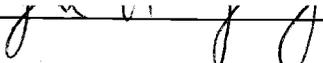


AN ABSTRACT OF THE THESIS OF

Jessica Rosien for the degree of Master of Arts in Applied Anthropology presented on April 20, 2001. Title: Understandings of Sustainability and the Contributions of Non-Governmental Organizations: A Case Study of Toledo, Belize.

Abstract
approved

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John A. Young

This thesis reviews theoretical and local understandings of sustainability and examines the contributions which the NGO, the Toledo Institute for Development and Environment (TIDE), makes to achieving sustainability in the district of Toledo in Belize, Central America. The study focuses mainly on the Port Honduras Marine Reserve, which TIDE manages in cooperation with the Toledo Fisheries Department.

Three sets of theories provide the context: theories of sustainability and sustainable development in general, theories on marine protected areas and fisheries management, and theories on NGOs. Findings show that TIDE has a vague understanding of sustainability and that there is a contradiction between the mission statement which promises a balance between environmental protection and stakeholders' economic needs, and TIDE's actual strategies for encouraging protection for the Port Honduras Marine Reserve. In addition, TIDE's dysfunctional internal management style, such as lack of communication between the management and staff, spontaneous planning, and frequent staff turn-over prevent the organization from functioning effectively and realizing its goals.

TIDE's approach to sustainability is ineffective because it fails to integrate emic perspectives. TIDE does not take into account that local residents have an their own perspectives on sustainability, which include the fishermen's sense of stewardship for the marine environment. TIDE also does not successfully ensuring a steady income for the fishermen effectively.

In light of the theories on sustainability, findings show that most theories are developed in a top-down manner that fail to integrate local understandings of

sustainability. The only possible exception are holistic theories that emphasize bottom-up participation.

The main recommendation for TIDE and similar NGOs is to develop a holistic approach to sustainability that includes emic perspectives. Consideration of the environment, the consideration of stakeholders' economic needs, the socio-cultural context, and an administrative political framework and a functional internal management style all need to be integrated into a successful approach to sustainability.

Understandings of Sustainability and the Contributions of
Non-Governmental Organizations:
A Case Study of Toledo, Belize

by
Jessica Rosien

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Jessica Rosien, Author

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I dedicate this thesis to my parents, Angel and Peter Rosien
who made it possible for me to make my dream come true.

Understandings of Sustainability and the Contributions of Non-Governmental Organizations: A Case Study of Toledo, Belize

1. Introduction

When I first became interested in anthropology, I was intrigued by the applied angle of the discipline. I became aware of the possibility of studying cultures in a holistic way and using this knowledge to tackle practical questions. This realization led me to consider how people on a local level take actions to improve their livelihoods. Whereas people often may try to create positive change as individuals, the greater scope for making improvements seems to lie in concerted efforts. In many cases NGOs serve as a means to coordinate the action of a group of people to improve their livelihoods or environment. My initial research of NGOs pointed towards a possible advantage of these organizations in comparison to governments or mainstream development agencies. Further research however, showed that this assumption cannot necessarily be taken at face value and needs to be examined carefully. In a case study of the NGO, the Toledo Institute for Development and Environment (TIDE), in southern Belize, I intend to examine how and whether this organization acts as an agent of sustainable development and whether it has a comparative advantage over local and national government planning. Though my conclusions can be valid only for the actual case study, I hope to draw some general inferences on NGOs and their role in sustainable development.

The changes people or groups attempt to make always refer to concrete specific situations. However, in the absence of guidelines intended improvement is likely to have the opposite effect. The past and current debate on sustainable development addresses the question of how to create changes in a way that they are in fact improvements. The terms sustainable development and sustainability have so many and often opposing connotations that they in themselves need to be explored.

The combination of NGOs as a means to create improvements and the concept of sustainable development to guide these improvements caused me to focus on a non-governmental organization as a case study for understanding sustainability. Through the organization Global Graduates based at Oregon State University I was able to locate the Toledo Institute for Development and Environment in Toledo (TIDE), the southern district of Belize, for an internship and case study. TIDE fit my interests well, since it engages in natural resource management and ecotourism, both activities that are linked to questions of sustainability. My particular focus for the case study will be TIDE's activities in the Port Honduras Marine Reserve and questions on sustainability in regards to marine resources.

Understandings of sustainability will most likely differ depending on the perspectives of the people concerned. Thus academic theory will not automatically coincide with perspectives of stakeholders. This thesis compares theoretic perspectives with local understandings of sustainability of both TIDE and stakeholders. In anthropological terms, this approach contrasts the etic with the emic perspective. Etic approaches to sustainability are culturally neutral, that is they measure sustainability according to universal criteria. Emic understandings are culturally specific and based on perspectives of local people in a particular culture. In this thesis, theoretical approaches represent the etic perspective and understandings of local stakeholders of Toledo represent emic perspectives.

I will analyze the NGO TIDE as an agent of sustainable development. Out of the different theoretical approaches to sustainability, I have synthesized the whole-systems perspective in a way that it considers economic needs, environmental needs, socio-cultural conditions, and the political framework. My claim is that if these four elements are integrated into planning, the main criteria for sustainability can be met. I will refer to this theory as integrative approach to sustainability and will evaluate its relevance in regards to the case study. My final goal is to make recommendations for TIDE how to manage successfully for sustainability in Toledo.

After laying out the background to the case study of TIDE in Toledo, Belize, I will briefly review existing theories on sustainability and sustainable development.

I will then present recent trends on integrated coastal management and marine reserves and some basic concepts of fisheries management and will finally summarize relevant theories on NGOs. As fourth step I will lay out my methods which consisted mainly of participant observation, and informal and semi-structured interviews. Doing an internship parallel with my research allowed me to be a participant-observer in the full sense. I chose this combination in the hope of gaining an inside view of the organization TIDE.

I present my data in three parts, first in regard to the general situation in Toledo, then to TIDE, and finally to the Port Honduras Marine Reserve. In light of results of the data I will then reevaluate existing theory on sustainability and conclude with making recommendations for TIDE and non-governmental organizations in general.

2. Background

2.1. Belize

The area of Belize covers 22,923 square kilometers. It borders the Caribbean Sea and lies between Guatemala and Honduras. (Figure 1)

Figure 1: Belize and Its Neighbors



(National Geographic 2001)

For its small population size of approximately 250, 000 inhabitants, Belize has a high ethnic diversity. Its main ethnic groups are the Mestizos with approximately 47 percent of the total population. They are of mixed Mayan and European descent. The Creoles are of African and Afro-European descent and constitute approximately 28 percent of the population. The third largest group are the Afro-Amerindian Garifuna with approximately six per cent, and the remaining ethnic

groups include East Indians, Europeans, Chinese, Middle Eastern, and North Americans (US Department of State 2000).

English is the official language of Belize, and Creole, an English dialect the common language. Spanish is also widely spoken, and the two Mayan groups, the Kekchi and the Mopan, as well as the Garifuna each have their indigenous languages (US Department of State 2000).

Having received its independence from the British colonial power in 1981, Belize is a very young nation. The preparations for independence had begun long before this date. George Price is the central figure in Belizean politics surrounding independence. His involvement in the Belizean struggle for independence dates from the mid 1950s to 1984. Once his party, the People's United Party (PUP) became established in the political system, Price contributed largely to achieving 'full-internal self-government' in 1964. In 1973, the country's name changed from British Honduras to Belize, leading to full independence in 1981 (Barry 1995).

When Belize established its independent government, it followed the Westminster model of representative democracy. As a member of the Commonwealth, Belize is formally headed by the British monarch and represented in Belize by the governor general. There are two legislative chambers, the House of Representatives, elected by popular vote, and the Senate with nominated members. The actual political head is the Prime Minister, currently Said Musa of the People's United Party (Barry 1995).

The opposition party of the People's United Party is the United Democratic Party (UDP), which gained voters in 1984, with a slackening economy and the readiness of the electorate for a change from George Price's leadership, also termed as *personalismo*. In 1989 however, George Price again took over leadership and after a brief UDP leadership, the PUP regained power under Said Musa in 1996, the current Prime Minister (Barry 1995).

When looking at political development of British Honduras and independent Belize, it is essential to consider foreign relations with Guatemala. The Belizean-Guatemalan dispute goes back to Guatemala's independence from Spain in 1821 when Guatemala claimed the territory of British Honduras. The question of

territorial rights, especially over the southern section of the country, formerly the Guatemalan province of the Spanish empire, reemerged with significance in the independence struggle. The Anglo-Guatemalan question revolved around control over British Honduras, while the country's inhabitants initially were reduced to observers in this controversy (Barry 1995).

After an aborted attempt by George Price in 1969 to negotiate a two-treaty package in which Guatemala would recognize independence of the territory of British Honduras in exchange for cooperation in commerce, agriculture, defense, and foreign affairs, Belize appealed for UN support. The UN backed Belize against Guatemalan territorial claims, and gradually Latin American countries extended their support.

Disagreements about the "Two Heads" document signed between Britain, Guatemala, and Belize, March 11, 1981, contributed to the turbulence preceding independence. The Two Heads agreement stated that Guatemala would drop all territorial claims while Belize in turn would allow Guatemalans to access their Caribbean port, Puerto Barrios through Belizean waters, in addition to other sea rights and privileges, providing the rights of Belizean people in no way should be impeded (Barry 1995).

The two main Belizean political parties divided over this document. The UDP, which strongly opposed this agreement and wished to keep the British defense guarantee, was the main force behind the riots 1981. Because the Two Heads agreement was interpreted differently by Guatemala and Belize, negotiations broke down in the same year of 1981 and remained stalled until 1990. Only then did Guatemala's president formally recognize Belize's right to sovereignty and self-determination. Belize still was not able to find a united response to Guatemala's recognition. In 1991, George Price proposed the Maritime Areas Bill, under which Belize was to reduce its sea territory to three off shore miles. This bill met strong opposition from the Belizean people and later also from the UDP, on which the PUP had originally counted on for bipartisan support.

In 1993, the UDP, in coalition with the National Alliance for Belizean Rights (NABR), returned to power and stirred concerns in Guatemala about a possible

repeal of the Maritime Areas Bill. The political development in Belize proved counteractive for the relations with Guatemala, culminating in 1994 when the Guatemalan foreign minister confirmed in a letter to UN Secretary General that Guatemala now again held territorial claims on Belize (Barry 1995).

The events of the year 2000 show that Belizean-Guatemalan issues are far from resolved. In February, an incident at the border caused bilateral negotiations in Florida to be suspended. Even though they have been taken up again, the countries are no closer to a solution. The uncertainties and misunderstandings in Belizean-Guatemalan relations in history and recent past are vital to understanding foreign affairs and public perceptions in Belize today.

In its relations with the United States, Belize's focus lies on trade and economic issues. As of 1995, the Caribbean Basin Initiative (CBI) and the sugar-import system both allow Belize privileged access to the U.S. market. However, in light of the United States' expansion of free trade agreements such as the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade, Belize is concerned about its privileges in the U.S (Barry 1995). On the other hand, the United States "is the largest provider of economic assistance to Belize contributing \$ 1.1 million in various bilateral economic and military aid programs to Belize in 1999" (U.S. Department of State 2000). Up to 1996, the United States Agency for International Development (USAID) contributed a total of \$ 110 development assistance (Barry 1995).

As a member of the Caribbean Community (CARICOM), founded in 1973, Belize has free trade rights in the Caribbean. The goal of the Caribbean countries is to gradually liberalize trade with the emphasis on 'relative reciprocity' which integrates inequalities between trade partners into agreements. In 1991, the CARICOM entered a 'framework agreement with the United States', recognizing that free trade is inevitably coming to the Caribbean region (Barry 1995).

When Belize gained its political independence it was faced with the reality of economic dependence, a state which to a large extent still continues today. Although Belize has seen economic growth in the last two decades, its economy is

still to a large extent dependent on external markets. In 1999, imports, at \$ 370¹ million doubled exports at \$ 183 million, which consisted mainly of agricultural and fisheries goods (U.S. Department of State 2000). Between 1992 and 1998 the export of marine products rose from 2,251.000 pounds to 4,255.000 (Belize National Human Development Report 1998). Belize's export weakness is increased by the fact that 90 % of exports consist of sugar, citrus concentrate, clothing, bananas, and seafood. These commodities are low-value unit goods, in comparison to manufactured or processed products (U.S. Department of State 2000).

As can be seen from the figures above, agriculture represents the backbone of the Belizean economy, with agricultural exports constituting 75 % of foreign exchange in 1994. Forestry commodities historically represented the major commodity under colonial rule, but sugar has taken over as the prime export today, followed by citrus, bananas, seafood, and cacao. Of the country's approximately 809,000 hectares of land, only a small percentage is cultivated, largely due to lack of transport infrastructure into the uncultivated land. Fishing, timber production and mining are other economic activities in Belize (Barry 1996). Between 1986 and 1998 fishing revenue increased from 2.7 per cent of the GDP to 4.5 per cent (National Human Development Advisory Committee 1998).

Although agriculture provides for the largest percentage of exports, the service sector, propelled by tourism, constitutes the largest economic sector, accounting for 57% of the GDP, the leading services being trade, restaurants, and hotels (National Human Development Advisory Committee 1998). The number of tourists that visited Belize rose from 121,270 in 1995 to 172,292 in 1999 (Belize Tourism Board).

Income inequality exists between the different ethnic groups of the country. When distributed on the income pyramid the Creoles are at the top, followed by the Mestizos, then the Garifuna, and finally by the Maya.

¹ All amounts are given in US dollars unless specified otherwise.

Because the Belizean industry constitutes only 17% of the GDP, its imports consist mainly of consumer goods, vehicles and machinery, the main suppliers being the U.S. with 50 %, followed by Mexico and the U.K (Barry 1995).

In 1993, the per capita income for Belize was roughly \$ 1,700. According to the Ministry of Sugar Industry, Local Government and Labor Minimum wage in 2000 was at \$.88 for domestics and \$1.13 for shop assistants. When measuring the human development index based on life expectancy, adult literacy, and average education, Belize with 0.807 in 1995 compared high to Nicaragua (0.547), El Salvador (0.604), Honduras (0.573) and Guatemala (0.615), but low to Costa Rica (0.889) and Panama (0.868) (United Nations Development Program 1998). According to Barry (1995), Belize's education system compares favorably with other Central American countries. However, the university system is not yet fully developed, since a Bachelor's degree is presently the highest degree available. The University of Belize is the largest in the country, and it refers students with aspirations for Master's and PhD programs to universities in other countries.

With the growth of ecotourism, the value of the environment in Belize is becoming more evident. According to Barry (1995: 129) "Belize has an opportunity to avoid many of the mistakes that have wreaked such environmental and economic havoc elsewhere in the region. Unlike developed countries at the curative stage in environmental conservation, Belize can still employ primarily preventive measures to preserve its eco-stability". Barry concludes that under the special conditions of having a low population density and a high proportion of land under forest cover, Belize has a special chance to practice sustainable development with "advanc(ing) economically while at the same time recognizing the ecological boundaries of economic progress" (1995: 129). One step on the way to finding this balance was the enactment of the Environmental Protection Act in 1992, which requires environmental impact assessments prior to large development projects. However, this does not imply that criteria for sustainable development necessarily are met. Especially in the agricultural sector, environmentally adverse practices are still widespread (Barry 1995).

Land tenure is a central aspect when considering environmental issues in Belize. In 1995 about 37 % of land was privately held, 34 % national land, and 29 % publicly owned. These categories are not exclusive, since privately owned land includes reserve land (3.5. % of total lands in 1995) and national lands include leased lands (10.5 % of total lands in 1995) (Barry 1995).

The current environmental topics in Belize include deforestation due to milpa² farming, pesticide and fertilizer contamination due to the growth of citrus farming and the agroexport industry. Tied to these issues is the growing problem of water quality which affects fresh waters as well as the sea. In marine areas fisheries decline and degradation of the barrier reef have become a concern. The fact that waste disposal is hardly existent adds to environmental degradation in general (Barry 1995).

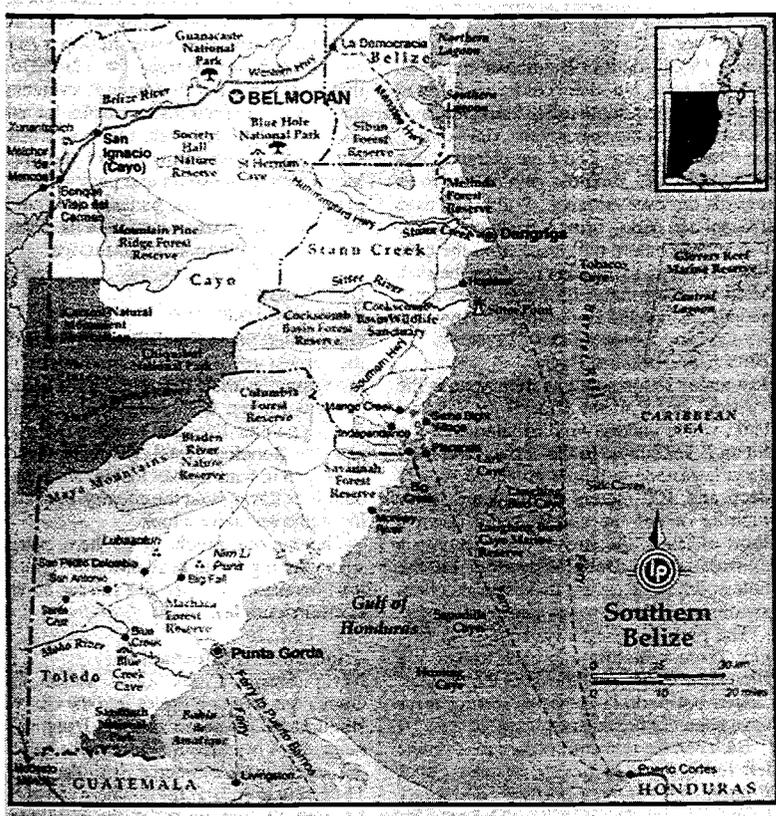
Beginning with church related charity organizations in the 1960s, non-governmental organizations have grown over the decades, attracting more attention from the government. In a meeting with the government's Inter-Ministerial Committee in 1988, guidelines were established to secure fair interchanges between government and non-governmental organizations (Barry 1995).

In 1987, the Association of National Development Agencies (ANDA) was formed with the purpose of coordinating non-governmental organizations. It consisted of the Belize Agency for Rural Development (BARD), Help for Progress, the Belize Federation of Agricultural Cooperatives (BFAC), and the Society for Promotion of Education and Research, and has since expanded to include other non-governmental organizations. (Barry 1995).

