mutual interests, family, friends, etc." [43] (Diaz Gonzalez 2003).

A second motivation that influences the behavior of CITMA's local inspectors is a perennial lack of material and financial resources. A number of the interviewees commented on the insufficiency of resources available to local inspectors. According to these interviewees, there is no money to support monitoring and enforcement in rural communities and thus, environmental regulations are largely ignored.

The Cuba case study indicates that the People's Council representatives (the second influential group of street–level bureaucrats) are also beset with difficulties caused largely

[43] My translation

by a perennial lack of resources. The People's Councils were created for the purpose of facilitating the average citizen's direct participation in local governance. The People's Councils were intended as conduits of opinion from local communities to Municipal, Provincial, and ultimately the National Assembly. As the interviews and case studies demonstrate, the People's Councils' ability to achieve these goals is currently seriously compromised. In the vast majority of cases, the People's Councils representatives are starved of the resources necessary to confront the issues raised by their constituents. Just as Winter predicts, the People's Councils representatives as a result now rely on institutionalized coping strategies that include categorizing a complaint as 'resolved' when it has actually not been resolved at all (see Marianao community case study).

In summary, many of Winter's above observations about street-level bureaucrats predict neatly the situation unfolding in response to Cuban Law 81. Thus despite the different geographical contexts (Western Europe versus Cuba) Winter's observations resound with truth in regards to the implementation of Law 81. It would seem that regardless of political economic systems, street-level bureaucrats "universally...feel that their resources are chronically and seriously insufficient to meet the demands placed on them" and thus "respond to resource insufficiencies by employing conscious and subconscious coping strategies" (Winter 1990, p 31).

Sabatier and Mazmanian stipulate that a policy's chances of success are improved when placed in the hands of implementing agencies and officials that are strongly committed to the achievement of the policy objectives. Policies require implementers "who are not merely neutral but sufficiently persistent to develop new regulations and operating

procedures, and to enforce them in the face of resistance" (Sabatier and Mazmanian 1981a, p 13). They recommend that responsibility for implementation be assigned to agencies whose existing policy orientation is compatible with the new policy, and/or to agencies that will place high priority on the new policy. This is most likely when implementation is assigned to "a new agency created specifically to administer the statute" or "a prestigious existing agency that perceives the new mandate to be compatible with its traditional orientation" (Sabatier and Mazmanian 1981a, p 13). Thus, Sabatier and Mazmanian consider the commitment of implementing agencies and officials to be an extremely influential variable in the implementation process.

The Cuba case study shows that the commitment of the implementing agency and officials is also recognized as an influential factor in the Cuban context. This was expressed mainly in the interviews, and is described in Chapter Seven under the heading 'the environmental management tools accorded to CITMA by Law 81'. As explained in more detail in Chapter Seven, a number of interviewees explained that the strength of CITMA's commitment, in the face of resistance and opposition from many corners (from other ministries, foreign investors, local communities, lack of resources, etc.) is a crucial factor in the success of Law 81.

A number of interviewees and case studies discussed the capacity and the desire of CITMA's field staff. As explained by Diaz Gonzalez, author of the Baracoa case study, "numerous observations demonstrate that no body of inspectors or system of fines can coerce a community to do something that it feels is against its interests. This is especially true because local inspectors are also a part of the community and they are tied to it

through various links and compromises; mutual interests, family, friends, etc."[44] (Diaz Gonzalez 2003).

Thus, the 'commitment of the implementing agency and officials' is important in the Cuban as well as American context. This factor influences the implementation of policies in both forms of political economy.

Attitudes, Resources, Education, Policy Awareness, and Degree of Behavior Change Required of Target Groups

In his model, Winter identifies 'target group behavior' as one of the three variables that most influence the implementation process. As regards target group behavior, Winter asserts that the probability of implementation failure increases with the amount of behavioral modification required. Alternatively, the probability of implementation failure decreases when education is provided to support the desired behavioral modification. Winter thus underlines the importance of communication and education in influencing target group responses to policy mandates, particularly in cases where the target group is not familiar with the policy.

Winter's description of target group behavior has a strong corollary in the Cuba case study on the topic of target group education. Throughout my research, the importance of environmental education was raised over and over again. Six of the people interviewed

[44] My translation

identified environmental education is a factor that has a direct relation to the successful implementation of environmental legislation. The existence of a fairly low level of environmental knowledge and consciousness among the general population was pointed out a number of times. One interviewee observed a lack of environmental will and environmental consciousness at the grassroots level. Confirmed another, "At the moment the biggest issue is the lack of knowledge of environmental regulations, of the Environmental Law 81."[45] A third interviewee added "I think the biggest challenge is to bring some of these regulations into the communities, to make them know in some cases that a regulation exists" [46].

My research demonstrates that Cuban experts, like Winter, fully recognize the importance to successful implementation of educating target groups about environmental policies.

Factors Specific to the Sabatier - Mazmanian and Winter Models

When the results of the Cuba case study are compared to the implementation models, a few variables stand out that are specific only to the implementation models. Specifically, these variables are: media attention to the policy problem; political influence of public opinion; and changes in public support over time.

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[45] My translation and paraphrase, based on hand-written interview notes

[46] My translation and paraphrase, based on hand-written interview notes

Media Attention to the Policy Problem

Sabatier and Mazmanian contend that mass media are an important independent variable in the implementation process. They have observed that policies are more effectively implemented when the problems addressed "receive above normal media attention over a sustained period of time" (Sabatier and Mazmanian 1981a, p 16). Conversely, public support for a policy often drops after "television stations and newspapers play an issue to the hilt and then go on to something else" (Sabatier and Mazmanian 1981a, p 16).

Throughout my research, it was never suggested that media attention has an influence on the implementation of Cuban Law 81. The irrelevance of media attention in the Cuban context showcases one significant difference between the American and the Cuban policy context.

Public Opinion

Sabatier and Mazmanian observe that public opinion influences the implementation process in a political manner, through direct pressure on elected representatives and through public opinion polls.

Throughout the data collection phase of the Cuba case study, the importance of popular participation was stressed over and over again. However, it was also made clear that popular participation is seriously compromised by the limited effectiveness of the People's Councils to raise popular issues to higher political levels. In effect, People's

Councils represent a democratic dead-end; such that constituent complaints collect at this level but rarely get passed up the chain of political command. Thus, the Cuba case study suggests that the implementation of Law 81 has not been influenced by political reactions to public opinion, mainly because political bodies are largely impervious to public opinion.

Thus, public opinion influences implementation via political processes much more effectively in the American context. In the Cuban context, public opinion concerning policy implementation does not effectively translate into political pressure. This constitutes an important difference between the two contexts.

Changes in Public Support Over Time

Sabatier and Mazmanian consider 'changes in public support over time' to be an important external variable affecting implementation. They observe that public support, like public concern over the problem, " will invariably decline over time ...as the public and media turns to other issues and as the cost of programs draw away previous supporters and intensify opposition" (Sabatier and Mazmanian 1981a, p 17).

Sabatier and Mazmanian's focus on changes in public support over time relies on the assumption that the public was initially in favor of the policy. Indeed, they specify that "normally statutes are the result of very heightened public concern with a general problem such as environmental quality" (Sabatier and Mazmanian 1981a, p 17). They also define the challenge to policy proponents as follows: " The essential task confronting

policy proponents is to translate the diffuse support that helped pass the initial legislation into viable organizations with membership, cohesion, and expertise..." (Sabatier and Mazmanian 1981a, p 18).

While the Cuba case study clearly identifies the need for public awareness of Law 81 and for public participation in Law 81, it does not address the circumstance of change over time in public support. In my opinion, change in public support over time is not yet an issue in the context of Cuban Law 81 because the law never had the type of initial public support that is described above by Sabatier and Mazmanian. In the policy situations studied by Sabatier and Mazmanian, there was early public support to lose. Conversely, the Cuba case study suggests that Law 81 in its infancy had no significant public proponents outside of the few experts who were invited to participate in the drafting process.

Sabatier and Mazmanian's focus on a variable ('changes in public support over time') that is irrelevant to the Cuban context serves to highlight a very important difference between the American and the Cuban policy context. Whereas the birth and creation of policy in America relies to an important extent on public agitation and motivation, policy in Cuba is more often created in response to political will and in the absence of popular demand.

Factors Specific to the Cuba Case Study

The majority of the factors identified by the Cuba case study have a direct or close corollary within either the Sabatier - Mazmanian or Winter models. However, there are nonetheless a number of factors highlighted by the Cuba case study that are not mentioned, or are not emphasized to the same degree, by Sabatier - Mazmanian or Winter. Specifically, the factors which are unique to the Cuba case study are: target group resources, political will, effectiveness of People's Councils, Cuban penal code, nature of socialist organization, and satisfaction of basic needs. In the following paragraphs, I will address each of these factors.

Target Group Resources

Whereas the Sabatier - Mazmanian model focuses on those finances available to the implementing agency, the model of the implementation of Law 81 (see Figure 1) shows that in the Cuban context, the availability of financial and material resources influences all the actors at all the stages of the implementation process.

Significantly, then, an important difference is the way in which the availability of financial and material resources dictates the nature of the target group's response. As described in more detail in Chapter Seven, target groups in Cuba are limited by the perennial dearth of financial and material resources that has been an omnipresent feature of everyday life since the initiation of the Special Period. Citizens struggling to meet

basic needs, communities forced to find alternatives to crumbling public infrastructures, state enterprises who cannot afford to upgrade old technologies; none of these could be forced or coerced, by even the best funded implementing agency in the world, to participate in the implementation of environmental policy. This is a major difference between implementation in the Cuban context and implementation in the context of the Sabatier - Mazmanian model.

Political Will

Throughout the field research, political will was consistently identified as critical to the implementation of Law 81. Numerous interviewees stressed its importance and it was a central feature of two of the community case studies. Among the factors listed on the questionnaire, political will ranked as the second most influential factor. As described in earlier chapters, in the Cuban context the presence of high-ranking political will is considered to be critical for implementation success.

While the Sabatier - Mazmanian model refers to the importance of the 'continued support of sovereigns', neither the Sabatier - Mazmanian nor Winter models refer specifically to political will. This demonstrates that political will is a much more important factor in the Cuban context than it is in the contexts of America or Western Europe.

Effectiveness of People's Councils

The effectiveness of Peoples Councils arose throughout the field research as an influential factor. While this factor was raised in only two of the interviews, it was a central theme of the Marianao and Baracoa case studies, as well as the Social Science Methods Workshop (for more details, see Chapter Seven).

The community case studies and the workshop demonstrated that in contemporary Cuba, People's Councils represent the best and often the only possibility of 'upwards' communication. As the principal conduit of feedback from the grassroots to upper-level decision makers, People's Councils play a vital role in the implementation of any program that makes demands of the grassroots. However, as the Marianao and Baracoa case studies demonstrate, the effectiveness of the People's Councils is currently seriously compromised. The ineffectiveness of the People's Councils is thus rendering impossible a means of communication that would otherwise have the potential to facilitate the implementation of Law 81. Instead of being a facilitator of implementation, the hamstrung People's Councils have effectively become an impediment.

Neither the Sabatier - Mazmanian nor Winter models identify 'People's Councils' per se; however, both models addressed the issue of communication from the grassroots to upper-level decision makers. In general, their models demonstrate a greater availability of channels of communication connecting the grassroots to regional and national decision-makers. For example, Sabatier and Mazmanian name as an influential variable the power of public opinion as it is manifested through pressure on elected representatives

and opinion polls. Another variable identified in their model is the participation in implementation decisions by external actors. Both of these variables address the capability of the public to communicate feedback to the implementing agency and other decision makers.

This comparison, then, has highlighted a key difference between the implementation context of Cuban Law 81 and the American / Western European implementation contexts studied by Sabatier / Mazmanian and Winter. In Cuba, the ability of the grassroots to express its views and be heard by decision makers is limited to one embattled and ineffective channel. In the American / Western European context, the grassroots can avail of multiple functioning channels to communicate their views to decision-makers.

Cuban Penal Code

During the data collection phase of the Cuba case study, the inability of the Cuban Penal Code to adequately punish serious environmental transgressions was identified as an impediment to the successful implementation of Law 81. Neither the Sabatier - Mazmanian nor Winter models identify a similar variable. This may indicate that adequate legislative provisions for the punishment of serious environmental offenses exist in the American and Western European contexts, whereas they do not exist in the Cuban context.

Nature of Socialist Organization

As described in Chapter Seven of this thesis, inherent characteristics of socialist organization were identified in the Cuba case study as factors that facilitate the implementation of environmental regulations. The inherent characteristics identified by interviewees included socialism's lack of individual profit incentive, and socialism's moral ethics which value quality of life and public good over personal gain.

Neither the Sabatier - Mazmanian nor Winter models discuss the inherent characteristics of any defined political economic system. Nor do they raise the issues of individual profit incentive or public ethics.

This is an extremely interesting point of contrast between the Cuba case study and the Sabatier – Mazmanian and Winter models. It is a difference that I feel is best explained in terms of degree of analysis. Sabatier, Mazmanian, and Winter write from within the context of political economies which more closely resemble the accepted global status quo. As a result, their acceptance of that political economic reality is automatic and they do not think to attempt to analyze the potential ramifications of political economic structures. In contrast, the interviewees and the case study authors who informed the Cuba case study represent a country that continues to pursue a unique political economic path. As a result of this uniqueness, the international attention that it has attracted, and Cuba's pedagogical systems, Cubans are highly sensitive to the ramifications of their unique political economic circumstances. Cubans are more likely to interpret and compare situations based on political economic terms.

For these reasons, it is not surprising that the inherent characteristics of a defined political economic system were named as a factor in the Cuba case study but not in Sabatier - Mazmanian nor Winter models.

Satisfaction of Basic Needs

The Cuba case study identifies the 'level of satisfaction of basic needs' as a factor that is impeding the successful implementation of Cuban Law 81. As a number of the interviews and case studies demonstrate, Cuba is a country in which many people are struggling to meet their daily basic needs. These people and communities, whose basic needs are not satisfied, are likely to make the rational decision to exploit resources unsustainably for the sake of immediate survival.

On the other hand, people and communities whose basic needs are satisfied have the luxury of implementing a more rational, sustainable, and longer-term approach. This seems to be the case in America and Western Europe. Certainly, neither Sabatier - Mazmanian nor Winter raised the possibility that implementation in these contexts in challenged by the necessity of satisfying basic needs.

Summary of Comparison Between Cuba Case Study and Implementation Models

In the previous sections, the factors identified by the Cuba case study variables are compared to those identified by the Sabatier – Mazmanian and Winter implementation

models. The following table summarizes the factors that are common to both the models and the case study.

Table 17: Factors Common to the Implementation Models and the Cuba Case Study

Factors Common to Implementation Models and Cuba Case Study	1. Financial and material resources available to the implementing agency, 2. Coordination within and among primary and supporting implementing agencies, 3. Political and financial support of sovereigns to implementing agency, 4. Participation in implementation decisions by actors external to the implementing agency, 5. Commitment, resources, and leadership skills of implementing officials (national and street–level bureaucrats), and 6. Attitudes, resources, education, policy awareness, and degree of behavior change required of target groups.

Because these factors were identified by the Cuba case study and by at least one of the implementation models, I contend that these factors will influence environmental policy implementation regardless of political economic setting. In other words, these factors are independent of political economy. No matter what the political economic context, these factors will always represent necessary conditions for the successful implementation of environmental policy.