² Slash and burn technique, practiced mainly by Mayan Indians.

2.2. Toledo

Figure 2: Southern Belize



(from Brosnahan and Keller 1997: 323)

The southernmost district of Belize, Toledo, covers 1,704 square miles with a population of approximately 22,000 inhabitants in 1994. According to a calculation in 1999, the population of Toledo should have increased 46 per cent between 1991 and 2000 (Environmental Social and Technical Assistance Project 1999). Punta Gorda on the southern coastline of the district, with approximately 4,700 inhabitants is the only urban center of the district (Belizeecotours 1999). In 1998, Toledo had the lowest population density in the country with 5.13 people per square kilometer (National Human Development Advisory Committee 1998).

As a predominantly rural area, Toledo is rich in agricultural potential and biodiversity. The mangrove swamps along the shorelines and the Great Barrier

Reef five to ten miles from the shoreline are aspects of the tropical environment. Rainfall in Toledo averages between 100 and 160 inches per year and temperatures between 85 and 86 degrees Fahrenheit (Ford and Damon 1999).

The Kekchi and Mopan Mayas constitute the largest ethnic group with 40 % of the total district. Many of them live on the 76, 000 acres of reservation land in Toledo. Other ethnic groups are the Mestizos with 12 %, the Garifuna with 10 %, the East Indians with 8 %, and the Belize Creoles with six per cent, completed by 3 % of members of other ethnic groups, such as Caucasians (Ford and Damon 1999).

Toledo's economy is agrarian centered. Among the Mayan Indians, the practice of milpa farming or slash and burn technique is common. Most Mayan Indians pursue agriculture on a subsistence basis. Citrus, banana and rice crops are mainly cultivated as large-scale industry. Other economic activities are fishing, aquaculture, mining and merchandising (Ford and Damon 1999). The government and education sectors are also significant for providing employment.

The estimated unemployment in Toledo rates at approximately 13 % compared to a national average of 12. 7 %. These figures do not take into account part time employment, which is a common phenomenon. Toledo is characterized by its "commonness of multiple employment activities by labor and business" (Environmental Social and Technical Assistance Project 1999).

In 1999, Toledo had the highest level of poverty in the country with 57.8 % of the people falling under the poverty line of \$ 645. In the rural areas, this number is even higher with 71 % of the population living at or below the poverty line (Ford and Damon 1999).

Tourism has been expanding in Toledo, becoming a significant sector for future development. From 17 hotels in 1991, the number in Toledo grew to 58 in 1998. The country's total was 408 hotels in 1998. Although this number is relatively high, the number of total hotel rooms in Toledo compares low to other districts, an indication that tourism in Toledo is still mainly a small-scale enterprise more in the nature of ecotourism than commercial tourism (Belize National Human Development Report 1998).

Both government and non-government organizations have increased attempts to promote development in Toledo. The 1999 draft for *Components of a Human and Economic Development Strategy for Toledo, Belize* (Ford and Damon) cites TIDE, the Social Investment Fund (SIF), the Belize Enterprise for Sustainable Development (BEST), and Help for Progress as presently active NGOs in the district. One of the larger scale government development projects is the Environmental Social and Technical Assistance Project (ESTAP), a project designed for five years and funded by the Inter-American Development Bank. This project was designed to prepare Toledo for the completion of the Southern Highway which connects the district to the rest of the country. The project is scheduled to be completed early in 2001.

2.3. Punta Gorda

Punta Gorda is the southernmost urban center of Belize. It lies on the Gulf of Honduras and provides important sea access to the Guatemalan harbor town Puerto Barrios. Punta Gorda has approximately 4,700 (Belizeecotours 1999) inhabitants, the largest ethnic group being the Garifuna, followed by the Creoles, then the Mestizos and East Indians, the Mayans and a small percentage of Caucasians (Ford and Damon 1999).

Merchandising and service constitute the largest economic sectors. Among the services, hotel business with 14 hotels was the largest in 1997 (Ford and Damon 1999). Two important service branches, which distinguish urban centers from larger rural towns in Belize are the Belize Bank and the branch of the Belize Telecommunications Ltd. Punta Gorda has several primary schools, the larger ones being the Catholic and the Methodist one, some secondary schools and the University of Belize has a branch in Punta Gorda.

Punta Gorda is characterized by high unemployment and low incomes. The 1999 draft for *Components of a Human and Economic Development Strategy for Toledo, Belize* (Ford and Damon) cites a 14 % unemployment rate, pointing out

that the actual number might be much higher. Among the cited 315 employers only 164 were active

The expectation of tourism in Punta Gorda has increased the number of people investing in tourism enterprises. Many fishermen offer services as tour guides and fly fishing guides. Some boat owners also offer charter services to the nearby islands in the Gulf of Honduras and there are a few established charter services.

Punta Gorda offers a rich scenario of non-governmental organizations and is the location for most government offices and projects in Toledo. TIDE is the largest non-governmental organization with the widest scope and strongest financial backing that I observed. Besides TIDE, three other main NGOs are active in the area of environmental protection and ecotourism. The Punta Gorda organizations in these areas, including TIDE, have a history of hostility and rivalry. The fact that TIDE is the only organization that can hire and pay professional staff creates envy among the other volunteer-based NGOs. Another organization involved in conservation is the Belize branch of the US non-governmental organization The Nature Conservancy (TNC) located in Punta Gorda which works closely together with TIDE. Much of TIDE's funding comes from the Nature Conservancy.

Among the government projects are the Protected Area Conservation Trust (PACT), the Environmental Social and Technical Assistance Project (ESTAP) and CARD (The Community-Initiated Agriculture and Resource Management/Rural Development Project).

2.4. TIDE

TIDE was founded in 1997 with the mission to “preserve the biodiversity and natural ecosystem process within the Maya Mountain Area Transect to ensure a sustainable high-quality livelihood for local residents” (Belizeecotours 1999). The founding of the organization mainly goes back to the efforts of the current managing director. He had been a member of the Belize Center for Environmental Studies (BCES). This organization had a branch in Belize City and in Toledo. Due to mismanagement it collapsed in spring 1997. A few months after the collapse the current managing director took the opportunity to start the Toledo Institute of Development and Environment together with some previous staff members from the Belize Center for Environmental Studies. The managing director is the primary decision maker at TIDE and takes a personal stake in the organization’s success.

Beginning with the original intent of saving endangered manatees, also known as sea cows, TIDE over the last three years has expanded its scope to a number of environmental projects and ecotourism activities. The organization mainly focuses on offering environmentally sustainable alternatives to traditional, more destructive resource uses, the main alternative being ecotourism. TIDE’s first steps in 1997 were to offer local fishermen courses in fly-fishing, sea kayaking, birding, and natural history. More than 40 locals participated and received certification. When tourists come to Toledo via TIDE, the organization subcontracts them with the local tour-guides.

In May 2000, TIDE moved to a new office building just outside of town, which is electronically well equipped. The staff consists of eight members in the office: the managing director, the operations manager, an equipment manager, a technical GIS assistant, a scientific officer, an office manager, and a secretary/receptionist. The position of a tourism coordinator is currently vacant. Three rangers are in charge of the Port Honduras Marine Reserve, three of Payne’s Creek National Park. Each set of rangers include one head ranger. TIDE was given mandates by the government to manage both the Payne’s Creek National Park and the Port

Honduras Marine Reserve. Therefore the rangers by TIDE and belong to the organization's staff.

TIDE's current projects include the patrolling of two reserves, the Payne's Creek National Park, and the Port Honduras Marine Reserve by the rangers; the Coastal Zone Monitoring Project (particularly for water quality); the Fresh Water Initiative; the Adopt an Acre program (land is bought by TIDE for preservation purposes), the Eco O K program, which aims at promoting sustainable methods for citrus farmers, and TIDEtours promoting ecotourism in the region.

2.5. Port Honduras Marine Reserve

The Port Honduras Marine Reserve extends along the southern coast of Toledo. It begins at the Rio Grande and extends up to the Mouth of Monkey River. From the shoreline it extends about 8 kilometers into the sea, encompassing approximately 406 square kilometers, in which several small islands, so-called cayes are located. The communities affected by regulations of the Reserve are Punta Gorda, Punta Negra, and Monkey River. The latter two communities are both north to Punta Gorda on the shoreline of Port Honduras (Figure 3).

Due to its special natural characteristics, Port Honduras provides an important place for nursery habitat for fishes (Figure 4). Abundant mangroves along the shorelines and the several islands are a key element to its uniqueness. Besides providing nutrient rich nursery habitat for young fishes, the mangroves roots filter freshwater coming from the mainland, and thus protect the barrier water from the nutrient rich water, which would be detrimental to the corals around the small islands and the Great Barrier Reef.

The preparations for the Port Honduras Marine Reserve began in 1990, when the Belize Center for Environmental Studies conducted a Critical Habitat Study for the area of Port Honduras. In 1993, the Environmental Project for Central America (PACA) funded a Rapid Ecological Assessment (REA), and a second REA was conducted the following year.

The first formal step towards establishing the Marine Reserve was taken in 1994 with the designation of the Proposed Port Honduras Marine Reserve by the Fisheries Department which mandated TIDE's predecessor, The Belize Center for Environmental Studies, to prepare a draft management plan. As part of drafting the management plan, The Belize Center for Environmental Studies conducted a series of community meetings in Punta Gorda, Punta Negra, and Monkey River in 1996. When The Belize Center for Environmental Studies went defunct in early 1997, one of its former members founded TIDE in September 1997 and the organization took over the task of finalizing the management plan. The design of the management plan focused mainly on protection of the marine environment and the benefits of the reserve for the fisheries

In May 1998, TIDE concluded a second set of community meetings. In the fall of 1998 and the spring of 1999 there was correspondence from local supporters and government officials from the relevant ministries, such as the Ministry of Agriculture and Fisheries, the Ministry of Tourism, and the Ministry of Natural Resources and the Environment.

Opponents also raised their voices. March 1, 1999, the Chairman of the board of TIDE sent a letter to the Minister of Agriculture and Fisheries expressing concern about a group of opponents who were using "government inaction on the legislation as a "proof" that there are broader national concerns regarding it that have not been fully shared with Toledo residents". The Area Representative³ of Toledo was also among the opponents and according to TIDE there is evidence that in November 1999 he paid people in three communities to spread false rumors about the Reserve.

The actual official declaration of the Port Honduras Marine Reserve occurred on January 25, 2000 when TIDE was mandated with the Reserve's management by the Ministry of Agriculture and Fisheries. After this decisive step the advisory board was formed. A Memorandum of Understanding between the Ministry of Agriculture and Fisheries and TIDE has been drafted, but not yet signed. The

³ The Area Representative is the political head of the district, comparable to a governor of a state in the US.

reason for this delay is TIDE's objection to Ministry's conditions, which would allow the Ministry insight into TIDE's financial management and possibly even obligate TIDE to give money to the government. Without the Memorandum of Understanding, TIDE and its staff do not have the authority to enforce the rules of the Reserve, for instance by arresting a person caught in illegal fishing activity.

In June 2000, three rangers, including one head ranger, were hired for the Reserve by TIDE. Their tasks include patrolling the area, educating fishermen about the rules of the Reserve and implementing these rules. The Port Honduras Marine Reserve is co-managed by the Toledo Fisheries Department and TIDE. However, in actual terms, TIDE and its rangers are mainly in charge of the management. The co-management in effect consists of keeping the Fisheries Department up to date on the situation in the Port Honduras Marine Reserve. Due to TIDE's refusal to sign the Memorandum of Understanding, the rangers' tasks are mainly educational. Without legal power to make arrests, they can only report persons engaged in illegal activities to the respective government branch, in most cases the Toledo Fisheries Department or the police.

The Reserve has three different zones, each with separate regulations. The rules for the three zones read as follows: In the General Use Zone "commercial fishing, sport fishing, and subsistence fishing are permitted with the appropriate license" (TIDE 2000b). The Conservation Zone "extends half a mile around the West, East and South Cayes and Wildcane Caye. In these areas, fishing is allowed on a catch-and-release basis with a license" (TIDE 2000b). The Preservation Zone extends half a mile around Middle Snake Caye, where "no vessels are allowed to enter...(and) fishing, diving or other water activities are not permitted" (TIDE 2000b). The General Rules for the Reserve state that "in all of the zones, gill nets, long lines and beach traps are prohibited. Cast and drag anchors are not allowed, since they may damage reef formation. Lobster caught must be taken out of the reserve area whole, not as filet" (TIDE 2000b).

Up to this point no scientific monitoring has been done in Port Honduras to provide accurate data on the amount and types, location of nursery grounds or fish

banks in the Reserve.⁴ However, Will Heyman's dissertation (1996) does give a description of the fisheries in the Port Honduras and provides extensive survey data on catch amount, size and weight of fish, fishermen population and fishing gear. Heyman's assessment of fish stocks is not based on scientific monitoring, but fishermen's estimates about different fish species.

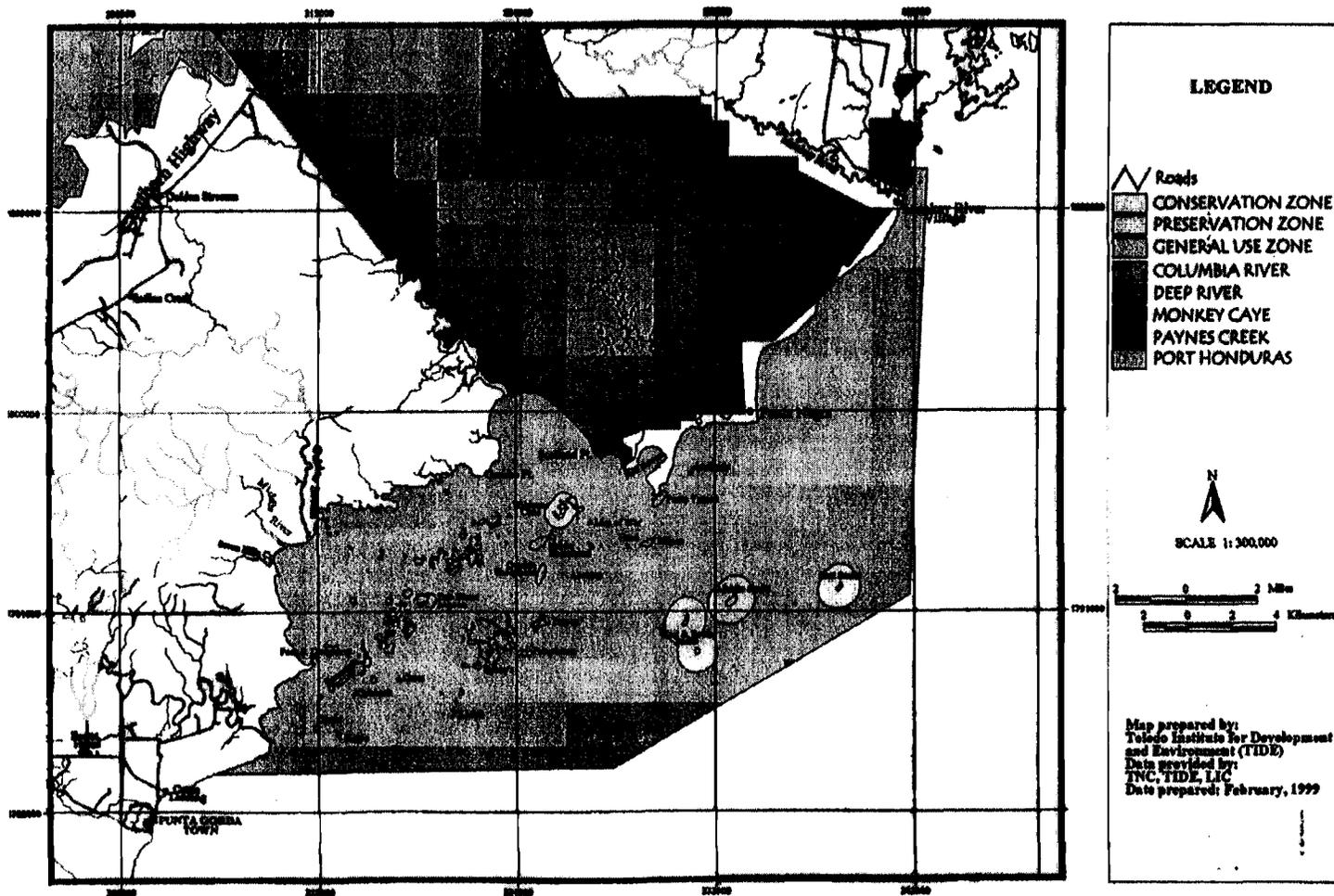
According to Heyman, fish diversity in Port Honduras is "considered fairly high, with over 70 species in 32 families documented" (1996: 112). The area is not only habitat for resident fish, but also for migratory fish species and includes important fish nursery habitat. The permanent resident fish include lane snapper (*L. syngaris*), grunt (Haemulidae), and mojarra (Gerreidae) and the migratory fish include striped anchovies (*Anchoa hepsetus*), mackerel (*Scomberomerus* sp.), jack (Carangidae), snook (*Centropomus undecimalis*), tarpon (*Megalus atlanticus*), and mutton snapper (*Lutjanis analis*). Port Honduras is also habitat for lobster (*P. argus*) and conch (*Strombus gigas*) (Figure 4). Commercially harvested species include lobster, conch, and several types as finfish, such as mackerel, jack, lane snapper, barracuda, jewfish, and snook (Heyman 1996). The Port Honduras area is unique in that it contains a comparatively high amount of nursery grounds and spawning aggregations..

At the time of Heyman's survey in 1996, most fishermen were of the opinion that many fish species, and in particular lobster and conch populations had declined in the area over the past years. Fishermen mostly believe overfishing, the use of gill nets, and illegal fishing by aliens to be the main reasons for the decline in fisheries. Heyman's survey and the draft of *The Voice of the Southern Fishermen of Belize* (TIDE 1998a) were the only written evidence documenting the decline of fisheries in Port Honduras.. Both of the surveys use opinion-based data of fishermen in regards to fisheries size and stock. They also draw attention to the abundant nursery grounds in the Reserve. The decline of fisheries was one of the main reasons TIDE used to justify the need for a reserve

⁴ In January 2001 an intern for TIDE from Oregon State University launched a scientific monitoring project of fisheries in the Reserve.