The comparison of the Cuba case study to the implementation models also demonstrates that three factors are unique to one or the other of the implementation models. In other words, these factors are highlighted by an implementation model but they do not have a corollary within the Cuba case study. The following table summarizes the factors that are unique to the implementation models.

Table 18: Factors Unique to the Implementation Models

Factors Unique to Implementation Models	1. Media attention, 2. Influence of public opinion on politicians, and 3. Public support over time.

Because these factors are unique to the implementation models, I contend that the influence of these factors on environmental policy implementation is particular to liberal market based economies. In other words, these factors are more likely to play a role in policy implementation in a liberal democratic economy than in a central command economy.

The following table summarizes those factors that were unique the Cuba case study.

Table 19: Factors Unique to Cuba Case Study

Factors Unique to Cuba Case Study	1. Target group resources, 2. Political will, 3. Effectiveness of people's councils, 4. Effectiveness of penal code, 5. Nature of socialist organization, and 6. Satisfaction of basic needs.

As the above table shows, six factors were named in the Cuba case study that were not identified by either of the implementation models. I contend that these factors are most relevant when a policy is implemented in a central command economy.

Earlier in this thesis, I hypothesized that the factors identified by the Cuba case study as relevant to the implementation of Cuban Law 81 would be ***substantially different*** from those variables listed in the framework models.

The comparison of the results of the Cuba case study against the implementation models shows that this earlier hypothesis was reasonable yet influenced too strongly by eco-socialist arguments. Rather than being substantially different, the factors identified by the Cuba case study as relevant to the implementation of Law 81 are ***mostly the same, but with a few key differences,*** as those variables listed in the implementation models. This suggests that the process of implementing environmental policy in a central command economy is mostly the same, with a few key differences, as implementing environmental policy in a liberal market-based economy.

Mostly the Same....

Overall, there was a greater degree of overlap than I originally hypothesized. A large number of factors were common to both the Cuba case study and the implementation models.

Particularly, the majority of the factors that were shown to be common to both types of political economies refer to characteristics and conditions of the primary and supporting implementing agencies. The resources available to the agency, the degree of cooperation between and among agencies, the commitment of agency sovereigns, and the behavior of

implementing officials: these are all influential factors regardless of political economy. For the most part, therefore, it is the bureaucracy of implementation that consistently faces the same challenges regardless of political economy. In other words, the bureaucratic processes of implementation, as pursued by implementing institutions at the national, regional, and local level, are similar whether the institutions operate within a centralized command economy or within a liberal market-based economy.

The importance of public 'buy-in' to the goals and conditions of the policy is also shown to be important in any political economic setting. Public 'buy-in' is created when actors external to the implementing agency have the opportunity to participate and provide feedback on implementation decisions, and when target groups have a high awareness of the policy. Regardless of political economy, the success of a policy will always be linked to the general public's estimation of its worth and relevance.

This comparison of the implementation models versus the Cuba case study suggests that there are features of human organization which are common to both types of political economic system. These features of human organization universally challenge the possibility of a sustainable relationship between humans and their supporting environment. Namely, the features of human organization that are common to both forms of political economy examined here are 1) the bureaucracy of environmental management and 2) the possibility of creating concerted, widespread public 'buy-in' for environmental management.

But with some key differences....

In an earlier paragraph, I claimed that the implementation of environmental policies in different political economies is mostly the same but with some key differences. One of the key differences highlighted by the comparison of the Cuba case study to the implementation models relates to the ability of the general public to express their opinions to decision-makers.

As Table 18 demonstrates, three variables that were highlighted by the implementation models were not named as factors in the Cuba case study. All three of these variables - media attention, public support, and public opinion – refer to channels that enable the general public to influence decision-making. The uniqueness of these three variables to the implementation models suggests that the general public in a liberal market-based society has access to more potential avenues of feedback to decision-makers. The opportunity at least exists to make use of media channels to express feedback and to influence public opinion. Public opinion and public support have the potential to make a real impact on policy implementation in a liberal market-based setting.

In contrast, of the five factors that are unique to the Cuba case study, only one (the effectiveness of People's Councils) relates to the ability of the general public to communicate with decision makers and to influence the policy process. This demonstrates that in Cuba there are fewer channels by which citizens can communicate public support and public opinion. Thus, even though the importance of public participation and public support is well recognized within Cuba, the real ability of citizens

to participate and to voice their opinion is limited. It seems, then, that liberal market-based societies offer more potential mechanisms through which the general public, including target groups, can express their opinions to decision-makers. In contrast, the Cuba case study suggests that meaningful communication between decision-makers and the general populace is more difficult in a central command economy. In Cuba, there is one official conduit by which citizens are theoretically encouraged to provide feedback to decision makers. Currently, this conduit – the People's Councils - is largely ineffective. This suggests that the Cuban public is in reality quite powerless to evoke change. In contrast, the citizens of the liberal market-based economies represented by the implementation models are more empowered to instigate, to support, to destabilize, or to curtail policies. In real terms, they have more ability to influence policy change.

Table 19 lists five factors that are unique to the Cuba case study. The uniqueness of the factors 'political will' and 'effectiveness of the Cuban penal code' to the Cuba case study further the observation that Cuban policy implementation is indeed a more top-down and unidirectional process. The importance of 'political will' and the importance of an 'effective penal code' demonstrate that environmental policy in Cuba tends to be generated and enforced from the national level.

The Cuba case study also uniquely identified the constraints on environmental policy implementation presented by poverty. Poverty and the plight of people and communities whose basic needs are not satisfied is an issue of great concern to policy implementation in Cuba. In the Cuban context, the average citizen is more constrained by economic and material limitations.

The Cuba case study was also unique in highlighting the influence of public morality. During the data collection phase of the Cuba case study, various interviewees argued that a morality which promotes public good over public interest (and de-emphasizes personal economic gain) is an influence which facilitates the implementation of environmental policy in Cuba.

A factor that is influential to the implementation process has the capacity to both facilitate or hinder implementation. The nature of the influence, in other words whether it is positively or negatively correlated with implementation success, depends on the circumstances. Most of the influential factors identified by the Cuba case study are factors that are currently hindering implementation success. Of the five factors that were identified as unique to the Cuba case study, four were characterized by the Cuba case study as factors that are currently hindering successful implementation. Only 'socialist public morality' was described as an influence that is currently facilitating the implementation of Law 81.

Thus while the comparison of the Cuba case study to the implementation models shows that overall more factors influence environmental policy implementation in the Cuban context, it is the nature rather than the quantity of the factors that demonstrates that more factors are impeding the influence of environmental legislation in the Cuban context. Overall, there seem to be more potential challenges to successful implementation in the Cuban context.

Conclusions

The comparison of the Cuba case study against the implementation models that is outlined in Chapter Eight suggests that the process of implementing environmental policy in a central command economy is in many ways very similar to the process of implementing environmental policy in a liberal market-based economy. The chief ways in which the two processes are similar are: 1) the bureaucracy of implementing policy and 2) the necessity of creating concerted, widespread public buy-in to policy goals.

The primary notable differences between the processes in each context are that 1) environmental policy in a central command economy tends to be generated and enforced from the national level and 2) the general public in a command economy has much less opportunity to communicate with decision makers and to influence the policy process. Overall, there seem to be more potential challenges to successful implementation in the central command context.

Chapter Nine
Conclusions - Influence of Political Economy on Sustainable Environmental Management

Introduction

As established earlier, the broad theoretical objective of this study is to draw some conclusions about the influence of political economy on sustainable environmental management. Based on the results of the comparison of the Cuba case study against the implementation models as outlined in Chapter Eight, and based on the assumption that environmental policy implementation is a sound proxy measure of sustainable environmental management, it is possible to draw some informed conclusions about the influence of political economy on sustainable environmental management.

The comparison (of the Cuba case study against the implementation models) outlined in Chapter Eight suggests that the process of implementing environmental policy in a central command economy is very similar to the same endeavor in a liberal market-based economy. The chief differences are related to the dominance of the center in a central command economy and the lack of communication between center and periphery in a central command economy.

Based on the assumption (outlined earlier in Chapter One) that environmental policy implementation can be used as a proxy measure for sustainable environmental management, this study demonstrates that the process of achieving sustainable

environmental management in a central command economy is in many ways very similar to the same endeavor in a liberal market-based economy. However, certain systemic characteristics of central command economies pose additional roadblocks to sustainable environmental management. In other words, central command economies face additional challenges to sustainable environmental management that liberal market-based economies do not face.

What Does this Imply about Eco-Socialist Theory?

Chapter Two provides a broad outline of the eco-socialist theories and arguments that originally motivated this study. Eco-socialist arguments suggest that political economy is a critical determinant of a society's ability to sustainably manage its environment. As described in greater detail in Chapter Two, eco-socialists posit that socialist political economies are inherently more capable of co-existing sustainably with the surrounding environment. This study does not provide evidence to support the eco-socialist claim that socialist political economies are inherently more conducive to the successful achievement of sustainable environmental management.

The potential contribution of this study to eco-socialist theory is its suggestion that the process of achieving sustainable environmental management is generally the same, if not slightly more difficult, in central command economies than in their liberal market-based counterparts. This study thus calls into question the eco-socialist tendency to make a categorical distinction between the compatibility of 'capitalism' and of 'socialism' with sustainable environmental management. Because this study suggests that the process of

achieving sustainable environmental management is quite similar in both types of political economy, this study implies that neither system is systemically compatible or systematically incompatible with sustainable environmental management.

The results of this study, therefore, are more closely aligned with the observations of R.J Johnston (1996) and Z. Smith (1992). As outlined in Chapter Two of this study, R.J. Johnston observes that the process of achieving sustainable environmental management is quite similar in both types of political economy. He states: "The pressures on the (socialist) state regarding environmental use are similar to those in the capitalist world. They (socialist states) must balance the imperatives of their mode of production against the damage that they do to environmental systems" (Johnston 1996, p 255). In addition to suggesting that command states and capitalist states are subject to similar environmental pressures, Johnston also highlights situations that are unique to socialist states. One of these situations is the relative inability of environmental interest and pressure groups to exert an influence on the decision making process.[47] Like Johnston, Smith (1992) critiques the ability of both systems (capitalist and collective ownership) to sustainably manage environments. Based on evidence from China and the Soviet Union, Smith concludes that "state controlled economies are no more likely to protect the environment than are market-based capitalist economies" (1992, p 251) because "product and profit orientation, regardless of the system, drives nations in ways not conducive to sound long-term ecological management" (1992, p 239). Both Johnston and Smith's arguments thus agree with the major findings of this study.

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[47] For a more lengthy discussion of Johnston's arguments refer to Chapter Two.

What are the Implications of the Findings of this Study for International Development?

In the introductory chapter, I explained that the fundamental problem of global human development is the progressive destruction of ecosystems by human beings. This destruction of ecosystems is aggravating unequal access to necessary resources and disproportionately harming the poor and the unborn. To address this fundamental problem of development, we need to reconstruct human society such that it recognizes and prioritizes this fundamental problem even when the dictates of sustainable environmental management clash with economic priorities. However, the construction of this environmentally sustainable society remains unlikely as long as there is no consensus about the necessary fundamental characteristics of such a society. As explained in Chapter One, the broad theoretical questions that motivate this study are: What would a truly environmentally sustainable society look like? What would be its necessary fundamental characteristics?

This study suggests that the answer to these questions might not lie in the systemic characteristics of political economy. If (as this study suggests) the process of implementing environmental policy in a central command economy is very similar to the same endeavor in a liberal market-based economy, then it follows that tinkering with political economy will not lead to the construction of the environmentally sustainable society. In terms of development theory, this study does not provide a comprehensive alternative vision of the environmentally sustainable society. However it does suggest

that future debates about the necessary fundamental characteristics of an environmentally sustainable society focus on characteristics other than political economy.

Appendix A: Questionnaire

ENCUESTA: FACTORES QUE INFLUYEN EN LA IMPLEMENTACION DE LA LEGISLACION AMBIENTAL

Cuales son los factores que hoy mas influyen en la implementacion de la legislacion ambiental (Ley No. 81) en Cuba?

A su juicio, cual es la importancia comparativa de los factores que mas abajo se senalan, respeto a la implementacion de las leyes ambientales?

FACTORES QUE INFLUYEN EN LA IMPLEMENTACION DE LA LEY 81	IMPORTANCIA DE LA INFLUENCIA 10 9 8 7 6 5 4 3 2 1 0 (10 = importancia clave) (0 = de ninguna importancia)
1) Recursos financieros	
2) Coordinacion y cooperacion entre varios Ministerios estatales	
3) La intencion de cada Ministerio de ejecutar su propia Estrategia Ambiental Sectorial	
4) La planificacion economica centralizada y la ausencia de intereses economicos particulares	
5) La estrategia nacional de ordenamiento territorial, efectuada por el Ministerio de Economia y Planificacion	
6) El alto nivel de educacion cientifica y la influencia de los cientificos en el proceso de creacion y desarrollo de las politicas	
7) Un nivel de consumo relativamente bajo, y un enfasis sobre tecnologias de bajo consumo, tales como la agricultura organica y energia alternativa	
8) La capacidad nacional de mitigar y retirar viejas y obsoletas tecnologias y de irlas sustituyendo por tecnologias modernas	
9) La capacidad estatal de mantener control sobre los inversionistas extranjeros	
10) La capacidad de CITMA para aprovechar y utilizar los instrumentos de manejo ambiental tales como los Estudios de Impacto Ambiental, otorgamiento de licencias ambientales, e inspecciones ambientales	
11) La presencia (o ausencia) de una conciencia ambiental a nivel de las altas autoridades y funcionarios	

de empresas y Ministerios estatales	
12) El poder de imponer multas, o sancionar empresas y entidades que trasgredan la ley	
13) El sentimiento de orgullo nacional por la preservacion de recursos naturales del pais	
14) La voluntad politica de la mas alta dirección del país	
15) La sobrexplotacion de recursos naturales para las necesidades basicas de vida	
16) Participacion local (comunitaria) en las decisiones sobre el manejo de medio ambiente	
17) La precencia (o ausencia) de una conciencia ambiental , osea, una cultura ambiental	

B. Considera usted que hay otras factores de alta influencia que no aparecen encima? Si la respuesta es si; cuales son?

C. Del factor que estima mas importante, pudiera explicar con mas detalles cómo se expresa esa influencia?

Appendix B: Summary Descriptions of Community Case Studies

Following is a brief summary of each of the six community case studies that were analyzed as part of the overall Cuba case study.

Case Study #1

Munoz, M. R. (2001). Educacion Ambiental en la Reserva de la Biosfera de Baconao. Ile Anuario de Ecologia, Cultura, y Sociedad No. 1; Fundacion de la Naturaleza y el Hombre, Havana.

(The author of this study possesses a Masters of Social Development from FLACSO-Cuba and is currently an assistant professor at FLACSO-Cuba. Her areas of research include rural participation, environment, and environmental education. She has written numerous articles for various Cuban journals and she is co-author of three books (*Agricultural Biotechnology and the Environment in the Cuba Special Period*, *Popular Environmental Education for Agricultural Extension*, and *Training for Self-Managed Rural Development*).)

Munoz's case study is based on a socio-environmental survey and environmental education project initiated by Munoz and colleagues in the communities of Pueblo Nuevo and San Enrique. Both communities are located within the Baconao biosphere reserve, which straddles the border between Cuba's two westernmost provinces, Santiago de Cuba and Guantanamo. In her report, Munoz details the social and environmental characteristics of each community, the environmental problems identified by the communities, and community-identified challenges to the solution of environmental problems.