According to Heyman's survey, in 1996 there was a total 122 legal commercial fishermen in Port Honduras, 70 in Punta Gorda, 25 in Monkey River, 7 in Punta Negra, and 20 in the cayes in the area. The total number of sport-fishing guides was 12. This number includes ten fishing guides that come into Port Honduras, from Placencia, a community which is actually not located in Toledo, but in Stann Creek District. Heyman's survey did not include people who fished for recreation or subsistence, or engaged in sport fishing themselves. Heyman concluded from his survey that the number of illegal foreign fishermen fishing in Port Honduras was about equal to those fishing with legal papers.

PORT HONDURAS MARINE RESERVE ZONING PLAN



LEGEND

- Roads
- CONSERVATION ZONE
- PRESERVATION ZONE
- GENERAL USE ZONE
- COLUMBIA RIVER
- DEEP RIVER
- MONKEY CAYE
- PAYNES CREEK
- PORT HONDURAS



SCALE 1:300,000



Map prepared by:
Toledo Institute for Development
and Environment (TIDE)
Data provided by:
TNC, TIDE, LIC
Date prepared: February, 1999

Figure 3: Port Honduras Marine Reserve

(TIDE 2000c)

Figure 4: Map of Fisheries Stock in Port Honduras Marine Reserve

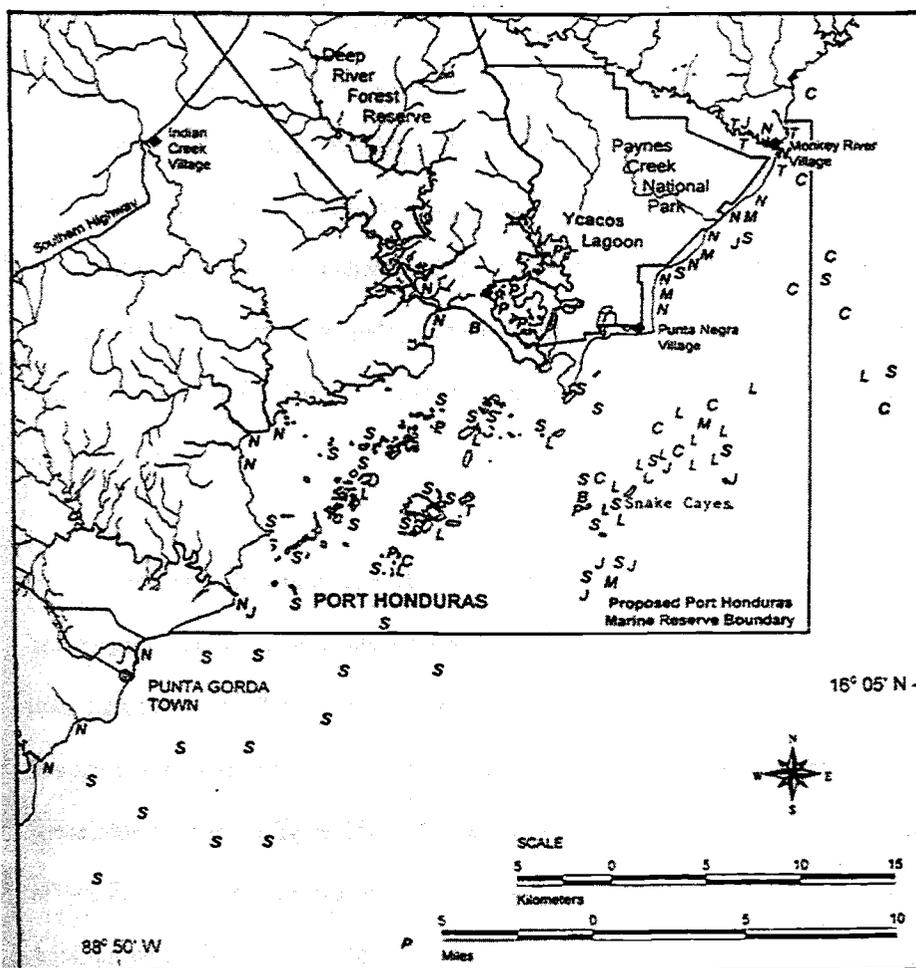


Figure 4.4 Map of the locations of important commercial and sport fish within Port Honduras. L: lobster, C: conch, S: lane snapper, J: jack, N: snook, P: permit, T: tarpon, M: mackerel, and B: bonefish.

(from Heyman 1996: 123)

3. Literature Review

3.1. Sustainability and Sustainable Development

In the last two decades the concepts of sustainability and sustainable development⁵ have been widely explored from many different angles in the social and natural sciences. Despite and to a certain extent because of the increasing literature, the concepts remain vague and sometimes contradictory. In fact many authors of sustainable theories themselves point out the confusion and lack of consensus (Ghai and Vivian 1992, Redclift 1992, Drummond and Marsden 1999). Terence Corcoran (In Miller 1990: 28) observes that no term has been used with so much inconsistency as sustainable development. "For the most part, nobody seems to care what the words mean, or whether they even have any real meaning". Because the literature on the subject is so ample, this brief review can be by no means comprehensive. Instead, I will choose works representative of the major trends on sustainability.

It is generally held that the concept of sustainable development received its first key definition with the Brundtland Report of the World Commission on Environment and Development in 1987, in the document *Our Common Future*. Here sustainable development is defined as "development which meets the needs of the current generations without jeopardising the needs of future generations" (World Commission on Environment and Development 1987: 43). The needs targeted by the Brundtland Report are "the essential needs of vast numbers of people in developing countries-for food, clothing, shelter, jobs (which) are not being met" (World Commission on Environment and Development 1987: 43). The Report also recognizes that "beyond their basic needs these people have legitimate

⁵ As the term sustainability is mainly used in connection with development, and likewise the term sustainable development is based on concepts of sustainability, I will use the two terms interchangeably.

aspirations for an improved quality of life” (World Commission on Environment and Development 1987: 43).

The Commission mainly focused on sustainability from an economic perspective. In fact, it emphasizes that “far from requiring the cessation of economic growth (sustainable development) recognizes that the problems of poverty and underdevelopment cannot be solved unless we have a new area of growth in which developing countries play a large role and reap large benefits” (World Commission on Environment and Development 1987: 40).

The Brundtland Report demands that the quality of growth change in a way that the “process of economic development (is) more soundly based upon the realities of the stock of capital its sustains” (World Commission on Environment and Development 1987: 52). This implies that in “all countries, rich or poor, economic development must take full account in its measurements of growth of the improvement or deterioration in the stock in natural resources” (World Commission on Environment and Development 1987: 52). In other words, when calculating the value of a specific natural resource, one would have to take into account not only the actual commercial value, but also the costs for regenerating that resource.

Although the Brundtland Report focuses on economic development it recognizes the “need to integrate economic and ecological considerations in decision making” (World Commission on Environment and Development 1987: 62). It claims that these two areas are “after all, integrated in the workings of the real world. This will require a change in attitudes and objectives and in institutional arrangements at every level” (World Commission on Environment and Development 1987: 62).

3.1.1. Key Concepts

Before going into the different theories, some basic terms and concepts have to be covered. Maximum sustainable yield, carrying capacity, and assimilative capacity are usually related to all theories on sustainability in some way. Munn (In: Archibugi and Nijkamp 1989: 52) defines maximum sustainable yield (MSY) of a natural resource as the “implication ... that a renewable resource such as fishery, forest or field crop may be safely harvested up to a certain level. As long as MSY is not exceeded, the resource is sustainable”. Carrying capacity refers to the idea that a region can sustain a certain size population, human or non-human. By determining this size of this population, sustainability would follow as an automatic consequence. Assimilative capacity describes the ability of an ecological site to assimilate pollutants without receiving considerable harm (Munn, in: Archibugi and Nijkamp 1989). Intergenerational equity is another key concepts identified by Drummond and Marsden (1999).

3.1.2. Semantic Connotations

Looking at the semantic connotations of the terms sustainable, sustainability, and development can also give some insights in the background for the various theories and also popular understandings. According to the English Oxford Dictionary (1993), to sustain means to “cause to continue in a certain state; maintain at the proper level or standard” or to “support life, provide for the life or needs of”. Something sustainable is “able to be maintained at a certain rate or level” and sustainability refers to the “quality of being sustained”. The first two entries under development in the Oxford Dictionary define it as “the action or process or developing; evolution, growth, maturation; an instance of this; a gradual unfolding, a fuller working-out” or “a developed form or product, a result of developing; a change in a course of action or events or in conditions; a stage of advancement; an addition, an elaboration”.

With this wide range of semantic definitions it is understandable that many people, scholars and non-scholars alike, have different conceptions of sustainability and sustainable development. Obviously, the term sustainable development signifies more than just the two dictionary definitions of the separate words put together. Perman (1996) identifies as many as seven different definitions of sustainability.

3.1.3. Distinguishing between Growth and Development

While many theoreticians disagree on definitions of sustainable development, some even deny its feasibility. O’Riordan, a prominent critic of sustainable development, argues that the two terms in themselves are incompatible and this illustrates the futility of the concept (O’ Riordan, in: Munn in Archibugi and Nijkamp 1989). Munn reacts to O’Riordan by pointing out that if “development is equated with economic growth, this criticism is indeed justified: Malthusian limits prevent sustained growth in a finite world” (Munn, in: Archibugi and Nijkamp 1989: 50). Munn claims it is necessary to distinguish between growth and development. She observes that if equated with improvement instead of growth, “development could become sustainable through structural changes (economic, political, cultural or ecological) or a succession of technological break-throughs” (Munn, in: Archibugi and Nijkamp 1989: 50). Munn thus shows that O’Riordan’s criticism is only valid for approaches that equate growth with development.

Daly (1999) is another critic who believes that sustainable development, if equated with growth, is impossible. In his article *Sustainable Growth: An Impossibility Theorem*, he claims that “it is impossible for the world economy to grow its way out of poverty and environmental degradation” (1999: 45). However, Daly does not reject the concept of sustainable development, if it implies change rather than growth. He concludes that it is “precisely the nonsustainability of growth that gives urgency to the concept of sustainable development” (Daly 1999). Instead of focusing on growth, Daly advocates population control and wealth

distribution. By focusing on these two key areas, Daly specifies what kind of changes he considers necessary for reaching sustainable development.

Meadow's et al. classic *Limits to Growth* (1972) takes a similar stance towards growth, claiming that it cannot be infinite. Meadows uses a computer simulation analysis which is based on feedback loops between the variables of food per capita, industrial output per capita, pollution, and population. The result of the computer simulation says that "food, industrial output and population grow exponentially until the rapidly diminishing resource base causes a slow-down in industrial growth. System lags result in pollution and population continuing to grow for some time after industrial output has peaked" (Perman 1996: 17). This in turn halts population growth due to an increased mortality rate caused by food scarcity and reduced medical services (Perman 1996: 17).

3.1.4. The Human Development Index

The United Nations Development Programme made a key step towards defining and measuring development when it introduced the human development index in the *Human Development Report* of 1990 (Atkinson et al. 1997). This human development index is a social indicator and "represents an attempt to move away from a production-oriented view of development (centred on GDP and GNP) towards a people-oriented view of development" (Griffin 1994: 125). It uses the following three proxies for human progress:

- (i) longevity, measured by life expectancy at birth;
- (ii) knowledge, measured by the adult literacy rate and mean years of schooling;
- (iii) income, which is assumed to exhibit diminishing returns in terms of the amount needed for a decent standard of living.

(Griffin 1994: 125)

The human development index calculates these three components with the help of formulas that is based on a comparison with the country in question. The resulting numbers for each of the three components are then added up and divided by three resulting in a numerical human development index for the country in question. At the time the human development index was introduced, mainstream agencies, such as the UN, were primarily concerned with overall development. The concept of sustainability had not yet entered into this definition. This becomes evident in the human development index, which substitutes purely economic indicators for social ones, but makes no reference to environmental indicators. The human development index was and to a certain extent still is used by mainstream development agencies to measure development.

3.1.5. Theories with Economic Focus

The more traditional approaches to sustainability usually focus on economic considerations. They can be divided into two categories, weak and strong sustainability according to Auty and Brown (1997). Strong sustainability advocates “more efficient and more frugal use of natural resources” (Auty and Brown 1997: 5). Poverty alleviation and intergenerational equity are other goals of strong sustainability. Economies in strong sustainability approaches are regulated in order to minimize resource extraction (Turner 1994 et al., in: Auty and Brown 1997). The strong sustainability approach opposes the use of discount rates in relation to environmental problems, claiming that this approach emphasizes the costs of protecting the environment over the benefits. (Auty and Brown 1997). Discount rates recognize that the value of a particular commodity decreases over time due to inflation. This calculation implies that a commodity sold this year is more worth than that same commodity sold next year. Strong sustainability approaches take into account the economic situation, but they put priority on the benefits of the environment.

Weak sustainability approaches focus on economic growth as a tool to reach greater equality. They retain the use of discount rates for environmental problems. While these approaches claim that projects should be chosen according to their highest yield, they do not allow for substitution of natural resources (Auty and Brown 1997). Inevitably linked to the concept of substitutability are notions of exhaustibility, irreversibility, and the time dimension. In regards to exhaustibility, natural resources have been traditionally classified in renewable and non-renewable categories. For non-renewable resources, the question of substitutability becomes relevant. Likewise the depletion of non-renewable resources ultimately results in irreversibility. Perman et al. (1996) apply these concepts to the economic approach, but it is obvious that these issues are central to most theories on sustainability, if in some cases implicitly.

The neo-liberal concepts of sustainable development also fall under weak sustainability approaches. They emphasize economic growth and involve “maximizing the net benefits of economic development, subject to maintaining the services and quality of resources over time” (Pearce and Turner 1990, in: Drummond and Marsden 1999: 17). The prime focus is on the growth of economy rather than on environmental protection results in weak sustainability in neo-liberal approaches. The neo-liberal approach as suggested by Pearce and Turner does not consider it necessary to preserve specific natural resources based on the belief that they can be substituted by man-made capital (Drummond and Marsden 1999). Strong and weak sustainability approaches both consider the economy, but weak approaches look at economic growth as the answer to ecological problems, whereas strong approaches consider unlimited growth the cause of these problems.

3.1.6. Environmental Economics

Environmental economics considers natural resources one of the key factors of productivity and wealth, together with labor and capital (Tisdell 1999). According to Tisdell (1999: 18), “economic discussions of the relationship between humans and their surroundings are the main focus of environmental economics”. Tisdell further explains (1994: 20) that “as it is currently practiced, the sole focus of (environmental economics) is on human welfare. It is anthropocentric (cf. Cobb, 1990, p. 110). Environments and other creatures have value only in so far as they have value to human beings. The sole object is to manipulate or use them as instruments for human satisfaction”.

Environmental economics derives its principle ideas from the first and second law of thermodynamics and the link to the material balance principle, which “concerns identities that must hold between physical flows in any closed system, given the law of thermodynamics” (Perman et al. 1996: 9). The significance of this concept is that it constitutes the basis of environmental augmented input-output models which give detailed information on inputs and outputs, representing goods and services, being exchanged between different sectors of the economy. Extending this model to the environment implies considering the effects of economic activities on the environment, such as exploitation of natural resources, the production of residuals from processing and consuming natural resources, which are again released into the environment, and activities to reduce pollution or renew the environment. The environmental augmented input-output model integrates these links between the economy and the environment into the calculation of inputs and outputs (Perman et al. 1996). In essence, environmental economics attempts to apply fundamental principles of economics to the environment. The rationale behind most environmental economics approaches is the belief in “the promotion of successful market economies as the principle idea through which ecological and environmental problems can be solved” (Dickens 1992, in: Drummond and Marsden 1999: 16).

3.1.7. Ecosystems Approaches

Many sustainability approaches which emphasize the environment developed out of a recognition that economic approaches to sustainability are limited. Among those theories with stronger focus on the environment are ecosystems approaches. Perman et al. (1996: 15) define the ecosystem approach as “the study of the developmental processes occurring over time in interrelated biological and physical systems- what we shall call ecosystems. Ecosystems can be analysed at many different levels, but in all cases an ecosystem is a complex set of interdependencies between the system’s components, and is continually in a dynamic process of development and change”. The emphasis lies on the ecological components of the system and the integration of change enable describing systems in terms of mathematical relationships. (Perman et al. 1996). Although the ecosystems perspective is more oriented towards the protection of the environment, it usually takes an overall integrative approach by considering the interaction between the environment and humans, and thus inevitably includes the economic perspective.

According to Korten (1995: 272), environmental sustainability in healthy societies is linked to the following three conditions their economies must satisfy:

1. Rates of use of renewable resources do not exceed the rates at which the ecosystem is able to regenerate them.
2. Rates of consumption or irretrievable disposal of nonrenewable resources do not exceed the rates at which renewable substitutes are developed and phased into use.
3. Rates of pollution emission into the environment do not exceed the rates of the ecosystem’s natural assimilative capacity

3.1.8. Systems and Whole-Systems Approaches

The origins of the ecosystems approach has its foundations in general systems analysis. *Limits to Growth*, by Meadows et al. (1972) is one of the pioneer works in systems analysis. Meadows and his colleagues used computer simulation to model the interconnection of availability of resources, food per capita, industrial output per capita, population, and pollution. The computer simulation showed that “given finite quantities of natural resource stocks, sustained positive flows of natural resources were impossible” (Perman et al. 1996: 14). The implication of this statement is that economic growth is limited. Whereas economic growth was and to a large extent still is considered the overall solution for poverty alleviation, Meadows et al. argue that redistribution rather than growth provide the most efficient mechanism for poverty alleviation (Perman et al. 1996). Meadows and his colleagues find resonance in Daly’s plea for basing sustainable development on change instead of growth. According to Meadow’s systems analysis, economic growth cannot solve environmental problems.

Systems analysis overlaps to a certain extent with the ecosystems approach. The whole systems approach in turn can be seen as an extension of the ecosystems approach. McCormick (In: Peine 1999: 5) claims that ecological science

is guided by a holistic philosophy (Gause 1934), which is totally compatible with the integration of economic, environmental, and social values into a comprehensive approach to planning and management. When sustainability is defined in terms of integrated value systems and intergenerational equitability, it becomes obvious that sustainability involves issues of empowerment and ethics as well as issues of environment and economics.

As this statement shows, the integrative nature of the ecosystems approach in turn leads to a whole systems approach. As the name indicates, whole systems approaches attempt to take into account all factors related to questions of sustainability. Dovers and Handmer explain the necessity of a holistic approach as

follows: "Given a whole-systems approach, and the absence of any hope for complete information (or for its use in much decision making even if it existed), system-wide factors and indicators should be a priority, both in terms of understanding systems behaviour and identifying policy options with effective generic potential" (In: Drummond and Marsden 1999: 16).