The community of Pueblo Nuevo is a rural jurisdiction with 1900 inhabitants who make their living mainly through farming and animal husbandry (primarily cattle and pork). Tourism, in the form of three hotels and a prehistoric theme park, is present in the area although it employs very few local people. The principal environmental problems, as named by the residents themselves, include: 1) lack of potable water due in part to the semi-arid climate and in part to overuse by industry, 2) absence of a proper sewage system resulting in problems with disposal of liquid and solid wastes, 3) indiscriminate deforestation for the purpose of obtaining combustibles, 4) 'mistreatment' of flora and fauna, and 5) deterioration and erosion of the beach due to the construction of hotels and summer cottages on the dunes.

San Enrique is also a rural jurisdiction, with a population of 1400 people living within fourteen square kilometers. The principal economic activity is agro-forestry, with animal husbandry a distant second. San Enrique is home to Gran Piedra Forestry Enterprise, the largest in Santiago de Cuba province, which employs 900 local people. San Enrique is also home to the approximately 25 forest wardens who protect the Baconoa Biosphere Reserve. The principal environmental problems, as named by the residents themselves, include: 1) deforestation for use as a domestic combustible, 2) lack of water due to semi-arid climate, 3) forest fires, naturally occurring and man-made, 4) open air garbage dumps, and 5) soil erosion provoked by cattle farming.

The case study discussed a number of factors that affect these communities' ability to resolve their environmental issues. On the positive side, Munoz points to an abundance of political will for sustainable environmental management at both the local and national levels. She also highlights Cuba's wealth of qualified technical personnel and its network of institutions and universities, claiming that these guarantee a continual flow of applicable knowledge. These communities, with their proximity to Santiago de Cuba, are well placed to benefit from technical knowledge. On the negative side, population pressure and the widespread basic need for domestic firewood, for example, have motivated deforestation despite laws that require the planting of ten saplings in exchange for one felled tree. Furthermore, the more serious pollution problems can be traced to

improper treatment of waste from large-scale agricultural enterprises including cattle and pig farms, a milk factory, and numerous slaughterhouses.

However, according the Munoz's analysis, the most important factor is the level of environmental consciousness and knowledge present in the local community. In reference to environmental consciousness, Munoz declares "in order to execute the National Environmental Strategy or any other environmental policy, it is necessary first to develop environmental education and to achieve a widespread environmental culture amongst the general population" [48].

In summary, Munoz identifies the following as factors which influence the ability of a community to implement solutions to self-identified environmental problems: political will, qualified technical personnel / institutions, satisfaction of basic needs, and environmental education / consciousness at the community level.

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[48] My translation.

Case Study #2 – Ocujal del Turquino

Matos Rodriquez, N. (2002). Propuesta de una Estrategia de Educacion Ambiental Para Pobladores de Una Zona Montanosa. Experiencia en la Comunidad de Ocujal del Turquino. Unpublished Report.

(The author of this report is Dra. Neris Matos Rodriquez. She is the director of the Cuba – Caribbean Center at the University of Oriente in Santiago de Cuba. Dra. Rodriquez Matos shared this report with me directly. Thus it is the only one of the six community case studies discussed here which did not come out of the FLACSO program.)

This case study is based on Dra. Matos Rodriquez's work in Ocujal del Turquino. Ocujal del Turquino is a community of Guama Municipality in Santiago de Cuba province. Guama Municipality is located within the boundaries of the Sierra Maestra National Park, and is considered to be endowed with a rich biodiversity and natural history. Because of this biodiversity and natural history, this traditionally agricultural area has recently been the target of increasing tourism development. Conscious of both the potential benefits and drawbacks of this development, local provincial and municipal authorities have recently proposed that Guama be declared an "Ecological Municipality". In the wake of this proposal, it was decided to diagnose the state of local environmental knowledge and to implement an Environmental Education Strategy.

This case study was written after Matos Rodriquez had been involved in the diagnostic of the state of environmental education in the community. The purpose of the environmental education diagnostic was to lay the foundations for the development of an Environmental Education Strategy for the larger region. The community of Ocujal del Turquino was selected as a "test" site for the initial phases of the larger environmental project because it is located in the heart of the Municipality.

The socio-economic and environmental characterization of the community that resulted from the diagnostic provides insight into the community's principal economic activities,

principal environmental issues, and the challenges that hinder the resolution of these issues.

The traditional economic activities of the community include the harvesting of coffee, rice, tubers, bananas, and other seasonal fruits. Principal livestock include cattle, goats, pigs and chicken.

The environmental problems identified by the community members were: indiscriminate felling of local forests to supply fuel for domestic combustion as well as energy for local centers of production and service; soil erosion provoked by non-traditional agricultural practices and by burning; disappearance of local endemic plant species due to their unsustainable exploitation by local industries; degradation of hydrological systems, such as riverbeds; lack of greenery, plants, and gardens in the vicinity of human settlements due to the free wandering of cattle and domestic animals; water contamination due to construction problems at some water sources; and insufficient water supply due to technical problems with water conductors and insufficient chlorination of the water.

According to the analysis of Matos Rodriquez, there are three key factors that are directly linked to the environmental complaints listed above, and to the possibility of their resolution. These factors are 1) a deficient level of popular environmental education, 2) the existence of an ongoing struggle to satisfy basic needs, and 3) a lack of material resources.

Matos Rodriquez seems to favor 'popular environmental education' as the most influential factor. Indeed, she writes that "all of the environmental problems occurring in Ocujal del Turquino are either the cause or the consequence of this deficiency in environmental education". At the level of community decision makers, "there is insufficient recognition of the effect of decisions on the environment". Although some environmental education has been introduced into the schools, "in practice this education has been reduced to a study of biology, all the while neglecting the intrinsic relation of biology with cultural processes". Furthermore, "although there may be good intentions

and outward recognition of the need to preserve the environment, this is contradicted by the social comportment of the people" [49].

However, Matos Rodriquez also concedes that the poverty that still exists in this area can ultimately be the strongest of all motivating factors. She describes the community as a place where 'the threat of underdevelopment continues to linger among the people'. As a result, 'Problems related to underdevelopment appear like haunts in the people's mentality' such that 'in the face of need for food, fuel, and shelter, one can make a decision that also happens to be bad for the environment'. Matos Rodriquez makes a similar point when she says, "The lack of material resources has made it so that there are occasions when the environmental problematic could not have been top priority on the community's agenda" (my translation).

In summary, the author of this case study identified the following as factors that influence the ability of a community to implement solutions to self-identified environmental problems; popular environmental education, and the degree of satisfaction of basic needs.

[49] My translations.

Case Study #3 – Marianao

Almaguer Guerrero, R. (2003). Estudio Comparativo Sobre El Funcionmiento de los Consejos Populares Libertad y Pogolloti-Finlay-Belen del Municipio Marianao. FLACSO Cuaderno de Trabajo: Comunidad y Desarrollo. Teoria y Practica de Nuestros Dias. FLACSO; Havana.

This case study looks at the effectiveness of the People's Council of Libertad and the People's Council of Pogolloti. Both Councils are located in the municipality of Marianao, in the southwest section of Havana City.

People's Councils ('Consejos Populares'), institutionalized in the 1992 constitution, represent an attempt to bring municipal government to the common people. They are supposed to be more accessible to neighborhoods in urban areas, and more accessible to isolated locations in rural areas. The mandate of these councils includes dealing with constituent complaints ('plantamientos'), overseeing local economic activities, monitoring local administrators, fighting corruption, and mobilizing the local public.

People's Councils are one of the principle means through which citizens can participate in local governance. Given that a large percentage of the complaints brought to the People's Councils are environmental in nature, this case study (which describes and characterizes the capacity of the People's Councils to respond to problems brought forward by citizens) demonstrates some of the processes and the challenges affecting community level environmental management in Cuba.

As already established, Almaguer Guerrero designed this case study to look at the effectiveness of two People's Councils located within the City of Havana. The People's Councils he examines are relatively similar. The People's Council of Libertad represents 16 electoral districts. The Council itself is comprised of 16 municipal assembly delegates as well as 12 directors associated with the Council, 15 representatives of local mass organizations, and 8 representative of State enterprises headquartered in this district. The

People's Council of Libertad represents a total of 23 597 urban citizens living in three distinct neighborhoods and covering an area of 2.2 square kilometers. According to complaints made officially to municipal delegates, the major concerns of these citizens include: 1) the disrepair of public housing, 2) lack of sufficient water, and 3) problems with waste disposal particularly sewerage.

The People's Council of Pogolloti also contains sixteen electoral districts. This Council is comprised of the sixteen municipal delegates, as well as approximately 30 other representatives (of mass organizations and state enterprises located in the area). The council represents close to 27 000 urban residents, all living in an area of 5 square kilometers. Complaints to members of the People's Council of Pogolloti have focused on the following concerns: 1) the disrepair of public housing, 2) lack of sufficient water, 3) poor quality of government supplied supplies such as bread, 4) lack of sufficient doctors and family clinics, 5) poor street lighting, and 6) bad condition of local streets.

To gather data for his case study, Almaguer Guerrero interviewed municipal delegates as well as local citizens in both Libertad and Pogolloti. The majority perception, among the delegates and electorates surveyed, is that the People's Councils have a very limited ability to solve the problems brought to them by the people. At best, the People's Councils are described as being partially effective, and this is only when it comes to the largest, most publicized problems.

According to Almaguer Guerrero, it is common knowledge that in reality there are complaints ("plantamientos") which can not be resolved at the level of the People's Councils. Nor can these problems always be solved at the municipal, provincial, or even national level. Almaguer Guerrero's analysis offers two principal explanations for why problems can often not be solved at the level of the People's Councils. These reasons are: 1) lack of material resources, and 2) the persistence of a hierarchical and centralized bureaucracy.

This study highlights the difficulties faced by delegates of the People's Councils who are expected to accomplish the 'democratization of society' with very few financial and material resources. According to the delegates surveyed in Libertad, 89 of the 98 complaints (or 90%) submitted at the last biannual accountability session had been 'resolved'. When pressed by Almaguer Guerrero for further detail, it surfaced that 9% of these resolutions had been accomplished using material resources; 28% had been resolved using "other means" and 61% resolved using clarifying answers ("respuestas aclaratorias"). In other words, many problems were considered " resolved" after it had been explained to the resident that the problem could not be fixed. According to the delegates of both Councils, it is difficult if not impossible for them to resolve complaints related to the disrepair of public housing, water mains, and sewerage. "In general", points out the author, "the population has to consider that the delegate... can not solve the principal problems, such as the lack of housing and the sewage problems, because these require material resources that the country just does not possess" [50]. In the course of his discussions with the electorate of both communities, Almaguer Guerrero learned "that in almost every case the population hears the same thing from the delegates when they justify why complaints can't be solved: that it is the fault of the Special Period"[51]. Most delegates agreed that their work is very delicate diplomatically as it consists for the most part of explaining to citizens why their complaints cannot be addressed.

Further, it is not just the delegates, but also the state enterprises and entities who claim that they do not have the resources to participate in the solution of local problems. It is mandated that state enterprises and entities participate in the People's Councils that corresponds to the physical jurisdiction in which they are located. The majority of the electorate surveyed in this case study were of the opinion that despite this mandate, state entities "don't participate in the People's Councils efforts to solve local problems".

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[50] My translation.

[51] My translation

Furthermore, "the management of the entities pose as justification for their lack of participation, the fact that they don't have sufficient material resources to do so"[52]. In addition to a perennial lack of financial and material resources, delegates of People's Councils must also find a way to be effective within a bureaucracy that, despite efforts to the contrary, persists in being hierarchical and centralized. Almaguer Guerrero characterizes the Organs of People's Power as "challenged by bureaucratic processes, the inertia of administrative relations, and the maintenance of a vertical hierarchy in institutional structures" [53]. By linking a number of delegates into one Council, People's Councils were designed to strengthen the popularly elected delegates. In reality, however, the delegates are still at a serious disadvantage when it comes time to represent their electoral districts before the Municipal Assembly. According to many delegates interviewed by Almaguer Guerrero, the agenda of the Municipal Assembly is preset and determined by functionaries of the Assembly rather than the delegates themselves. In other words, "the majority of the delegates do not contribute to the establishment of the agenda of what gets debated in the Councils. This is a further indication of the administrative tendency that continues to separate the base delegates from those representing the Municipal Assembly" [54]. Furthermore, base delegates are never full time politicians and have other jobs. Thus they find it difficult to stay informed and abreast of the many issues which get debated in Councils and Assemblies. This further impedes their ability to always participate meaningfully in debates and decisions. In Almaguer Guerrero's diplomatic opinion, "the functioning (of the People's Councils) would be even more democratic and would gain in objectivity and value for the community", if only " the opinions of the base delegates was taken into better account" [55].

In summary then, one of the main methods for everyday citizens to participate in environmental management of their local neighborhood is to provide feedback and

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[52] My translation

[53] My translation.

[54] My translation.

[55] My translation.

complaints to their local representative. According to this case study, however, the ability of the local representative to actually do anything to resolve these complaints is seriously limited. Local representatives are limited by two major factors: 1) a perennial lack of material resources, and 2) the persistence of a hierarchical and centralized bureaucracy.

Case Study #4 – Baracoa

Diaz Gonzalez, B. (2003). Creacion de Un Modelo Para El Manejo de los Recursos Costeros por las Comunidades en Cuba. Comunidad Baracoa. FLACSO Cuaderno de Trabajo: Comunidad y Desarrollo. Teoria y Practica de Nuestros Dias. FLACSO; Havana.

This case study was written after Diaz Gonzalez coordinated a project whose objective was "to elaborate and to test a model for the transition from centralized management to community management of coastal resources"[56]. The project unfolded in the community of Baracoa, in Bauto Municipality of Havana Province. Diaz Gonzalez and colleagues chose Baracoa as the project location because they considered it to be a representative Cuban coastal community. It is representative because it has distinct geographical borders, a historic identity, and a diversity of economic activity in which fishing is one (but not the primary) activity.

To begin the project, a multidisciplinary team of natural and social scientists joined forces with Baracoa People's Council. They did so through site visits to the community, focus group interviews, educational seminars, and participation in the Council's regular meetings. According to Diaz Gonzalez, the People's Council was the natural choice when it came to selecting local work partners. This is because "in the conditions of Cuba,

[56] My translation.

the People's Council is the local government organ elected through direct and secret vote by the local population. Thus it is the nucleus for integration into the community" [57].

During the first of many joint meetings, the scientific team invited the Baracoa People's Council to identify an environmental issue that the joint team could then work on resolving together. Members of the People's Council named two primary environmental issues that were having a large negative effect on the community. The first problem was the contamination of a coastal lagoon known as El Doctor. The second problem was the lack of reliable and sufficient garbage collection. Throughout the project, the team consisting of the scientists and the local representatives worked together to solve these two problems. They were ultimately successful with regards to the coastal lagoon, but the problem of garbage collection was never completely resolved.

The El Doctor coastal lagoon is separated from the shoreline by a long thin finger of land that runs parallel to the shoreline and on which many of Baracoa's buildings are located. The lagoon is connected to the sea through the water table and a thin man-made channel. High tide thus fills the lagoon while low tide drains the lagoon. This natural process of water exchange is no longer sufficient to clean the lagoon because it has been overburdened with raw sewage as well as other solid household wastes. Residents complained of the foul odor emanating from the lagoon, and also about the loss of flora and fauna that used to inhabit the lagoon.