Many authors that advocate a whole systems perspective focus on elements that so far have been neglected in regard to considerations for sustainability. Gamman (1994) for instance, integrates the political angle into a whole systems approach. He advocates for an open policy-making system in natural resource management that takes into account all elements influencing decision-making processes. Gamman's request is also supported by the Brundtland Commission (World Commission on Environment and Development 1987: 65) which calls for a "political system that secures effective participation in decision making" as one of the key conditions for achieving sustainable development.

Culture is another element which the inclusive nature of holistic approaches integrates into considerations for sustainability. Gamman emphasizes that the awareness of culture is vital to successful management for sustainability. He points out that in order to reach effective environmental policies, one has to be aware of the culture of the country where the policies are to be implemented as well as of the culture of the agencies which are promoting development projects. In implementing their projects, development agencies need to know the particular country's mechanisms and conditions for adapting policies.

Henderson recognizes that traditional approaches to sustainable development equate "real wealth (natural resources and the skills and creativity or resourceful human beings) with mere money" (1990: 61) and suggests to use culturally specific indicators instead. She claims that (1990: 64)

there can be no neat algorithms of development that will fit every country, since this was the underlying error in trying to spread industrial conformity around the planet in the name of economic growth. Instead each country will need to delve into its own traditions and cultural heritage in order to “de-code” its unique cultural-DNA, so as to optimize its own primary values and goals. Only then can a country decide for itself which of its cultural, human and ecological riches can provide the basis for sound export.

Auty and Brown (1997) list knowledge, values, participation, and empowerment as additional aspects that are being integrated by more recent approaches to sustainable development. Besides attempting to find a balance between economic and environmental considerations, holistic approaches allow for the integration of all other areas relevant to issues of sustainability. The openness of holistic approaches creates flexibility, so that if new areas of relevance are recognized, they can be integrated to the holistic concept.

3.1.9. Targets and Measures of Sustainability

Most of the above definitions do not specify the object of sustainable development, that is what it is that is to be sustained, although most of them implicitly target natural resources. Gale and Cordray (1994) identify nine types of natural resources sustainability with different emphases. The differences can be measured on a continuum of anthropocentric versus eco-centric values. According to respective orientation, the different approaches either focus on sustaining nature for nature’s sake or for human benefit. The nine choices of what is to be sustained are the yield of high-valued products, social systems, diverse human benefits, globally unique ecological systems, globally important high-value products, general types of ecosystems or resource uses, ecosystem integrity, ecosystem diversity, and undisturbed ecosystems.

Atkinson et al. (1997) establish indicators for measuring sustainable development. They look at two main types of indicators, those derived from an

ecological economics perspective, and social indicators. Atkinson et al. relate the ecological economics indicators to two main categories of this theory, carrying capacity and ecological resilience. From an ecological economics perspective, “carrying capacity is defined in terms of exceeding limits” (Atkinson et al. 1997: 120). In order to determine these ecological limits, so-called sustainability constraints are established in regard to commercial or environmental resources, such as permitting only the degree of pollution which can be assimilated by the environment or restricting the harvest of a renewable natural resource so that it does not exceed the resource’s growth (ibid). In regard to resilience, Atkinson and his colleagues claim that it “determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes and still persist” (Atkinson et al. 1997: 127). Because resilience cannot be measured in concrete terms, inputs and outputs are used to calculate what contributes to resilience (inputs) or the “outputs that are believed to be affected by changes in resilience” (Atkinson et al. 1997: 127).

As social indicators, Atkinson et al. (1997: 146) refer to the human development index (HDI) established by the United Nations Development Program as “without question, ..., probably the most successful modern development indicator”. However, they also point out from a sustainable development perspective, the human development index lacks the environmental component, which Atkinson et al. address in the ecological economics indicators, thus taking the scope of the human development measurements one step further.

3.1.10. Sustainability on a Values Continuum

Turner et al. 1994 (In: Auty and Brown 1997) arrange the different approaches to sustainable development on a detailed values continuum. On the side of the technocratic approaches are the cornucopian and the accommodating ones. The communalist approach moves towards the ecocentric side and deep ecology represents the extreme of this approach. The cornucopian approach could also be labeled anthropocentric, since it presents a resource-exploitative, growth oriented position. In a free market economy, this emphasis uses the maximization of economic growth as market strategy, resulting in very weak sustainability. The accommodating approach takes a resource conservationist and 'managerial' position, aiming at green markets guided by economic incentive instruments. The management strategy for this approach is modified economic growth, and results in weak sustainability. The communalist approach advocates resource preservation with a steady-state, deep green economy. The management strategy for this system is the maintenance of economies and populations at a present level, i.e. no growth levels. This approach leads to strong sustainability. Finally, deep ecology takes an extreme preservationist position and regulates the economy heavily. It attempts to achieve sustainable development by reducing the scale of economy and population, and leads to strong sustainability (Turner et al. 1994, in: Auty and Brown 1997). Both the communalist and the deep ecology approach are on the ecocentric side of the continuum. Turner's continuum offers a method for categorizing the different approaches to sustainability. The classification into strong and weak sustainability at the same time enables an evaluation of the different approaches.

3.1.11. Integrative Approach

I have only shown the major tendencies in the discourse on sustainable development. In the wide array of theories, some are incompatible, while others can be integrated. To reach a holistic concept of sustainability I have chosen to expand the whole systems approach in a way that it takes into account environmental needs, economic needs, socio-cultural conditions, and political and administrative structures. I chose these factors because I believe that they cover the key aspects of human interaction with the environment. I will refer to my approach as integrative approach and it will deal with questions of sustainability as they relate to natural resources.

My integrative approach is reflected in Munn's (In: Archibugi and Nijkamp 1989) observation that structural changes in the areas of economy, politics, culture or ecology could make development sustainable. It is also possible to trace this approach back to Dover and Handmer's (1992, in: Drummond and Marsden 1999) emphasis on the systemic nature of sustainable development. Likewise McCormick (1999: 3) claims that sustainable development is "is development which: integrates economic, environmental, and social values during planning". The consideration of political and administrative structures finds reinforcement in Gamman's (1994) approach, which illustrates clearly that the knowledge of these structure is essential for implementing sustainable development successfully. The Brundtland Commission also supports the considerations of suitable political frameworks for achieving sustainable development.

3.2. Integrated Coastal Management, Marine Protected Areas and Fisheries Management

3.2.1. Integrated Coastal Management

Just as sustainable development has become a catchword, the idea of integrated coastal management has gained ground crosscutting different disciplines. Although the literature in this area is also abundant, leading experts from different fields seem to find consensus more easily. The concept of sustainability also figures into most of the integrated coastal management approaches.

Vallega (1999) traces origins of the concept of integrated coastal management back to Agenda 21 adopted by the by the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. Chapter 17 names as first program area “integrated management and sustainable development of coastal and marine areas, including exclusive economic zones” (Agenda 21, in: Vallega 1999: 5). The motivation for this emphasis derived from the increasing human pressure on coastal areas both by the growth of local populations as well as coastal immigration of inland inhabitants. According to Agenda 21 (Paragraph 17.3, in: Vallega 1999), more than half of the world’s population lives within 60 km of the shoreline, and this number might likely reach three-quarters by the year 2020. This calculation emphasizes the need for effective coastal management.

Agenda 21 contributed largely to the formalization of the concept of integrated coastal management. Ideas in this area had begun to arise as early as the 1970s. One step that led to the increasing consideration of coastal management was the UN conference in 1972 in Stockholm, where the UN Secretary General (UN Document E/5971; reproduced in Ocean Yearbook 1, 354 *In Vallega 1999: 8*) emphasized that “the new economic frontier marking coastal regions was the result of two core social objectives, development and management and consequently it was based on a hybrid concept of “combining elements of regional analysis and environmental management””.

Coastal erosion and impeding environmental degradation constituted two of the major reasons for the concern about coastal areas. In addition, planners and investors were interested in economic development with focus on core sites, like seaports or recreational facilities (Vallega 1999).

In the 1980s, the prominence of sustainable development influenced the discourse on integrated coastal management. The Brundtland definition with its emphasis on meeting the needs primarily of the poor and the idea of limitations to growth began penetrating concepts of coastal management.

Despite this progress, few authors had actually provided a definition for integrated coastal management. If integrated management was to achieve coordinated management of a complex system composed of individual parts, it was necessary to focus on the objective that should be achieved in management. Vallega lists four guiding principles. The first principle is the maximization of consistency between specific, local and final goals needs. This combination implies that planners consider the solution of specific concerns at specific locations under overarching goals, which are inclusive in sustainable development. The second principle is to provide "a holistic and conservation-aimed management of the individual ecosystem or a group of contiguous ecosystems" (Vallega 1999: 15). Due to the complex nature of coastal management areas, a third principle is the design on cross-issue and cross-sector programs. This implies that planners address single sector concern, such as coastal erosion, in a manner that avoids conflicts with other sectors, such as economic concerns. The fourth principle is the necessity for decision-makers to coordinate their actions. Vallega (1999: 15) refers to this fourth principle "inter-sector and inter-rank co-ordination between decision-making centres".

It is Vallega's belief that it is essential to define the objectives of integrated coastal management. The overall four principles can be used as guidelines for site-specific situations. Vallega thus defines integrated coastal management by defining its goals.

3.2.2. Marine Protected Areas

3.2.2.1. History

Marine protected areas (MPAs) are often a component of integrated coastal management, and vice versa, integrated coastal management constitutes the guideline for planning of protected areas. Gubbay (1995) traces the history of marine protected areas, probably beginning with the world's first marine protected area of the Fort Jefferson National Monument in Florida in 1935. Most marine reserves, however, originated at a much later date. The World Congress on National Parks in 1962 was a decisive step towards promoting marine protected areas. In 1982, a follow-up meeting aimed at the "incorporation of marine, coastal, freshwater sites into the worldwide network of protected areas" (IUCN, 1987, in: Gubbay 1995: 1). The IV World Congress on National Parks in 1992 stated four objectives (IUCN 1994, in: Gubbay 1995: 1):

1. The integration of protected areas into larger planning frameworks.
2. Expanding support for protected areas.
3. Strengthening the capacity to manage protected areas.
4. Expanding international cooperation in the financing, development and management of protected areas.

These are only some of the impulses that have promoted marine protected areas. The trend for more support continues, which includes both the creation of more reserves, and the "recognition of the need to improve the effectiveness of existing MPAs" (Gubbay 1999: 7). Aspects that are likely to be of particular concern are site selection which considers areas of high diversity, high productivity, and spawning and nursery grounds. The legal framework needs to be defined in order to ensure effective implementation of regulations. Finally, core to the success of a marine reserve will be the extent to which communities are involved (Gubbay 1995).

3.2.2.2. Objectives

Gubbay emphasizes the need for management plans without which long-term planning strategies are not likely to be considered. In addition, management plans determine whether or how entrance fees could help with the problem of financing MPAs. In order to be effective, regulations must not only be determined but also enforced, a task in which it is vital to involve the community for it to be successful.

As remaining important elements of management, Gubbay names education and interpretation. Hearing about successful examples in other places can create a great amount of support among communities. Finally, “as networks of MPAs become established it will become increasingly important to take a holistic look at the process of site management and how it contributes to the overall MPA programme” (Gubbay 1995: 11).

Klee (1999: 55) analyzes the purpose of marine protected areas and describes them as a conservation technique. He distinguishes between marine reserves and marine sanctuaries and explains that “a **marine reserve** generally refers to a replenishment zone where it is against the law to catch or handle fishes (i.e. a non-exploitative sanctuary), whereas a **marine sanctuary** is a body of water where fishing is allowed, but the area is under prohibitions such as the banning of offshore oil development”. Klee divides the benefits of marine protected areas under which both types fall into three categories, fishery benefits, non-fishery benefits, and overall economic benefits. The fishery benefits will be stronger the more exploitation is restricted. Non-fishery benefits include the overall protection of marine biodiversity and endangered species. Revenue generated from tourists and local resource users falls under the overall economic benefits (Klee 1999).

3.2.2.3. *Integrated Management*

As the adjective integrated suggests, integrated coastal management aims at a holistic management approach. Four dimensions need to be considered to reach this goal: the intergovernmental dimension, the land-water interface dimension, the inter-sectoral dimension, and the interdisciplinary dimension (Klee 1999). The intergovernmental dimension refers to different level of governments, e.g. the local, the district, state and the national level. The fact that coastal zones include both land and water implies that both directions of the interaction between these areas need to be considered, i.e. the effect of natural land elements and human activities on the shore land on the coastal waters and vice versa. Both shore land and coastal waters are used by multiple stakeholders. Therefore it is important to design planning so that it integrates different sectors such as urban development, mineral extraction, or fishing. The knowledge of natural and physical elements of coastal zones is not sufficient for effective management (Klee 1999). Rather, “social, cultural, economic, political, legal and ethical issues must be addressed” (Klee 1999: 249). Likewise, Badalamenti et al. (1999: 110) point out that “although the conservation of nature should be considered the fundamental objective of MPAs, neglecting the social, cultural and economic impacts has at times led to poor consensus, if not hostility”. Badalamenti et. al (1999: 116) emphasize the necessity of involving local fishermen and drawing on their knowledge for marine protected area management as well as “provid(ing) local communities with as much information as possible about new initiatives and avoid(ing) imposing changes”.

3.2.2.4. Evaluation

Studies of evaluating success of Marine Protected Areas have only recently increased in number. One of the studies was conducted at the University of California Santa Barbara, in which scientists examined 89 evaluation of two marine reserves over the course of two decades. The average size of the reserves was 17 square miles and they were up to 40 years old. The scientists found that the “population densities of species were 91 percent higher in marine reserves than in areas not protected, the average animal size 31 percent higher and the species diversity 23 percent higher” (Kay 2001: A3).

A case study of Mediterranean marine protected areas conducted by Badalamenti et al. (1999) supports the success story of marine reserves. It refers to the Apo Marine Reserve in the Philippines, where 11 out of 10 fishermen perceived their catch to have increased after four years of protection, and ten years later all fishermen interviewed reported that their catch had at least doubled.

In Belize, the Hol Chan Marine Reserve in the Northern coastal waters is often cited as an example for the success of marine reserves. Azueta's survey (In: Roberts and Polunin, 1993, in: Heyman and Hyatt 1996) of the Hol Chan Marine Reserve documented that the lobster population within the reserve was 25 times higher than outside, only 4 years after protection. The survey also showed that snapper and other predatory fish populations had increased in size and number within the reserve.

3.2.3. Fisheries Management

3.2.3.1. Direct and Indirect Management Strategies

The types of management strategies used by MPAs almost always include some kind of restrictions, either on catch size and amount, fishing seasons, access, gear, or a combination of these options. The restriction on catch fall under direct regulations, the main two strategies being to establish minimum size limits or to establish a catch quota. Minimum size limits ensure that fish or other marine animals grow to spawning size, before getting caught. Another objective of this regulation is to make sure that the marine animals reach a marketable size (Iversen 1996). According to Iversen (1996: 287), “this regulation is generally accepted by fishermen if desirable market sizes are above the minimum size limit”. Limitations on catch amount are designed to prevent overfishing of stock in a certain area. In order to calculate the permissible amount of catch, it is necessary to estimate the stock size and maximum sustainable yield (MSY). Catch quotas can be adjusted according to stock size from year to year to allow for more flexibility. However, if catch quotas are combined with closed fishing seasons, they can put pressure on fishermen to catch their permissible limit before the end of the season, thus resulting in short seasons for individuals. Another side effect of catch quota can be unemployment in the fishery (Iversen 1996).

Restrictions on fishing seasons fall under indirect regulations. Their objective is to reduce pressure on spawners and young fish (Iversen 1996). Iversen (1996: 289) points out that closed seasons “may not be effective in controlling total catch, as fishermen may fish harder when the season is open”.

Another indirect method to regulate catch are closed areas, in which fishing is completely banned. Their goal is also to protect spawners and young fish or highly vulnerable adult marine animals (Iversen 1996). According to Iversen (1996) biological data on spawning season and nurseries are necessary when considering for closing an area. Iversen (1996: 289) observes that “areas to be closed are

frequently difficult to define and enforce, especially offshore. ... Harm to spawners and/ or young also must be proved before their regulation can be established.”

Gear restrictions are also indirect regulations on catch. They are typically used in areas threatened with biological overfishing (Iversen 1996).. Iversen (1996: 290) cites as examples that call for gear restrictions the prevention of destruction of non-target species and prevention of damage caused by drift nets to large mammals, non-marketable fish, or protected species. For gear restrictions again, one needs to determine that the MSY is being exceeded, before the restriction are put in place. In Iversen’s opinion (1996: 290), “gear restrictions are ineffective and imprecise means of controlling the level of fishing, and are generally unacceptable to fishermen because it makes their job (which is frequently performed under adverse weather conditions) harder, and sometimes more dangerous-for example, small boats to fish in offshore fisheries and in heavy seas”. Gear restrictions are often used in combination with closed areas which determine when and where particular gear can or cannot be used (Iversen 1996).

3.2.3.2. *Stock Assessment*

As indicated by Iversen, many methods of regulation on catch depend on stock assessments. However, making assessments is a very complex task and the results are often not very reliable. According to Hilborn (1994: 100), there are four “major sources of uncertainty in fisheries stock assessments: (1) measurements, (2) model parameter, (3) model structure, and (4) physical and biological processes affecting the stocks”. In addition, stock assessments require a large amount of data, which in turn are affected by the reliability of the data.

Hilborn (1994) lists three different methods to account for uncertainty in stock assessments. The first method uses decision tables which list different possibilities of stock sizes and different potential management actions. These two factors allow calculating the results of a particular management action for a given state of stock. The second method is related to decision tables, and incorporates sensitivity

analysis. A component of sensitivity for instance would be expected changes in natural mortality rate. The third method for accounting for uncertainty of stock assessments is to incorporate indicators of risk. These indicators can be calculated in two forms, risk to the fishery and risk to the stock, and are expressed in percentages. The risk to the fishery refers to a percentage of the total vulnerable biomass, and the risk to the stock refers to the probability that "vulnerable biomass will be less than (the remaining percentage) of the vulnerable biomass" (Hilborn 1994: 102).

3.2.3.3. Accounting in Fisheries

One concept essential to fisheries management is the application of discounting. The discount rate is based on the assumption that a commodity sold today will be worth more than that commodity sold next year due to inflation or in other words the "relative value of money today as compared with its value at some future time is known as "time preference" of money and is measured by the "discount rate"" (National Research Council 1999: 72). Applied to marine resources, discount rates put pressure on fishermen to catch more fish at the present time, rather than distribute their catch quotas equally over years to come. "Discount rates can reflect objective estimates of known relationships - e.g., depreciation of equipment, inflation rates, or the knowledge that if one doesn't fish soon, in a competitive-allocation fishery there might be no fish later-or they can reflect subjective time preferences" (National Research Council 1992: 72).