Together, the joint team of scientists and People's Council delegates were able to install a solution. This solution consisted mainly of repairing and reestablishing pumps to ensure proper oxidation in the lake; and secondarily, of community education seminars aimed at discouraging the dumping of household waste in the lagoon.

The second environmental problem named by Baracoa residents was the lack of garbage collection. Garbage collection became in issue in 1990, when the garbage truck that used

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[57] My translation.

to regularly service the community simply ceased to visit. The community understood that this service had been discontinued because of the demands of the Special Period. Occasionally, a horse drawn wagon appeared to collect the garbage, but this was without dependability or the necessary frequency. Also as a direct result of the economic crisis, many families in Baracoa began raising livestock (such as pigs) in their yards to supplement their diet. This practice has marked negative environmental impacts, because animal wastes have added to the household and human wastes already being drained into the coastal lake. The joint team of scientists and People's Council delegates were in the end unable to find a permanent solution to the issue of garbage collection in Baracoa.

However, according to Diaz Gonzalez, this project achieved as its principal accomplishment the empowerment of the community, in particular of the People's Council. This occurred because "the presence and support of the university scientists allowed the Council to obtain a new power of negotiation with respect to the municipal authorities in Bauta"[58]. In turn, the achievement of some concrete results raised the Councils legitimacy in the eyes of the community.

As described above, the purpose of the project was to test a model for the transition from centralized management to community management of coastal resources. Based on her experiences with this model project in Baracoa, Diaz Gonzalez demonstrated a number of important factors that exerted a determining influence on the ability of Baracoa to manage its own resources.

The first of these important factors was the high degree of community participation in the resolution of the two environmental problems. Diaz Gonzalez attributes the successes of the project to the community's active and enthusiastic participation. This model project specifically focused only on problems that were identified and brought forward by the community itself. According to Diaz Gonzalez, the community actively and enthusiastically took control of its own resource management because the management

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[58] My translation.

objectives were grassroots in conception. Furthermore, in the Cuban context the local People's Council is the grassroots cell through which all community initiatives must be channeled. Thus the ability of the local People's Councils to understand and represent the issues of their constituency is crucial.

Diaz Gonzalez considers that community participation and empowerment is especially necessary in far-flung rural areas. This is because the distance of a community from central governance plays a role in the enforcement of centrally ordained environmental legislation. "In general", explains Diaz Gonzalez, "the more distant the community from the center, the lesser the probability that the community will obey centrally established regulations"[59]. In regards to methods of coercion such as inspections and fines, Diaz explains that "numerous observations demonstrate that no body of inspectors or system of fines can coerce a community to do something that it feels is against its interests. This is especially true because local inspectors are also a part of the community and they are tied to it through various links and compromises; mutual interests, family, friends, etc." [60].

As this case study demonstrates, another determining factor is the Cuban economic crisis and the financial and material scarcity that has ensued. According to Diaz Gonzalez, the lack of compliance with centrally established regulations became more evident and widespread during the difficult decade of the 90s. The collapse of the soviet socialist bloc and the tightening of the US blockade forced many coastal citizens to resort to chopping wood from the forests and capturing protected species from the reefs. In the community of Baracoa, the problems of garbage collection emerged in the early 90s, when "as a direct result of the economic crisis the garbage collection truck simply ceased coming to the community" [61]. Likewise, backyard livestock husbandry also began in the early 90s as a strategy of augmenting family diets. Thus, the overall scarcity of the Special Period has resulted in the assumption of many activities that are environmentally harmful.

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[59] My translation.

[60] My translation.

[61] My translation.

In summary, Diaz Gonzalez's Baracoa case study highlights four factors that have had an important influence on this community's ability to tackle its environmental problems. The four factors include: 1) active and enthusiastic community participation, 2) the effectiveness of the People's Council (with regards to both the electoral community and the municipal authorities), 3) scarcity of material and financial resources engendered by the Special Period, and 4) the level to which basic needs are satisfied.

Case Study #5 – Aguada La Piedra

Aquilera Garcia, A. (1998). Influencia del Desarrollo Turistico en el Medio Ambiente en la Comunidad Aguada La Piedra, Provincia Holguin. Tesis en opcion al titulo academico de Master en Desarrollo Social Caribeno, FLACSO; Universidad de la Habana.

The goal of Aquilera Garcia's study in Aguada La Piedra is to investigate the community's perception of the environmental impact of tourism. His methodology includes questionnaires that were filled out by community members, and interviews with local people who possessed some level of professional environmental expertise.

Aquilera Garcia's case study begins with a description of the community and it's realities. Aguada La Piedra is a small town located in the northeastern province of Holguin. It sits on the beautiful northern coast of the province, an area that is experiencing increasing rates of sun and sea tourism. In fact, Aguada La Piedra is located only 17 kilometers from Guardalavaca, Holguin's principal beach resort. As the case study outlines, Aguada La Piedra began to be profoundly impacted by the tourism industry in 1993. During that year, Gaviota Corporation (a major state owned tourism operator) moved into the community. A number of new hotels, as well as one hundred new employee houses, were constructed. The corporation then imported over two hundred new residents quite suddenly into a community that had previously consisted of approximately five hundred mainly agricultural workers.

Aquilera Garcia describes the impacts of these sudden changes, classifying them into two categories: biophysical impacts and socio-cultural impacts.

Biophysically, the mass construction and immigration fundamentally changed the community. During the actual construction stage, tons of earth and sand were relocated, new roads were built, and services such as sewerage, water pipes, and dumps were established in the new residential zones. A number of the hotels and associated structures

were built directly on the sand dunes of the beach. In order to accommodate the new construction, entire areas of the community were completely deforested. The associated loss of habitat was significant enough that many species of wild fauna left the area completely, and local farmers now must travel further to find adequate pasturage for their livestock.

According to Aquilera Garcia, the previously established residents have undergone a dramatic socio-cultural upheaval. To begin with, they have largely lost access to their former recreational areas. This includes the best beach areas, which are now devoted to tourism. It also includes open fields that previously had been used for sports such as soccer and baseball. According to questionnaires administered by Aquilera Garcia in the older zone of town, the loss of recreational spaces has corresponded to an increase in drug and alcohol abuse.

Also according to Aquilera Garcia, socio-cultural upheaval is also due to the fact that the new residents occupy a markedly higher socio-economic bracket than the original residents. While the new residents are predominantly educated workers with urban roots, the established residents are rural people whose livelihoods are based on agriculture, forestry, and fishing. The new residents occupy newly built concrete houses and enjoy amenities such as sewage systems, running water, and well-maintained roads. In contrast, the original residents continue to live in decades-old homes constructed of wood and palm leaves, with no access to running water or sewage systems. The town is essentially divided into two very diverse and visibly distinct halves. The obvious disparity in living standards – in a country that prides itself on equitable division of wealth – has contributed to a tension already existing due to the biophysical issues.

As mentioned previously, Aquilera Garcia administered questionnaires and conducted interviews with both new and established community members. The questionnaires and interviews suggested that two factors are at the heart of all the issues, both biophysical and socio-cultural, which are currently plaguing the community.

The first factor is the lack of community involvement and participation in the planning and actualization of the physical development of the tourism industry. In the case of Aguada La Piedra, an economic interest (Gaviota Corporation) moved into the town, constructed a substantial tourism infrastructure, and ultimately changed irrevocably the physical environment of the community. According to the original residents, at no point were they informed or consulted about the changes that occurred in Aguada La Piedra.

The second factor is the reality of the community's absolute economic dependence on one economic activity – namely, tourism. This economic dependence has perforce led to a general acceptance of the negative environmental consequences accompanying the activity.

Case Study #6 – Plaza de la Revolucion Municipality

Gariria de la Moz, I. (1998). Diagnostico Socio Ambiental Del Municipo Plaza de la Revolucion. Tesis en opcion al titulo academico de Master en Desarrollo Social Caribeno, FLACSO; Universidad de la Habana.

Gariria de la Moz characterizes his work as a socio-environmental diagnostic of Plaza de la Revolucion Municipality (henceforward referred to as Plaza). Plaza encompasses more than 1000 square hectares of urban Havana. It is bordered to the north by the Gulf of Mexico, to the west by the Almendares River, and to the east by the Municipality of Central Havana. With a resident population of 200 000 and a daily influx of 250 000 workers, Plaza is one of the country's top five most populous municipalities. It is further distinguished as the home of more than 20 state departments (including Defense, Interior, Education, Communicacion, Health, Transport, etc.), 15 major health installations, the University of Havana, and numerous other cultural and historic centres of national significance.

According to Gariria de la Moz, this diagnostic of Plaza Municipality is an important tool for understanding the current state of urban environments in Cuba. Furthermore, understanding urban environments is key to understanding prospects for sustainable development in Cuba. This is because Cuba, in the last 35 years, has experienced an abrupt growth in urban population; from 30% of the total population in 1957 to 73.5% in 1989. The City of Havana, the largest urban concentration on the island, now has more than 2 million residents.

In general, it is fair to say that most of Cuba's urban areas have problems with solid waste disposal, water pollution, structural deterioration, and air and noise pollution. In order to determine the environmental issues specific to Plaza, Gariria de la Moz conducted interviews with relevant state functionaries and administered questionnaires to local residents. The resulting list of environmental concerns is extensive. The worst of these

do, however, fall into the 'usual suspect' categories mentioned above: solid waste disposal, water pollution, and structural deterioration.

While most Cuban communities have problems disposing of their solid waste, in Plaza the problems are exacerbated by high population density and the presence of 15 major health installations. According to residents of the municipality, garbage collection was seriously affected by the economic collapse of the early 90's and the ensuing Special Period. Since then, garbage collection has been insufficient and inconsistent. A citizen's group called Project Aurora briefly assumed responsibility for cleaning Plaza's streets, but eventually disbanded due to an inability to cover costs. Furthermore, according to an interview with a Municipal Health representative, nine of Plaza's fifteen hospitals do not have waste incinerators. These nine hospitals deposit their untreated solid waste into the residential garbage collection system. Along with the residential garbage, the hospital waste is collected by trucks and taken to an open-air dump in Marianao (another municipality of urban Havana). While authorities are aware that this form of handling hospital wastes constitutes a potential biosecurity hazard, they claim that they lack the necessary resources to address the problem. Thus disposal of solid waste is one of the principal environmental issues troubling both citizens and authorities.

Water pollution is also a serious concern. Gariria de la Moz conducted interviews with authorities responsible for the sewage and rainwater drainage systems. These authorities highlighted the difficulties involved in maintaining and operating the systems given the limited resources at their disposal. Both systems are over seventy years old, were originally designed for a much smaller population, and have deteriorated greatly over time. The sewage system is a network of underground pipes that run under the street and conduct sewage eastward to the only treatment plant in the city (in Old Havana on Avenida del Puerto). The rainwater collection system is a network of drains and street-side gutters that conduct excess rainwater down to the ocean. Unfortunately, many households in Plaza have established clandestine connections to the rainwater system, with the end result being that a great deal of sewage and other household waste is being flushed directly into the ocean.

The water authorities also described the flooding which continually affects the sewage pipes. Due to the system's age and general state of disrepair, blockages and back-ups are common. It is thus not unusual to see raw sewage flooding out onto the street and sidewalks. In addition to the street floods, there are hundreds of ditches which have become clandestine sewage dumpsites for surrounding houses. One of the largest of these, nicknamed the Hole (el Hueco), is located close to the University of Havana's main campus and a major maternity/pediatric hospital (Hospital Calixto Garcia). These ditches provide breeding grounds for mosquitoes and other vectors of disease, and they also tend to overflow during the rainy season. On the underside, these ditches are not lined and therefore contribute to the contamination of the underlying water table.

As mentioned earlier, Plaza lies along one bank of the Almendares River. According to municipal water and aqueduct authorities interviewed by Gariria de la Moz, this river is arguably the most polluted in the country. Studies have established that close to 100 metres cubed of contaminated industrial water enters the river every second. Most of the waste comes directly from factories and other industries that line the riverbanks. There are currently no plans to address this issue.

Gariria de la Moz thus makes it clear that water pollution is a tremendous challenge for Plaza Municipality on all possible fronts. In addition to multiple problems with the manmade sewage and rainwater systems, Plaza residents and authorities must contend with the fact that they are seriously polluting Plaza's natural water borders: the River Almendares to the west, the Gulf of Mexico to the north, and the water table below.

The issues of solid waste disposal and water contamination described above are intimately bound up with the physical deterioration of Plaza's infrastructures. In addition to the crumbling sewage pipes and rain gutters, the houses, streets, and public buildings are rotting at a faster rate than repairs are being made. For example, the long segment of Havana's famous seawall (the 'Malecon') that runs through Plaza is being eroded by constant wind and waves. The erosion of the Malecon has allowed the waves to eat up

the road and electricity lines which run behind the seawall. Like the Malecon, most of Plaza's infrastructure has withstood the tropical, seaside elements for between five and ten decades. In the face of perennial material shortages and overpopulation, Plaza's residents are simply forced to improvise and make do as best they can with the deteriorating structures. According to Gariria de la Moz, this explains such clandestine activities as unofficial dumping and the funneling of sewage into the rainwater drains.

The preceding paragraphs summarize some of the description supplied by Gariria de la Moz's in his highly detailed, 80 page socio-environmental diagnostic of Plaza. Towards the end of his diagnostic, Gariria de la Moz points out that sustainable urban development in general depends on the 'optimization' of a number of socio-economic factors. The factors which he believes need to be present in order to achieve sustainable urban development include: political will, management capacity on the part of authorities, strict implementation of regulations, the availability of technological, economic, and financial resources, and a developmentally conscious and participative public.

Gariria de la Moz concludes his diagnostic with an analysis of which of the above necessary factors are actually present in Plaza. He believes that political will is present, but that it is not sufficient in the face of the country's persistent financial and material shortages. In his words, " the economic problems faced by this country are the principal cause of all the deficient services; however the political will to maintain these services is present..."[62]. In terms of the implementation of regulations, Gariria de la Moz points first to the 'systemic violation of legislation regulating the use of the sewage and rainwater systems'. This is indicative of what is, in general, is a "complete lack of authority and discipline in the Municipality"[63].

According to Gariria de la Moz, the laws and norms that are supposed to regulate new construction, restorations, communal hygiene, automotive circulation, etc. are constantly

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[62] My translation.

[63] My translation.

ignored by state entities and private concerns, thus contributing to the deterioration of the environment. The actions of inspectors are not visible. In a general sense, there is a total lack of authority and discipline in the Municipality.

Furthermore, as Gariria de la Moz concludes, the principle agent degrading Plaza's environment is the human being. As the former director of Project Aurora pointed out in his interview with Gariria de la Moz, many of the municipality's solid waste issues are due to social indiscipline that conspires against basic hygiene. Gariria de la Moz calls for education programs that will sensitize the population to the environmental problems, and stimulate a feeling of identity and ownership for the surrounding environment.

In summary, this case study provides a highly detailed and descriptive characterization of one of the most populous and notorious urban municipalities in Cuba. Gariria de La Moz's 'socio-environmental' diagnostic depicts a grim urban environment with a host of serious environmental issues. His analysis of the necessary factors for urban sustainable development, and their presence or absence in Plaza, is extremely relevant to this thesis.

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Saint Mary's University
Halifax, Nova Scotia
Canada B3H 3C3

Patrick Power Library
tel 902.420.5534
fax 902.420.5561
web www.stmarys.ca

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