If fishery resources are treated as natural capital, it follows that it is possible to invest or disinvest in them in the same way as for human-made capital. For fisheries this would mean "refraining from fishing and enhancement activities are investments in the resource. Fishing in excess of sustainability yield, and thus depleting the resource is disinvestment" (National Research Council 1992: 7). A fisherman will choose to invest or disinvest depending on whether he is willing to

accept lower current profits in expectation of higher profits in the future or whether he want higher current profits at the cost of lower future profits.

3.3. Non-governmental Organizations

3.3.1. Comparative Advantage

After this brief overview of different approaches to sustainable development, I will now look at the theoretical framework for non-governmental organizations. The literature in this area is abundant, so I will focus on non-governmental organizations as they relate to sustainable development.

One dominant theory in regard to non-governmental organizations is particularly relevant to sustainable development. This theory focuses on the failure of the public sector to achieve improvement in different areas related to development. Farrington and Lewis (1993) claim that public sector agencies have failed to address the needs of the rural poor and show how non-governmental organizations have a comparative advantage in implementing development. Weissgrau (1997) also points out the alternative nature of non-governmental organizations in comparison to mainstream development.

The increasing awareness of the potential of non-governmental organizations in sustainable development began in the 1980s, which can be termed the decade of non-governmental organizations. In this time, development engineers began to discover the advantages of non-governmental organizations “such as flexibility, informality, commitment, and participatory style” (Carroll 1992: 2).

The participatory style of non-governmental organizations is one avenue to sustainable development. As Auty and Brown (1997: 13) point out, “participation and empowerment are major themes of the current discourse, being the mechanisms by which sustainable development can be achieved at a local level”. According to Carroll (1992), NGOs practice participatory management when they take into

account local practices and customs and create a dialogue between outside development designers and targeted groups. The quintessence of a participatory approach is direct involvement of stakeholders into NGO planning and management.

Anne Drabek, (1987: ix) then managing editor of the series *World Development* (Vol. 15, Supplement 1987) published by the World Bank, also focuses on the comparative advantage of NGOs over traditional mainstream development planning: stating that “if official aid donors and governments have not been able to provide the answers, perhaps we should be looking to the non-governmental organizations (NGOs) which are playing and increasingly active role in development”. Drabek examines whether NGOs through their links with grassroots organizations have more insights into what people concerned, in particular the poor, need themselves. This connection does not mean that NGOs should compete with large-scale international donors for implementing large-scale projects, but due to the increasing complexity of development issues, NGOs should extend their scope in planning and implementation (Drabek 1987).

Related to NGO’s grassroots connections, is the holistic approach, which represents another comparative advantage. In their opposition to mainstream development with its focus on short-term output, grassroots NGOs or their partners operating in natural resource management, advocate an approach that integrates “indigenous technologies in pursuit of more culturally appropriate and environmentally sound agro-ecological alternatives” (Bebbington 1997: 121). These grassroots NGOs attempt to integrate as many areas as possible, thus approaching holistic management.

At the World Development/Overseas Development Institute Symposium in London in 1986, NGOs were analyzed as promoters of alternative development strategies. Empowerment was a central issue in this debate. It applies on two levels, first that NGOs need to assert their own concepts of development, rather than have them dictated by large Western agencies, and second that NGOs “are not just working to meet ‘the needs of the poor’ but to assist them in articulating those needs” (Drabek 1987: x). In this respect the connections between micro-level

grassroots and macro-level public policies are an important tool for effectiveness and implementation of alternative development strategies.

Because NGOs can operate independently, Bebbington (1997) observes that they have the potential to provide models for sustainable management for mainstream development agencies. Bebbington (1997: 120) claims that NGO projects can serve as “micro-experiments that (will) generate strategies that (can) subsequently be scaled up through the policies and programs of ... an alternative state”. The model potential of NGOs again can help turn the relationship between alternative and mainstream development from a competitive one into a complementary one.

In summary the main comparative advantages that supporters ascribe to NGOs are participatory or grassroots approach, holistic approach, empowerment, independence, and model character. Most of these advantages emerge out of comparison with mainstream agencies. Assessing the failures of these agencies helps emphasize the potential of NGOs and leads to the consideration of their comparative advantages.

3.3.2. Relations between Northern and Southern NGOs

Another area considered at the 1987 Symposium was the changing relations between northern and southern NGOs⁶. Five aspects fall under this theme: NGO resources, effectiveness and evaluation, research, networking, and development education and theory. In regard to resources it is important that northern NGOs do not only transfer money to southern NGOs, but that information exchange exists between the two groups. Southern NGOs should not be required to give up their autonomy in exchange for financial support.

Due to the vagueness and different understandings of the term development, it is difficult to establish criteria for effectiveness. Keeping in mind the differences in

⁶ Most literature on development and NGOs refers to the developed countries as the North. These countries usually include, the US, Canada, and the Western European countries, possibly Japan. All other countries are usually considered as developing countries and referred to as the South.

perceptions, the 1987 Symposium (*In Drabek 1987: xi*) established four criteria for effectiveness:

- 1) What was achieved in terms of concrete results?
- 2) Education: who was conscientized?
- 3) Organization: was this strengthened?
- 4) Alternative strategies: How was this different from other approaches (e.g. government) to development?

The Symposium defined networking as the “process of being willing to learn and to listen from each other”. This applies for both directions between northern and southern organizations. Development education and advocacy refers to educating people not only at the local level, but also in developed countries. This is particularly important because the media in countries of the North often misrepresent situations in developing countries (Drabek 1987).

3.3.3. NGOs and Governments

Drabek (1987) discusses the relation of NGOs to the government noting that one of the reasons NGOs have received so much attention is because “they are perceived to be able to do something that national governments cannot or will not do” (Drabek 1987: xii). However, Drabek points out that the alternative character of NGOs does not imply competition with governments, be it on the national or regional level. Rather, there exists frequent interaction between NGOs and governments varying according to specific regions and countries.

In his article “NGOs: In One Year, Out the Other?”, Brodhead (1987: 1) examines the “shift among NGOs in their delivery of services, development education, and advocacy work from welfare to development activities, defined as increasing the local capacity to meet basic needs and control the resources necessary for sustainable development”. This shift has attracted donor interests in NGOs as tools to reach the poor, something government agencies have largely

failed at. The reason for choosing NGOs over governments and other agencies again lies in their comparative advantage and the frustration with the earlier phase of misdirected development planning by official large-scale agencies.

3.3.4. NGOs in Coastal Management

Apart from general literature on non-governmental organizations, several works analyze NGOs in regard to a particular focus, one of them being coastal management. The publication *Where Water meets Land* (1994) by the Dutch organization Both ENDS traces the involvement of NGOs in coastal management. According to the publication, the World Coast Conference in the Netherlands in 1993 was a major impetus for NGOs to consider their roles in coastal management. The conference called attention to current threats to the world's coasts such as overfishing, oil spills, urban waste, trade, tourism, and recreation, urging non-governmental organizations to get involved. This was particularly important because binding international agreements on coastal management did not exist at that time. NGOs therefore were in a vital position to secure participation of local communities on regional and international levels.

At the World Coast Conference in 1993, non-governmental organizations asserted their position in an 'NGO Statement' regarding coastal management. In this statement, NGOs point out that developing countries are likely to suffer most from coastal degradation and sea-level rising since they have less means to respond to these threats. The statement takes a holistic approach which includes multiple causes for coastal degradation (Both ENDS 1994). In management strategies it is important to "find a balance between development and conservation. In fact practical and environmentally sound management should underlie all development decisions in order to achieve sustainable development" (Both ENDS 1994: 4).

3.3.5. Critical Approaches to NGOs

In my review of the literature on non-governmental organizations I came upon hardly any writings with a critical stance towards non-governmental organizations. Most works emphasize the comparative advantage of these organizations and do not seem to detect any disadvantages. Among the authors who do identify potential pitfalls for non-governmental organizations is Broadhead (1987: 2) who points out the danger “of co-option of NGO methods and goals...., as NGOs are tempted to neglect their traditional constituencies and value bases and rely increasingly on government. Approving reference to an NGO’s greater “professionalization” is often the reverse side of the organization’s loss of contact with its own base.”

Broadhead further summarizes the position of Korten and Elliott, who are also aware of the possible dangers between donor and NGO relations. As NGOs try to comply with funding agencies, governmental or private, they run risk of compromising their missions. Broadhead (1987:4) concludes that commonly the relation between donors and NGOs “produces a kind of organizational schizophrenia, as an agency tries to reconcile its own learning about changing development needs (most strongly experienced at the level of field staff) with fundraising imperatives, the attraction of continuing to operate within an accepted framework, and widely held views about “appropriate” forms of voluntary agency conduct. Although local NGOs are in a better position to design locally appropriate development strategies, the technocratic nature of many donor agencies thus could influence local non-governmental organizations, resulting in the loss of some of their comparative advantages.

Karunawathie Menike (1998) is another author who takes a critical approach towards NGOs. She observes that though well intended, the programs of NGOs, not just of governments, can be ill conceived. She claims that misconceptions can occur when NGOs come in as outsiders into settings of the rural poor, assuming that the rural stakeholders are incapable or even unwilling to help themselves. Both Broadhead’s and Menike’s criticism show that NGOs are liable to make the same mistakes as mainstream development agencies.

4. Methods

I conducted my research from mid July 2000 to mid October 2000. The organization Global Graduates at Oregon State University helped me identify a site for my internship requirement, and I conducted my research in Toledo while working for TIDE. This combination had advantages and disadvantages which affected the choice of my methods as well as the data I obtained. The short time frame of three months restricted the amount of data I was able to collect. .

In order to gain a holistic understanding of the organization TIDE, the community it operated in, and overarching natural resource issues, I choose three main ethnographic methods: participant observation, informal and semi-structured interviews and unobtrusive data collection (reference). I targeted three groups of informants: TIDE staff members, members of the community, and government representatives. Naturally, the first two groups overlapped, so I was able to gain two sets of perspectives from TIDE staff members.

Being an intern and a researcher at TIDE allowed me to pursue participant-observation in the fullest sense. When I made the preparation for the internship I asked the executive director for permission to do research during my internship. He had no objections as long as I felt I would be able to integrate it with my work at TIDE. Working at TIDE made me both an observer and a participant right from the beginning and in the course of my work I learned more about the projects TIDE supported, how the organization was structured and how it operated. Most of my work centered around the Port Honduras Marine Reserve. I designed a brochure on the Reserve, and put together documentation on how the Reserve had been established, tracing community perceptions during this process. To obtain the necessary information for these projects, I not only interacted with TIDE staff, in particular the Port Honduras rangers, but also with community members and government representatives. The TIDE staff members, who in many cases had a fishing background, were my key informants.

In the daily interaction at work, I engaged staff members in informal conversations about TIDE's activities, their role in the organization and their perceptions of TIDE's activities and how they were received in the community. I also was able to attend community meetings and coordination meetings with other NGOs conducted by TIDE. Besides participating in the work at TIDE, I was also had the opportunity to live with a family, which allowed me to be a participant-observer in another sense and gain more insights into the local culture.

The combination of participant-observation and interviews allowed me pursue iterative data collection. I was able to use already gathered information to develop further questions and guide key informants and interviewees into new areas by building on information they had already provided.

Rather than start out with a specific set of questions, initially I engaged in a type of data immersion, where I collected data with a wide focus. This approach enabled me to gather more holistic data than pre-determined questions would have. Once I had collected enough data to get a feel for relevant issues, I was able to narrow down on questions targeting specific themes, such as natural resource use, perspectives on conservation, and understandings of sustainability. Often times, however, these themes would emerge better from interviews with a wider scope, covering daily activities, because informants sometimes did not understand the meaning of specific questions. The non-selective approach I used initially provided me with an indirect way of uncovering understandings on sustainability, which in many cases was essential, since not all informants were even familiar with the term.

The contacts I made in the community allowed me to access local community members, in particular fishermen for informal and semi-structured interviews. Due to time constraints, I limited these interviews to key figures in the fishing community. I also conducted semi-structured interviews with three government representatives at both the regional and the national level.

When I designed my research plan, I had originally intended to conduct a survey in the Punta Gorda community. However, upon my arrival, I soon realized that due to the sensitive combination of being an intern and researcher at the same time, I was in no position to conduct this survey independently. Towards the end of my

internship, a consultant working for TIDE suggested that I conduct an opinion survey on community perceptions about TIDE. After clearing this idea with the executive director, we designed a survey aiming at people's knowledge of and opinions on TIDE. We chose the method of random sampling and interviewed every fifth person we counted on the street on one particular market day. Due to the unorganized crowd of people, however, this method did not turn out to be reliable. Also, some people we interviewed did not know enough to answer all the questions or got sidetracked into other areas. We therefore soon realized that we would have to treat the data not as a statistical sample, but as additional qualitative semi-structured interviews. We conducted a total of seven such interviews with both individuals and small groups of individuals.

As additional method I used was unobtrusive data collection (Babbie 1986). The material I reviewed for this method included national and local newspaper articles, management plans of the Port Honduras Marine Reserve and other reserves, and local and government publications on issues of sustainable development.

I gathered all the data from participant observation and interviews into logs saved in electronic word documents and protected them with passwords for confidentiality. After conducting semi-structured interviews, I asked the interviewees whether they had any objection to my using their information for my research and assured them of confidentiality if they wished. At the end of my research in Punta Gorda, I discussed with the executive director how I would handle the data. I presented him with the option of using a pseudonym for the organization and disguising the location or referring to TIDE under its actual name but not using any real names for staff members. The director said he preferred the latter option, but pointed out that some of the staff might disagree. I then asked each staff member for their opinion and obtained consent from all of the members to use TIDE under its real name as a case study, but not use any real names of staff members. For reasons of confidentiality and equality, I have also changed the names of community members and government representatives.

As analytical method for interpreting my data I have chosen grounded theory (Bernard 2000). Coding has allowed me to identify main themes in the data. In the

chapters following the data presentation I establish which definitions and evaluations of sustainable development the data supports. By comparing the data, i.e. local perceptions on sustainability, with existing literature, i.e. the theory, I have shown the overlaps and discrepancies between the emic and etic perspective.

I based the recommendations for TIDE and general sustainable management in Toledo from the data. The data show the specific problems in existing management strategies and I made suggestions how to approach these problems. Drafting recommendations for TIDE was also one of my tasks when I concluded my internship with the organization.

Due to the combination of internship and research I was somewhat restricted in my data collection. Because I was collecting data from people with different and sometimes opposing perspectives, I became aware of ethical implication of data collection surrounding contentious issues. Although having the position of an intern put me in a sensitive position, at the same time it provided me with ideal conditions for participant-observation. By working for TIDE I was able to gain an inside view, not only of the organization but also to some extent also into the community. In most cases I had the impression that community members were not inhibited in giving their honest opinions about TIDE, even though they knew I was affiliated with the organization.

I went into my fieldwork with the personal bias that non-governmental organizations have a comparative advantage over government agencies in designing and implementing sustainable development projects. During my data collection I made a conscious effort to keep my personal opinion apart from my findings and in the interpretation of my findings I tried to let the data speak for itself.

Although I have made a conscious effort to minimize my personal bias, I recognize that my data in itself could be biased. The main reason for this bias would be the restricted sample. Due to the limited time frame of my research, I mostly gathered data from community members who were directly affected by TIDE's activities. I did not have the time or means to interview those resource users who interacted less frequently with TIDE.

5. Findings

5.1. The Situation in Toledo

5.1.1. Overall Context

Statistically, Toledo is the poorest district of Belize, a fact which most of the people in Toledo are aware of. The phrase “the forgotten district” refers to Toledo’s economic lag behind the other parts of the country. Residents of Toledo resent the fact that their district has been neglected by the government in the past years. A letter to the Editor in the local Punta Gorda newspaper, *Blazer* (July 28, 2000) states that Toledo East has never received any significant government aid project. TIDE’s operations manager pointed out a different perspective, saying that because Toledo is underdeveloped it has been able to attract government funds and he believed that this had resulted in a hand-out mentality among the people and they tended to wait for the government to take action instead of taking the initiative themselves.

In regard to the economic situation in Punta Gorda, people point out that consumer goods are sometimes not available and more expensive, because of transport from Belize City. One informant told me that you just learned to live with this situation. He also predicted that availability of goods would improve with the completion of the Southern Highway.

Community members in Toledo perceive unemployment to be a problem. A Punta Gorda community member pointed out that there were a thousand of youngsters out of school trying to find employment and people generally said that it was hard to find employment even with higher education. Only a small minority of people in Toledo can afford university education. One of the Paynes Creek Park rangers said that he would love to go to university, but some people were lucky and got the opportunity and others were not.

Despite their economic limitations, most Toledo residents, as most Belizeans, are proud of their country. Belize's newly found independence increases this pride. In conversations with community members in Toledo, I got the impression that the Belizeans' national pride serves as a distancing mechanism from the rich West⁷, in particular the US in the sense of: 'The US may be rich, but we like our country better'. I also heard from Belizeans who had lived in the US and returned that they had come back because they missed their country. This group of returnees, however, is countered by the large number of Belizeans that permanently immigrate to the States. Nevertheless, many Belizeans are attached to their own ways and lifestyle and do not want to adapt to the West, at least not totally. This perspective also explains a community member's derogatory comment on TIDE's executive director's "white mentality" due to having lived in the States for too long.

5.1.2. Attitude Towards the Environment

Many of the fishermen in the area of the Port Honduras Marine Reserve consider themselves stewards of the sea. In Monkey River, fishermen told the rangers that they themselves would patrol the reserve. Some of the fishermen in Punta Gorda are connected the Northern Fishermen's co-op and a Punta Gorda fisherman has reinitiated the local fishing co-op in Punta Gorda. The fishing co-ops are known for compelling fishermen to keep the regulations on catch size and open and closed season. One of the large-scale fishermen in Punta Gorda connected to one of the co-ops said: "We take care of our industry. It has lasted for a long time and it will last for a long time more. If I see a small lobster, I put it back, or I see a conch. And you advise your kids to do the same thing. If you watch the co-ops,

⁷ Although most of the literature on NGOs and sustainable development refers to the US as the North, in my findings, I deviate from this classification, using the Western world for developed countries, because this is the term used by Belizeans, even if it is geographically not accurate.

they get in the same amounts every year and it doesn't go down. Last year we got about 300, 000 pounds".

Although the fishermen express concern for their environment, many resource users in Toledo are skeptical of environmental organizations. This can be seen in the fishermen's initial resistance towards TIDE's plans of the Port Honduras Marine Reserve. The Toledo community members' guarded attitude towards environmentalists, such as TIDE, fits in with the overall attitude towards environmentalists in Belize. The Minister of Agriculture and Fisheries is aware of the negative reputation of environmentalists. He observes that "environmentalists are seen as rich (rowdies) who are sometimes rude".

During my time in Belize the term "eco-terrorists" was mentioned in an article of a national newspaper and from then on came into use among the opponents of environmentalists. At one point I overheard a heated debate among a group of TIDE's opponents, discussing this particular article and applying the term "eco-terrorists" to TIDE. This group of opponents belonged to a faction of US and Canadian Punta Gorda residents, who operated hotels and restaurants. An article in the *New York Times* (March 2, 2001) referred to the general controversy surrounding environmentalists in Belize in regards to plans for a hydro-electric dam, saying that the environmentalists involved in preventing the dam "have been vilified by the local press, called lawbreakers and terrorists (though no evidence is offered).

Another article "'Environmentalism' – inept or enemies?" in the national newspaper *Amandala* (August 20, 2000: 16) claims that "several individuals and NGOs claiming to be "environmentalists", and pretending to be such, have written, have threatened, have acted in the most reprehensible manner imaginable toward our country's development". The author of this article is one of the largest corporation owners in Belize, the Belize Coca Cola company, Crystal drinking water, and also some shrimp farms. His article triggered a heated debate between people who believed he was opposing environmentalists only because their demands would cause damage to his business and others in favor of free economic

enterprise and development. One article (*Belize Times*, September 17, 2000:13) responding to this debate noted that

one thing is for sure, we will never have a perfect world on earth, if environmental and development advocates turn a deaf ear to each other...on the belief that only one of them is right. Hear what I say, because in the absence of environmental planning, development will destroy the environment. And in the absence of development, poverty will do the same. So in the final analysis, they all start listening to each other and work together, or we loose it all. Because its win - win or die.

5.2. TIDE

5.2.1. Management Style

TIDE's director frequently emphasizes that the organization is a local grassroots organization because 90 per cent of staff are from Toledo and the members of the Board of Directors were born in the district. The section on TIDE on the Belizeecotours website (Belizeecotours 1999) states that

TIDE is comprised entirely of local people: Our office staff are young Belizeans committed to conservation, our boat captain and rangers are former hunters and fishermen who are now protecting the resources they once (heavily) exploited. We are particularly proud of our Board of Directors: Instead of heads of major corporations we have real community representatives: Fishermen, hunters, teachers, tradesmen. Local people making local decisions.

The above description of 'local people' refers to the fact that most of TIDE's staff were born and raised in Toledo. However, the ethnic composition of TIDE's staff does not quite represent the overall ethnic diversity in Toledo, since most of the staff are Creole, with only one Mayan

Indian. Of the eight office positions, five are occupied by men, and all of the six rangers are men.

Although the above statement claims that TIDE is a grassroots organization, the public and the staff have different perceptions. Most of the staff members agree that TIDE's management style is a top-down approach and the staff members themselves have little scope for own initiatives in their workplace. TIDE's management style is seen as top-down not only by the staff, but I also heard a community member say that "the executive director is TIDE". According to a government community officer, top-down management has typically dominated in Belize, and bottom-up, grassroots approaches have only just started to develop.

The management refers to the Board of Directories, and the respective Advisory Committees of Paynes Creek National Park and Port Honduras Marine Reserve as mechanisms for representing and integrating stakeholders' perspectives. During my research, I was only able to attend one advisory committee meeting, that of the Port Honduras Marine Reserve. In this session, I got the impression that the committee meetings serve as a good forum for the board members to express their concerns. However, I also got the impression that TIDE's management is by no means bound to react to these concerns. The gill net issue illustrated this. After listening to the concerns of the fishermen in favor of reintroducing gill nets, TIDE's executive director succeeded in wrapping the meeting up without any resolution on changing the regulations on gill nets.

TIDE staff members said they were under the impression that the management had the ultimate say in decision-making. They believed that informed decision-making by the board/committees was not really possible, since most of the time, the only way most members were informed about TIDE's activities and management issues, was by the management itself. I was also told that at the time of appointing an operations manager, the executive director had chosen a different person than the one proposed by the board.

5.2.2. TIDE's Conservation Strategies

Most of TIDE's conservation strategies are designed in cooperation with the local branch of the US-based Nature Conservancy . One large project the two organizations are working on in conjunction is the planning of the management for the Maya Mountain Marine Area Transect (MMMAT), an area that covers a corridor of nearly a million acres and connects the Mayan Mountains to the Belize Barrier Reef. The method used for this management planning is Site Conservation Planning (SCP), one of The Nature Conservancy's most recently developed conservation strategies. This method identifies the major functional units of the hydrological cycle of the MMMAT as conservation targets, analyzes the differing severity of various threats to the specific units, and designs threat abatement strategies. Site Conservation Planning also includes stakeholder involvement and as final component establishing measures of conservation success.

The first draft⁸ of a management plan for the MMMAT (TIDE 2000a: 16 + 17) lists as programmatic goals:

1. Develop and maintain working relationships with stakeholders in the MMMAT. Cooperation among citrus growers, banana plantation owners, large tract parcel owners, new developers and government department will be necessary to bring about the sustainable use of our resources.
2. Build on success of TIDE's community based programs by:
 - a) Fostering successful integrated conservation and development projects (ICDP) for resource users in an effort to provide alternative source of generating revenues.
 - b) Supporting successful community-based programs to promote conservation and stewardship of land and water.
 - c) Collaborating with other agencies involved in similar work within other watersheds in Belize.
3. Build partnerships in academic community to establish solid research footing for conservation programs.

⁸ This draft was revised in the fall of 2000.

5.2.3. Internal Problems

In the first weeks of my internship at TIDE I observed a management style that prevented the organization from functioning smoothly. I base this statement largely on three factors: lack of communication between the two managers themselves and between the managers and the staff, spontaneous planning, and frequent turnover. I first witnessed the lack of communication between the executive director and the operations manager. In my first and second week, I had several planning meetings with the executive director. The operations manager was not involved in these meetings, and he later asked me why the executive director had delegated me to conduct a communications workshop for another organization which had come to TIDE for assistance. The disagreement between the executive director and the operations manager about my specific tasks continued throughout the internship. During a two weeks absence of the executive director, the operations manager told me to follow through with the design of a brochure for the Port Honduras Marine Reserve, a project the executive director had not considered worthwhile. When I mentioned this to the operations manager, he replied: "That doesn't matter. Now he is gone, and while he is gone, I am the boss".

The management generally did not inform the staff members well about their activities. Many times, the staff members were merely guessing about the location and purpose of various trips of the executive director and operations manager. The secretary/receptionist was most affected by this lack of communication since she often did not know how to direct calls for the management in their absence. The managers did mention some of the current affairs at the bi-weekly staff meetings, but they neglected to inform the staff about many major projects they were working on. At a later point during my internship, the management moved the accountant to an outside office, and the staff speculated that the reason for this move was that the accountant knew too much about the management's improper financing and did not want him to have the opportunity to discuss this with the other staff.

TIDE's executive director comes across as charismatic and spontaneous. I experienced his somewhat erratic nature in the planning for my internship. He

would initially express great enthusiasm for a project and then soon abandon it. More than once he scheduled trips with me which we never made, for example I had to take the initiative to compel the Port Honduras rangers to give me an initial tour of the Reserve.

Although my internship was only three months long, I experienced considerable staff turnover during this time. The secretary/receptionist was made redundant under rather dubious circumstances. The management told her that there was no more need for her position and that they were looking for someone who could perform her tasks as well as do proposal writing. However, about a month later, a new secretary/receptionist started at TIDE. On the day of her arrival, the management did not introduce her to the staff, who first met her on entering the main office. Some staff expressed strong resentment at the management's procedure in hiring the new secretary.

Another example of unclear staff positions was a staff member who after returning from an educational stay in the States had no clear job definition at TIDE. After some weeks of being in limbo, in which he complained about not having any specific tasks, he was given the temporary secretary/receptionist to tide over the empty position after the previous secretary had been laid off. When the new secretary was hired, this staff member was designated first as ranger and then as equipment manager, something he had not foreseen at all. His background was in natural resources and he had university education in environmental sciences.

The position of the tourism coordinator of TIDEtours was similarly surrounded by uncertainty, when the coordinator resigned but stayed on for a month longer than she intended to finish things off. She also intended to wait until the new person got hired, so she could train her/him. However, TIDE did not even advertise the opening and as of February 2001, the position still remained vacant.

The mixture of lack of communication, unpredictable planning, and staff turnover created unfavorable conditions for effectively pursuing and coordinating projects. It also generated a great amount of frustration on behalf of the staff, which in turn affected their dedication to the organization and the work. The staff members themselves were quite aware of level of disorganization at TIDE and the

reasons for it. However, since the management did little to remedy the situation, the frustration among the staff continued to mount.

5.2.4. TIDE's Image

TIDE's image in the communities of Southern Toledo is that of a rich organization, that associates with the West. This image is strongly based on the outward appearance of TIDE. TIDE's office is probably among the nicest, best equipped in town, air-conditioned, with mahogany desks and doors, both very unusual characteristics for Punta Gorda offices. In addition, the organization owns three cars, two of them fairly new large pick-up trucks, which the executive director and operations manager also use as their personal vehicles. Community members say the cars and the comparatively large and nice houses of the managing personnel are evidence for TIDE's big money. A letter to the local newspaper the *Blazer*, mentioned with resentment the amount of money the TIDE managers and the related local TNC representative were making if they were able to afford such a large houses: "The three big men in TIDE are getting rich off the heads of the people of Toledo. One lives in a glass house in Punta Gorda Town, while the managing director owns a mansion" (*Blazer*, August 8, 2000: 10).

Even if they resent it, some community members realize that TIDE is successful in attracting money. However, they make a distinction between this success and the organization's success with community projects. A comment by a community member nicely sums up this impression: "TIDE doesn't do a good job, but they are doing well". Another community member observed that TIDE's success in attracting funding is preventing its managers from listening to criticism in the community.

Community members frequently complain that they hear about the money TIDE receives from donors, but do not see what it is used for. A government officer stated that he was skeptical of the motives of US donors for the Port Honduras

Marine Reserve and fears that they might hope for personal benefits, such as being able to buy a piece of land on one of the islands in the Reserve.

Besides mistrusting TIDE's financing, community members also are critical of the organization's choice of projects. In the opinion of some community members, TIDE is not addressing the most urgent needs of Punta Gorda Town. These expectations of community members are not limited to environmental projects, such as designing a garbage disposal program, but include other societal areas such as unemployment or, in one case, even health care. In regard to current projects and TIDE's mission, one community member believed that the TIDE is not reaching the people of the communities, or in his words, "not getting the message across". In his opinion, TIDE should have more educational projects, especially in natural resource management.

Community members believe that in TIDE is selective in choosing who they involve in their projects, so that they only "look out for people in the circle of TIDE". One community member stated that TIDE used people as a means to an end.

A paid advertisement in the Punta Gorda newspaper (*Blazer*, September 29, 2000: 19) seemed to be representative of many people's feelings towards TIDE. The advertisement reads "TIDE ? A growing monster in our midst. There is more to it than meets the eye. When fish comes from river bottom and tell you that alligator has bellyache, believe am". The last sentence is a Creole saying and was explained to me as referring to an insider voicing criticism.

The only time I heard people state good opinions on TIDE was in connection with the Port Honduras Marine Reserve. The local representative of TNC said he was impressed with TIDE in regard to the educational activities of the rangers in the Reserve and also in face of the opposition from fishermen and having gained acceptance for the Reserve at the national government level. A recreational fisherman said he liked what TIDE was doing in the Reserve and that he now saw fewer Guatemalans fishing illegally in the Reserve at night. Some community members in Monkey River also expressed their support for the Reserve.

TIDE's management is well aware of the fact that the negative image in the community by far outweighs positive opinions. In regard to the community's belief about TIDE being rich, the operations manager remarked: "Another problem is that the community thinks TIDE has a lot of money. So if we are not paying for certain things, then they just say that TIDE doesn't want to pay. So maybe in an illiterate community like this, you would have to spend more time explaining."

After a big public relations project in the Independence Day parade, the executive director told me that the negative image of TIDE in the community still prevailed. At this particular time, criticism came mainly from the foreign residents of Punta Gorda, a group of mostly Americans, Canadians and British people. The executive director at this point asked me for recommendations how to deal with this sort of criticism from an anthropological perspective. Another time, after a joint meeting with two other Punta Gorda organizations, the director told me that he had come to a point where he just did not pay any notice to criticism anymore, because that would cause him to lose his focus.

The operations manager also expressed his frustration with TIDE's negative image, complaining that even an international film team hired by The Nature Conservancy to shoot scenes from Toledo for a commercial on The Nature Conservancy in cooperation with TIDE had come to the management asking about the negative things they had heard about TIDE. According to an informant, the film team had tried to film a girl for The Nature Conservancy commercial. When the mother realized this filming was done in cooperation with TIDE, she said: "This is for TIDE? No, you are not filming my daughter".

TIDE's negative reputation in Punta Gorda is almost omnipresent. When the operations manager picked me up from the airstrip on my arrival, one of his first explanations was that I would soon hear the town gossip about TIDE, a prediction which was to come true. In many cases, when I said I worked for TIDE, people reacted by voicing their criticism of the organization.

5.2.5. TIDE and other Non-Governmental Organizations

In recent years, several non-governmental organizations have established themselves in Toledo. As a newcomer to Punta Gorda it did not take long until I became aware of the rivalry and disagreement among the organizations involved in environment, sustainable development, and tourism. I was able to gather information on two other local organizations in Punta Gorda in this area, which are involved mainly in ecotourism, and to a lesser extent in environmental concerns. Due to time constraints and access, my data almost exclusively refers to these organizations' relationships with TIDE.

The hostilities between these organizations date back several years. One of the main causes for arguments and resentment is the competition about management of the Sapodilla Marine Reserve, a group of cayes with promising potential for tourism, just outside of Port Honduras. The organization that now has the management mandate for the Sapodilla Marine Reserve accused TIDE of attempting to take over the management. A member of this organization also implied that the operations manager of TIDE had personal interests in the Sapodilla Marine Reserve, since he owned or co-owned several of the islands. The operations manager corrected this statement, saying that he in fact was owner or co-owner of only some of the islands. An article in the national newspaper *The Amandala* (October 8, 2000: 5) states that uncertainty still remains over this dispute saying that TIDE is "trying to manage Sapodilla Reserve".

A member of one of the other two organizations described TIDE and The Nature Conservancy's activities and procedures as hegemony building: "See, then this hegemony building started. TIDE did that, and that is what The Nature Conservancy does. If you look at what The Nature Conservancy does in the USA you can see that, and they haven't always been nice about it".

Apart from the disagreements among the three organizations, a major breach had also occurred in one of the other organizations itself where the old officers had been voted out and new people took over. This fallout resulted in old members of this organization founding their own new organization.

The other two organizations differ from TIDE in that they are entirely volunteer organizations and do not have any professional staff. This is one of the reasons for the resentment of TIDE's success. When a member of one of the other organizations remarked accusingly that TIDE was paid and his organization was not, the executive director pointed out that TIDE had started out as a volunteer organization itself. The absence of trained full-time staff in the other two organizations is one of the reasons why TIDE's management is skeptical of their ability to manage the Sapodilla Marine Reserve.

The members of all three organizations are aware that the disagreements and hostilities are hampering the progress of Toledo. TIDE's operations manager had called the joint meeting together as an attempt to overcome the strife. He said that he did not care whether the split between the organizations was hurting TIDE or the other organizations but he was concerned about the people of Toledo. He said this matter was above rivalries between the different organizations. He also admitted that TIDE itself had made many mistakes.

All the three organizations share the concern that Toledo has always been and continues to be neglected by the government in terms of aid and the development of tourism industry. The two joint meetings between the organizations raised some hope that by strengthening cooperation they might be able to improve the situation. A member of one of the other organizations believed that the three organizations could be the first in Belize to lead the way in grass roots approach and transparency. This organization also emphasized the need for information sharing between the organizations.

In comparison with the two organizations or any other non-governmental organization in Punta Gorda, and probably in Toledo, TIDE is by far the largest organization with trained staff, comparatively high salaries, most funding, and technically best equipped. It has received some international awards. However, as a Belizean observer pointed out, this success seems to backfire, since the locals in Toledo complain that they do not see or benefit from any of this success.

5.2.6. TIDE's Connection to the US Nature Conservancy

As the section on TIDE's conservation strategies laid out, TIDE works in close connection with The Nature Conservancy and takes over many strategies developed by the US organization. TIDE's connection to the US organization The Nature Conservancy, the fact that most of its funding comes from US donors, and the frequent visits from staff of American organizations at the local office cause people to associate TIDE as Western oriented. A community member described the executive director as having a white mentality because of having been in the States for too long. An American consultant who has lived in Belize for more than a decade and works independently for TIDE explained the management deliberately avoided the appearance that he was a staff member of TIDE. He cited as a reason that TIDE already had problems because of the frequent association with Westerners.

Community members, and especially fishermen see the executive director of TIDE and the local representative of The Nature Conservancy as partners, a connection which is generally not approved. One member of a fishing family observed that the executive director of TIDE and the representative of The Nature Conservancy as conservation-focused without considering the locals: "They are buddies, they don't care about the people".

5.2.7. TIDE and the Government

The Port Honduras Marine Reserve is co-managed by TIDE and the government, specifically the Fisheries Department. Because of the need for the government's approval for the Reserve, TIDE did not have a choice other than to agree with the co-management. The government in turn needs the support of NGOs for Protected Area management, since as both TIDE's executive director and the Minister of Agriculture and Fisheries pointed out, the government does not have enough resources to manage all the protected areas in the country. The Minister of

Agriculture and Fisheries believed that despite the many stakeholders resentment against environmentalists, non-governmental organizations often did a better job in working with communities than the government.

Presently there are a number of large-scale government projects in Toledo, the most significant ones being and the Environment Social and Technical Assistance Project (ESTAP), the Community-Initiated Agriculture and Resource Management/Rural Development Project (CARD), and the Protected Areas Conservation Trust (PACT).

The Environmental Social and Technical Assistance Project is a five year program, established by the Ministry of Economic Development, funded by the Inter-American Development Bank, designing the Southern Regional Development Plan, with particular focus on preparing Toledo for the changes which the paving of the Southern Highway will bring to the region, and to mitigate "potential negative social, economic and environmental impacts arising from its (the highway's) undertaking" (Environmental Social and Technical Assistance Project 1999:1) negative effects.

The Southern Regional Development Plan aims at overall sustainable development plans in the communities affected by the highway, but it does not include a social or environmental impact statement. A community officer from the Environmental Social and Technical Assistance Project described the projects participatory approach. Community officers go to the different communities in the region and have the people express their needs and concerns. The planning for the separate community plans will then be designed according to the communities' priorities.

The individual development plans designed for different zones address social infrastructure needs, economic infrastructure needs, economic initiatives for commercial agricultural and tourism enterprises, land tenure proposals, and environmental protection recommendations (Environmental Social and Technical Assistance Project 1999).

The Environmental Social and Technical Assistance Project is received with mixed feelings in the communities. The Punta Gorda local newspaper *Blazer* (July

28, 2000: 14) describes the project as having “a know-it-all, and therefore, and isolationist position”. The *Blazer* (July 28, 2000: 14) also quoted Toledo’s Area Representative’s opinion: “These projects come here (and too often), not many people benefit from them”. The newspaper article demands that the Environmental Social and Technical Assistance Project better inform the communities about its plans and claims that the project is shows favoritism in its choice of beneficiaries in addition to misusing resources.

The *Blazer* (July 28, 2000:14), however does express a positive opinion of the Southern Regional Development Plan, saying that the Punta Gorda team has “brought some awareness among the people of the South”.

A community member in San Miguel expressed frustration with the several development projects saying that “organizations only start it for us and leave us alone. I heard about so many organizations that come once and never again, like the Environmental Social and Technical Assistance Project. That’s why people give up those ideas”. A community officer for the Environmental Social and Technical Assistance Project pointed out the difficulty in getting community members involved, because most of them were frustrated, but she said the Environmental Social and Technical Assistance Project had managed to pull them together.

The Environmental Social and Technical Assistance project is coming to a close in the beginning of 2001, opening the way to the Community-Initiated Agriculture and Resource Management/Rural Development Project. This project is funded by the Government of Belize, the Caribbean Development Bank, and the International Fund for Agricultural Development. Its is designed for a seven year period, with base in Punta Gorda. “The overall objective of the Project is to develop the productive potential of balanced sustainable land use systems and ensure accessible support services to poor small-holder families in the Southern Region” (*Blazer*, July 28, 2000: Insert 1). The project will provide assistance to communities in the following areas: agricultural development, natural resource management, post harvest processing, small infrastructure investments, marketing, non-agricultural micro enterprises, institutional strengthening, training in accounting and preparing

business plans, audit services, social planning and human resource development, office supply and construction material equipment (*Blazer*, July 28, 2000: Insert 1).

Despite the overall frustration with government and non-government projects, some community members are hopeful about this project. One person said he could see the Community-Initiated Agriculture and Resource Management/Rural Development Project as a potential provider of an income generating system in Toledo. The Punta Gorda officer of the Ministry of Rural Development and Culture also expressed hopes for this project.

The Protected Areas Conservation Trust as the name indicates assists protected areas. Visitors leaving Belize, pay an exit fee which goes to the Protected Areas Conservation Trust. In Toledo, the Trust assists the Paynes Creek National Park, managed by TIDE.

The Ministry for Rural Development and Culture conducts data collections in villages and asks community members to identify desired projects. The Ministry then supports the community in writing proposals. Currently the Ministry is establishing a school in a small village and is also in charge of village water systems. The Punta Gorda officer believed that the Ministry could get more help from TIDE, for instance coordinate trips to villages, so that the officer would have transport. She said that she had inquired with TIDE but never received a response.

5.3. Port Honduras Marine Reserve

5.3.1. Port Honduras as Fishing Environment

The coastal communities of Toledo present a picture characterized strongly by the marine environment in general and specifically the Port Honduras Marine Reserve. Punta Negra and Monkey River are almost exclusively fishing villages. Due to Punta Gorda's larger size, community members pursue many different occupations besides fishing, but fishing related occupations are still numerous. According to the draft survey *The Voice of the Fishermen of Southern Belize* (TIDE 1998a), there were 178 fishermen in the Port Honduras area, including Punta Gorda, Punta Negra, Monkey River, and the Port Honduras cayes as opposed to Heyman's count in 1996 of 122 fishermen in this area.

Although there are some large-scale commercial fishermen in Punta Gorda, compared to fishing operations in developed countries, Toledo fishermen still operate on a small scale. There are no trawlers or schooners and the largest type of boat used is a fiberglass skiff up to 30 feet long, most having one outboard motor, rarely with two motors. The other frequent types are so-called "dories". These smaller boats were traditionally dug out of a tree-trunk, but today most of them are made of wooden boards. The dories are either operated with outboard motors or by paddle and or sail, in which case they are usually even smaller. TIDE's draft of the survey *The Voice of the Fishermen of Southern Belize* (1998) indicates that out of the total estimated number of fishermen in the survey area of 187, including the fishing village of Barranco as well as Punta Gorda, Punta Negra, Monkey River, and the Port Honduras Cayes, 57 fishermen owned fiberglass skiffs, 43 fishermen owned dories with outboard motors, and 30 owned dories with paddle and or sail.

The main methods used by commercial fishermen in Port Honduras are nets for lobster, gill nets for fish, long lines, diving for conch and lobsters, hand lining and towing (Heyman 1996). The gill nets are usually set in the water with anchored floats. The long lines are also set with floats and have multiple hooks, usually

baited with small fish or cow hives and are set for larger fish. On the patrols of the Reserve I saw several lobster traps and was told that fish traps are also used.

Heyman's survey (1996: 148) indicates that 12 out of 46 commercial fishermen in the Port Honduras area used fish netting as one of their methods. Four out of 46 fishermen also used lobster nets. A commercial fisherman estimated that about 30 fishermen had used gill nets before the declaration of the Reserve.

According to Heyman's survey (1996) and the draft of *The Voice of the Fishermen of Southern Belize* (TIDE 1998a), many fish species in Port Honduras are in decline. Fishermen and community members also think there are fewer fish in general. According to TIDE's head ranger the decline in fisheries has affected Toledo's fishing industry. On a visit to the fishing community Punta Negra, the head ranger, who was from this village, explained to me that all the people had gone. The scenery in fact resembled a ghost town with abandoned structures, and to my impression no more than two houses were inhabited. The head ranger said that when they got older, people left and that "we used to get many more fish, but now it's getting more difficult. The equipment is getting more expensive and there are fewer fish. We used to pull out so many fish".

Despite the decline in fisheries, fishermen engaged in large-scale commercial fishing can still generate fairly high revenues. A member of one of the big fishing families told me that a large-scale commercial fisherman could make more money than a person employed in a well-paid office job. He said that a commercial fisherman could make \$750 a month which compares to a well-paid office job for \$500 a month. A community member also calculated that if he left his current position as equipment caretaker at a shrimp farm, he would be able to make more money and not have to stay away from his family for two weeks in a row as he was doing currently since the shrimp farm was so far away.

Two of the Port Honduras rangers come from fishing families themselves, and they are very familiar with the lives of the fishermen and know many of the Toledo fishermen, or are even related to them in some way. On the patrols, the rangers often met fishermen they knew, and they would have friendly conversations with them and at the same time inform them about the regulations of the Reserve.

Another aspect that characterizes Port Honduras as fishing environment is the fact that many fishermen set up more or less permanent camps on the several cayes in the Reserve. On the patrols, the rangers usually stopped at the inhabited islands and talked to the fishermen about their activities. Again, most of the time the rangers knew the Belizean fishermen and the exchange was friendly.

On the patrols I accompanied, I was able to witness different types of fishing. We came across lobster traps, which are wooden boxes set on the sea ground and demarcated by a float at the water level. I observed a fisherman using a gill net for catching bait just outside of the Reserve. We also encountered many people diving for lobster. The divers do not have scuba equipment, but just snorkeling gear. They dive to the sea floor and catch the lobster with help of a long hook. We also frequently encountered fishermen using hand lines, which they drop over the side of the boat as they continue their sea trip.

Many fishermen take their catch to the Punta Gorda fishing market, another feature of Toledo's coastal environment. They also sell fish privately and a person walking along the street with over a dozen of yellow snappers stringed on a coconut palm leaf is a common site.

5.3.2. Goals

5.3.2.1. Environmental Goals

The 1998 Preliminary Draft Management Plan (1998: 3)⁹ lays out the purpose of the Reserve as follows:

The Port Honduras Management Plan will serve as a working document to provide a framework for the development and refinement of rational management policies in maintaining coastal ecosystems functions and natural resource values, including water quality and nursery habitats of the area. The ultimate aim is the preservation and sustainable use of biological resources. Because of the need for improvement in living standards, it is necessary that the plan accommodate traditional fishing practices of the fringing communities, while facilitating and promoting income-generating activities. The plan also aims to allow for the identification and development of other economic activities that could be compatible with the overall goals of the reserve.

The regulations and zones of the Port Honduras Marine Reserve were primarily designed to ensure preservation and sustainable use of biological resources. The Belize Nature Conservancy representative who was instrumental in the planning of the Reserve said that the planners had designed the regulations based on assumptions. When asked what sustainability for the Reserve meant from a conservation standpoint, he replied “Really, we have not done enough scientific monitoring (to determine) that. We went more by making assumptions, like saying, if we ban the nets, the fish stock will increase again, and then we made the regulations accordingly”.

Even though the regulations were designed to increase the fish stock in the Reserve again, there are two main problems that undermine the effectiveness of the Reserve in terms of environmental sustainability. One, some of the regulations are

⁹ This is the plan in effect at the time of my research in summer 2000.

ambiguous and fishermen are not sufficiently informed about them, and two, the rangers do not have the legal authority to actively enforce the regulations.

While I was designing a printed handout for fishermen on the rules of the Reserve and the general brochure with the help from the rangers, I witnessed their confusion on the regulations as drafted in the statutory instrument of the Management Plan. There were two main reasons for the confusion. One, the management plan distinguished between a Conservation Zone I and II, but in the actual management as implemented by TIDE and the rangers, there was only one Conservation Zone. In addition, the rangers did not quite understand the Management Plan's definitions of the different types of fishing. The representative of the local TNC branch who had been instrumental in the planning and establishment of the Reserve was concerned that the term subsistence fishing might be used as a disguise by people who were actually engaged in commercial fishing. These are the fishing type definitions as laid out by the Management Plan:

“Sport fishing” means catch and release;

“Recreational fishing” means fishing for fun with the intention to eat the fish caught but not for the purpose of selling;

“Subsistence fishing” means fishing conducted by those who reside within the reserve for the purpose of consuming but not for selling.

When I discussed these definitions with the ranger, they equated sport fishing with recreational fishing. This is the reason why recreational fishing is not listed under the permitted activities in the General Use Zone in the brochure, even if it is stated in the Management Plan.

In the early planning stages of the different zones, and even now under the declared Reserve, confusion also existed and exists among the residents of the fringing communities about the regulations. In the first set of community consultations conducted by the Belize Center for Environmental Studies, fishermen of Punta Gorda complained that “they never really knew what this whole Reserve (would) mean to them. They needed to be told and informed”. Also, in the planning stages, fishermen got the false impression that fishing would be

completely banned in the Reserve. When the preservation zone became established as a no-take zone, Punta Gorda fishermen complained that "The Belize Center for Environmental Studies had said that nowhere in the Reserve fishing would be banned, when in effect the P Zone prohibited any fishing activities" (BCES/PROARCA Report). In 1996, Monkey River fishermen also expressed confusion about the meaning of the different zones. Despite the confusion, the fishermen did have some influence on the zoning regulations of the Reserve in the initial planning stages. Due to their input, the general use zone was made larger and the only one conservation zone was drafted.

In a community meeting TIDE conducted in September of 2000, after the Reserve had been in effect for eight months, Monkey River fishermen told the rangers that they did not have much knowledge about the Reserve and the different zones.

In regard to the boundaries of the Reserve, the head ranger at a meeting of the advisory board in August 2000 pointed out the need for demarcation. He said it was difficult to tell people they could not use nets in the Reserve, if the boundaries were not demarcated. The fact that some regulations are confusing and the lack of demarcation of the Reserve's boundary make it hard for the rangers to effectively educate the fishermen about the regulations.

The confusion about the regulations adds to the rangers' problems in enforcing the regulations. Due to TIDE's failure to sign the Memorandum of Understanding with the government, the Port Honduras rangers do not have any legal authority. They can therefore not make any arrests when they encounter people engaging in illegal activities in the Reserve. All they can do is report these incidents to the next responsible government branch, usually the Toledo Fisheries Department or police.

On the patrols I accompanied, I was able to observe the rangers' dilemma caused by their unofficial status. Frequently we would find someone with illegal catch or missing papers and the rangers would warn this person. However, on following patrols we often would meet the same person again at least once engaged again in illegal fishing activity, and the rangers had no other means to warn the person again, knowing that their warning was having little effect.

The position of the rangers was one of the topics of the Reserve's advisory committees meeting in August 2000. The head ranger brought up the question of legal status. He pointed out that the rangers had no legal certification and wanted to know from the board whether the rangers would be required to do arrests or report to the police. The Coastal Zone representative replied that while the rangers' status was in limbo due to the unsigned Memorandum of Understanding, they should focus on educating. When they got into difficulties, they should immediately get in touch with the Fisheries Department. Until they got declared Fisheries officers or counselors, they needed to keep their focus on education about the regulations in mind.

On one of the patrols, the rangers contacted the Fisheries Department about out-of season conch harvesting. On this particular patrol during the closed season for conch, we had come across a stone crib storage somebody had built in shallow water in which he had collected illegally harvested conch. The rangers contacted the Fisheries Department in Punta Gorda from a public phone in Punta Negra on route of the patrol. The response was that the Department would not take any action. The rangers then decided to take matters in their own hands, and we collected the conchs into the boat, and took them out to drop them in deeper water. We counted over one hundred conchs. In the following days the rangers would stop to ask fishermen they met on sea whether they knew of any one harvesting conch, and received negative replies. I was with them on the patrol where they met the person they suspected and he confirmed that he had collected the conchs. Naturally, he was not pleased about the rangers' action. The rangers parted with him with emphasizing the importance of adhering the closed season, and received a grudging reply. Whereas the confusion about some regulations obstructs the rangers task of overseeing the implementation of the Reserve's rules, their lack of legal authority seriously undermine the effectiveness of the Reserve, and thus prevents preservation and sustainable use of biological resources.

5.3.2.2. Providing Income Generating Alternatives

In order to provide alternatives to unsustainable fishing methods, such as long-line and net-fishing, TIDE is trying to involve fishermen in the tourism business. Fly-fishing falls under the definition of sport fishing in the Port Honduras Management Plan and implies catch-and-release. TIDE is thus trying to move fishermen away from fishing to alternative income-generating activities that do not extract marine resources, or to a lesser degree. TIDE had trained 36 fishermen as fly-fishing guides and advocates this as lucrative business. However, the economic reality shows that engaging in tourism at the present point is not in the self-interest of the fishermen.

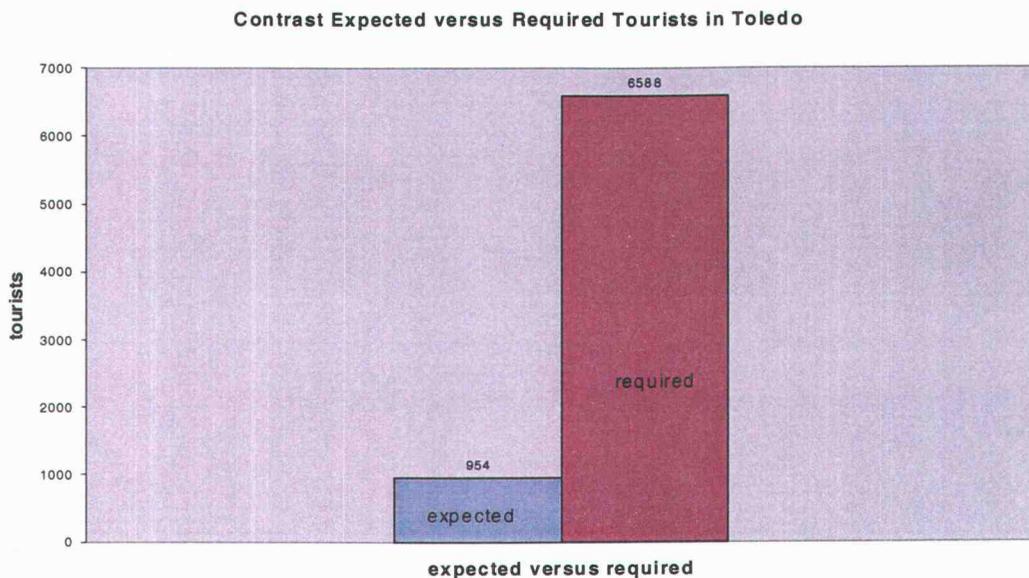
Heyman and Hyatt's (1996) comparison of the annual income of fishermen and that of a fly-fishing guide support TIDE's campaign for tourism. An evaluation of the numbers of tourists in Toledo, however, shows that there are too many fishermen to trade their current occupation for fly-fishing, as the following numbers show. Heyman and Hyatt compared the revenue made by commercial fishing to that of a sport fishing guide. According to this calculation, a fishing guide taking an average of 100 trips per year can earn an average of BZ\$33/hr¹⁰, and a total of BZ\$36.000 per year, whereas a commercial fisherman (including lobster fishermen using nets) earns an average of BZ11.50 per hour, or a total of BZ\$21.000 per year with an average of 150 trips per year. At first sight, these numbers may make tour-guiding a much more lucrative job than commercial fishing. However, one needs to consider the economic reality of Toledo. At the time of Heyman and Hyatt's survey between 1994 and 1996, there were a total of 12 fishing tour-guides in the Port Honduras area, 10 of which come from Placencia which is not in Toledo, and has a much more developed tourism industry. Meanwhile 36 fishermen have been trained by TIDE as fly-fishing guides. Assuming the two existing fishing guides in 1996 participated in the training and not counting the guides from Placencia, there are now 36 fishing guides in Toledo. If we apply the national growth rate of tourists (42%) in 1999 to Toledo, this would

¹⁰ BZ \$1 converts into a fixed rate of US \$ 0.5.

result in 5304 tourists for 1999, a number which is an overestimation because Toledo is one of the districts receiving the least tourists in the country. Statistics of the Belize Tourism Board indicate that 17.8 per cent of all tourists to Belize take one or more fishing trips. Applied to the tourists in Toledo, this percentage means that at approximately 954 people out of 5034 would take a guided fishing trip. Referring back to Heyman and Hyatt's calculation, in order to make BZ \$ 36,000 per year taking a hundred trips one guide would have to take 1,100 people on trips, assuming the trips last for an hour. It is more likely that trips last for a half or full day, so I will adjust this calculation for an average of 6 hours. This means that the number of 1,100 needs to be divided by six, which equals approximately 183. So one guide would have to make hundred six-hour trips a year, taking a total of 183 people out, and charge each person \$33 per hour in order to make BZ \$ 36,000 a year. For each of the 36 guides to be able to take 183 people out per year, a total of 6588 people would have to take one six-hour trip in one year. This number exceeds the number of estimated tourists in Toledo for 1999, which is 5304. The Belize Tourism Board statistics show that an average of 17.8 per cent of tourists take guided fishing tours. Calculated for Toledo, this percentage equals 954, a number six times smaller than the required to fulfill Hyatt and Heyman's calculation, if the converted fishermen are to engage in full time fly-fishing (Figure 5).

What these results show is that even if Hyatt and Heyman calculated the average income of fishing guides correctly, they do not mention the necessary conditions to fulfill their prediction that a fly-fishing guide can earn a lot more money with a lot more effort. The number of tourists would have to increase more than six times for Hyatt and Heyman's calculation to be realistic. Given the context of multiple occupation it is more likely that fishermen will work as guides for fly fishing part time in which case it is possible that more fishermen can benefit from tourism.

Figure 5: Contrast between Expected and Required Tourists in Toledo



The TIDE staff itself bought into the promotion of tourism. Many staff members made the business cards for their own private tour operating business. However, their engagement in tourism consisted mainly of preparation, because they hardly ever had any tourists take up their offered tours. Although many fishermen are also eager to invest in tourism, many are aware that it is not an instant solution and some fishermen have no desire to give up their current occupations, which in many cases have been handed down in their families through generations. In regard to TIDE's recommendation to fishermen switching from their present occupation to ecotourism, at least two fishermen told me that they did not want to engage in tourism. A boat captain also told me he did not want to have anything to do with tourists because he considered them annoying.

A member of a fishing family who is currently trying to market his business as tour guide said that tourism was good, but one needed money to invest. The operations manager is also aware of the requirements for developing the tourism industry in Toledo. At the Monkey River community meeting in September 2000, he told the community members that TIDE was trying to bring tourism into the

area, but from similar previous projects it was evident that this development might take two to three years, because tour operators often booked so long in advance. He emphasized however, that tourism could make more money than fishing and that there were now better opportunities. The statement was challenged by a community member who said this was not the case.

In light of the fact that multiple employment is a common phenomenon in Belize in general and also in Toledo, TIDE's suggestion of fly-fishing is less unrealistic, if it is only a part-time occupation. According to TIDE's draft of the survey *The Voice of the Fishermen in Southern Belize* (1998), only 38 percent out of the surveyed fishermen (84 represented in survey out of a total of 187 in Toledo) engage in full-time fishing. The remaining fishermen engage in multiple occupations. The survey also includes data on economic alternative fishermen would be interested, which include ecotourism (n= 23), sport fishing (n=12), providing fresh fish to restaurants (n=7), smoking fish (n=7), agriculture (n=2), and aquaculture (n=1).

Although TIDE's executive director emphasizes that tourism is not the only alternative to unsustainable fishing, I never heard him specify any other income generating possibilities for the fishermen.

The prevailing emphasis on tourism as only alternative to fishing, contributes to creating different stakeholder groups in conflict, as became evident in as early the first set of community consultations in 1996. When the Conservation Zone was being determined cooperatively with the community of Monkey River, community members engaged in fishing believed the regulations were too strict, whereas those interested in the tourism industry suggested banning any fishing activity in Conservation Zone 2.

5.3.2.3. Stakeholder Involvement

The TIDE management refers to the Port Honduras Marine Reserve as a model case for sustainable management and community involvement. At the Site Conservation Planning Workshop in Punta Gorda, the executive director cited Port Honduras as an example for TIDE's interaction with stakeholders and community involvement. The Nature Conservancy publication on community-based land use areas presents Port Honduras as a case study for community based planning stating that the "community zoning and marine resource management planning process in Port Honduras was started by conservation groups. Thus it is a collaborative, "bottom-up" land use planning process-one conducted by diverse stakeholders, but with organized conservation leadership" (Chung, The Nature Conservancy 1999: 24).

The Port Honduras management plan establishes the advisory committee of the Reserve as main mechanism for stakeholder representation and the director frequently refers to the advisory committee to prove community and stakeholder involvement in the Reserve. At the 1998 community meeting in Punta Gorda, community members demanded a clear answer as to how the community would have a vital role in the management. The director replied that "meaningful contributions from the communities will be effected through participation of the Community Representative on the Advisory Committee" (Community Consultation Report *In Lint* 1998: 29). One of Punta Gorda's leading fishermen in the Committee thought the fishermen had an influence in the Committee, saying "Yes, we push quite a bit".

Fishermen frequently said that they did not believe the communities had been involved or that they would like to see more community involvement. When I was researching the initiators of the Reserve, the planners told me that the fishermen had been concerned with the decline of the fisheries in Port Honduras. A Fisheries officer said that the initiative had come from the Belize Center for Environmental Studies. "The Belize Center for the Environment and TIDE conducted a survey among the fishermen, and then made it look as if the fishermen were in support of

what they were doing". He also believed the community consultations during the planning stages had "not been done properly".

One of Punta Gorda's commercial fishermen said that community involvement was necessary to make reserves effective, because the fishermen had the necessary information for planners and managers. He said that there was no communication between the rangers and the fishermen, and that the fishermen were being left out.

At a rangers' visit to Monkey River, one community member asked why there had been no community meeting after the declaration of the Reserve. When TIDE held a community meeting at a later point in September 2000, the executive director opened the meeting with the lines "We, TIDE have to apologize. Since the Reserve has been declared, you have seen nothing of us. We have (had our hands tied), but we have had no time. But Monkey River community has always helped us.... We apologize for not being in touch and we appreciate your feedback".

5.3.3. Threats to the Environment of the Reserve

Just like the rest of Toledo, the Reserve is threatened by imminent development. The projects that would seriously undermine the purpose of the Reserve include a lease to an oil-company for drilling in the Reserve, leases of cayes to private owners, logging on adjacent lands, and increase agriculture and aquaculture activities in the Monkey River watershed.

The Minister of Agriculture and Fisheries explained that for any future recommendations for the Reserve, imminent problems would have to be solved first. One of these problems was a lease in the Reserve to an oil-company for drilling. On a trip to the cayes in question, TIDE's executive director explained to some visitors from a US NGO that although the cayes had been leased to an oil-company, he did not expect any drilling to happen because based on experience in the past, oil companies had never realized their plans in the Port Honduras area.

At the advisory board meeting in August 2000, concern was voiced about a lease of a particular cayes to a private owner. A board member said he had heard

that one of the Snake Cayes had been leased or sold after the declaration of the Reserve. The executive director replied that he had met with the responsible Minister who said he knew nothing about the lease and if it had been given out after the declaration of the Reserve, he would revoke it. When the head ranger suggested drafting a letter on this matter, the executive director pointed out that it was important to avoid any embarrassment for the government. When one board member said he had heard that there were plans to build a bar or café, another board member replied that one had to be careful to distinguish between fact and fiction. When I was on a patrol with the rangers we stopped at the leased Snake Caye, and the head ranger told me that he had observed someone clearing the undergrowth of this caye. He was very concerned about this because the caye was in the Conservation Zone, and should be left in its natural state. The fact that some of the cayes in the Reserve are owned privately creates further stakeholder conflict between land owners, fishermen, and people engaging in tourism business, because they all have different ideas about using the Reserve for their own benefit.

A Sandinavian large-scale developer has aggravated the Toledo communities by buying up large parcels of land and using them for timber extraction, some of which are in close vicinity to the Reserve or watersheds leading into the Reserve. The most recent plan of this developer is to open a shrimp farm in the vicinity of Monkey River, a project which the community members and TIDE are strongly opposed to, because it will pollute the watershed and also the waters of Port Honduras. Compared to the oil-lease and private caye lease, the Scandinavian's plans are not directly in the Reserve, which means that they are outside of TIDE's reach.

The imminent completion of the Southern Highway ultimately will effect all of Toledo and also the Reserve because it will bring great changes to the area. The main changes will result from increased traffic and increased tourism. If the number of tourists in Toledo grows very large, this in itself can present a threat to the Port Honduras Marine Reserve.

5.3.4. International Boundary Problems

The close vicinity of the Reserve to Guatemalan and Honduran waters adds to difficulties in management. The Gulf of Honduras, in which the Reserve is located, borders three countries, Belize, Guatemala, and Honduras (Figure 1). One of the most pressing problems is the fact that numerous fishermen from mainly Guatemala, but also from Honduras, come into the Reserve to fish. The Belizean Fisheries law prohibits non-Belizeans to fish in Belizean waters and they are not eligible for fishing licenses. However, due to the rangers' lack of legal authority and lacking cooperation from the Guatemalan and Honduran authorities, TIDE is powerless against the foreign illegal fishing.

Heyman concluded in 1996 that about 50 per cent of the people fishing in Port Honduras were non-Belizeans, thus fishing illegally. In an informal interview he indicated that net fishing was mostly pursued by the foreign fishermen and community members from Monkey River confirmed this concern. Fishermen still frequently bring up the issue of illegal foreign fishermen. The problem has been exacerbated by the fact that many foreigners have been able to acquire Belizean nationality and therefore qualified for and obtained fishing licenses. According to information from the rangers, the Area Representative¹¹, one of the Reserve's biggest opponents, was instrumental in providing aliens with legal papers.

The head ranger expressed his resentment against the foreign, mainly Guatemalan fishermen he met on patrols. He asked me to estimate what percentage of fishermen they encountered on the patrols, the rangers needed to speak Spanish (signifying that they are not Belizeans) and said he estimated this number higher than fifty percent.

In the community meeting of Monkey River in September 2000, fishermen emphasized the problem of illegal foreign fishing. At the community consultation in 1998, a fisherman said that rather than targeting the Monkey River fishermen, TIDE should be more concerned with protecting the Reserve from foreigners.

¹¹ The Area Representative is the political head of the district, comparable to a governor of a state in the US.

5.3.5. Support for the Reserve

Despite difficulties and concerns, community members and planners also expressed support for the Reserve. Chung (1999: 24) claims that “despite the Reserve’s origins in the conservation sector, over the last two years substantial community support for the Reserve has grown among fishermen and tourism operators”.

The Minister of Agriculture and Fisheries said that the Port Honduras Marine Reserve had taken a long time to build support. He had observed with other Marine Reserves, i.e. the Hol Chan Reserve in northern Belize, that some of the people who had been originally reluctant, were now the biggest supporters. TIDE’s director told the participants of the international Site Conservation Planning Workshop that initially people would curse you out, but you would find that the same people who were against you were with you now.

I heard the most positive opinions in the Monkey River community. Fishermen here said that they thought the Reserve was a good thing. One person told the rangers “Yes, I am all for the Reserve. We need to enforce the rules with the aliens”. During the planning stages of the Reserve, 24 community members sent a letter of support for the Reserve to the Minister of Agriculture and Fisheries. A former resident of Punta Negra told me he believed that this letter was not initiated from the community members themselves, but that TIDE drafted it and asked the community members to sign.

According to Heyman (1996), who wrote his dissertation on Port Honduras as a case study for integrated coastal management, at the time of his survey between 1994 and 1996, the majority of fishermen in the Toledo communities and the community of Placencia, in Stann Creek District, agreed on a total ban of nets in the Port Honduras.

5.3.6. Opposition to the Reserve

When the fishing communities first heard about plans for a Reserve, they expressed considerable concern which continued throughout the planning stages. At the community meeting in Punta Negra in 1998, fishermen feared that they would become marginalized and suffer financially because of the Reserve. In the second set of consultations in 1998, TIDE asked stakeholders in the fringing communities for input on the planning of the zones. In the course of these discussion, community members of Punta Gorda objected to the word restricting, saying that it suggested “that (TIDE was) locking things up from the Belizeans and that it was “too strict a term needing further qualification” (Community Consultation Report, in: Lint 1998: 29).

According to a Punta Gorda Fisheries officer, the fishermen had asked the Fisheries Department to stop the declaration of the Reserve in the planning stages. This officer also believed that the Belize Center For Environmental Studies and later TIDE had only made it look as though they had the support of the majority without this actually being the case. I had also heard that the reason TIDE had to wait so long for the Reserve to be declared was the resistance of the communities.

In March 1999, the mayor of Punta Gorda sent a letter to the Minister of Agriculture and Fisheries concerning “a small but vocal group of opponents to this Reserve in Toledo. They are using government inaction on legislation as a “proof” that there are broader national concerns regarding it that have not been fully shared with Toledo residents”.

The mayor of Punta Gorda said that the reason for the strong opposition had political origins. The Area Representative had a staunch supporter who was fishing in this area and wanted him to be able to continue unrestricted fishing. TIDE’s executive director believed that there was evidence that the Area Representative had paid people in two small communities in southern Toledo and in Punta Gorda to spread false rumors about the Reserve.

During informal interviewing at the Punta Gorda fish market, a fisherman said that it would be better not to have the Reserve. Another fisherman who had

originally strongly supported the Reserve and helped TIDE' in promoting the Reserve, said that he was not rewarded adequately for his efforts and now personally did not want to have anything more to do with TIDE.

The word "reserve" in itself seemed to meet opposition. A fisherman said that TIDE could not reserve the whole sea. The ban of gill nets was also a reason for opposition.

One of the reasons fishermen today do not support the Reserve is their overall disillusion with TIDE due to the false promises the organization allegedly made in regard to the Reserve. These promises concern mainly two issues, buying gill nets from the fishermen, and allocating money to the communities. Fishermen frequently referred to TIDE's promise to buy the gill nets from them. According to one fisherman, the price for one gill net is \$ 500. Another fisherman mentioned a fisherman camping out on one of the islands who was "pretty mad, because now he (was) sitting on his nets and he (could) not use them". More than once I heard that TIDE had promised the amount of BZ\$ 1 million to the fishing communities once the Reserve had been declared. When I asked the executive director about this he denied that TIDE had made this promise. Apart from money, one member of a fishing family told me that TIDE had also promised equipment for fishermen and job opportunities.

Often stakeholders indirectly expressed their opposition through their concerns. One fisherman believed that the fishermen were not benefiting from the Reserve, since they had to go further out to fish, which was more expensive. The dissatisfaction about insufficient stakeholder involvement and economic concerns related to the restricted fishing methods also prevent fishermen from supporting the Reserve.

5.3.7. Perceptions of Effectiveness

When I asked him about the effectiveness of the Reserve, the mayor of Punta Gorda reported to me what he had heard from the fishermen. He said that they believed it was effective but could be even more so, because there was still a presence of gill nets. The fishermen recommended that TIDE make the patrols more effective. The mayor also confirmed that the signing of the Memorandum of Understanding could be linked to the effectiveness of the Reserve.

A commercial fisherman believed that the rules of the Reserve were not effective because of lacking communication between the fishermen and the rangers. He said that people were still using nets because they had done so for years and years, and you could not just tell them to stop without giving them an alternative. This fisherman believed that it was vital to the Reserve's success to integrate the knowledge of the fishermen. He said fishermen really knew what was going on. Unless the rangers communicated with the fishermen, they could have ten to hundred people patrolling without being able to stop illegal activities. The fisherman said he knew that people were still heavily fishing conch in the closed season and he believed that the killing of manatees was still going on. He also said that the Reserve was too big to be effectively managed. Most importantly he emphasized that "you have to get users involved, otherwise it is not going to work". If you had more people involved, the Reserve could be sustainable. Also, the Reserve would not be effective, if the planners were working for their own personal benefits. According to this fisherman, the other fishermen believed that Reserves were "working" when they were "productive".

TIDE's executive director believes in the effectiveness of the Reserve based on the decline of manatee poaching. At the committee meeting of August 2000, he said that due to the Reserve there were no more manatee killings.

Concerning the anticipated effects of the Reserve, another commercial fisherman said that he believed that the Reserve would "make more fish be there". Another fisherman said he believed in reserves in general, because their spill would pour into the community. The executive director believed that in the future it would

be possible to catch more fish with hand line in the Reserve again. The Port Honduras article in the *Rising TIDE* (Spring 2000: 4) states that “active management presence along with emphasis on education and training can create the environment within which the Port Honduras Marine Reserve will be a success. This success will manifest itself not only scientifically but will positively affect the economic reality of the people who for years have lived off its natural resources in a positive environmentally sustainable way”.

5.3.8. Understandings of Sustainability

The terms “sustainable” and “sustainable development” are frequently used in TIDE’s publications, such as its website and newsletter, scientific publications, and also its mission statements. Most of the time, the terms are used without explicit definition.

In informal and semiformal interview I was able to elicit some understandings of sustainability among TIDE staff members, fishermen, and government representatives. According to the Minister of Agriculture and Fisheries, sustainable development means making a living while preserving the environment. It was about balance. He cited the St. Antonio National Park as an example where “we are bringing in tourism and preserving it”.

One of the Paynes Creek National Park rangers said that sustainable was to make something last so you could use it in the future. He illustrated his point with the example of a plastic disposable water bottle: “If you take this bottle, you would want to make it tough and strong so you can take it on many trips and use it again. And with fishing. Sustainable means that you don’t fish all the fish and in ten years there are none left. You fish sustainably. Is that the wrong answer? Probably there are different answers”.

When I was designing the brochure on the rules of the Reserve in collaboration with the rangers, the head ranger wanted to use the word sustainable. I asked him whether he thought the fishermen would know the meaning of the word. He said

that was a good question and we would have to bring the language of the brochure to the level of the people. For the quote on the objective of the Reserve, we finally agreed on “This Reserve will help to maintain and increase marine (resources) for present and future generations” as a paraphrase for the goal of sustainability.

Instead of the term “sustainable”, one fisherman used the expression of the Reserve “working”. He said if something was a reserve, the fishermen’s understanding was that it should be productive. He thought the Reserves, in Belize were “not working”, if they were not productive. When I asked him for a definition of sustainable management for the Reserve, he replied “Sustainable would be maybe building a farm where the fishermen can come together. Or giving loans”. He also said the Port Honduras Marine Reserve could be sustainable if there were more people involved.

In a set of semi-structured interviews with community members, I asked what they believed that the combination of “development and environment” in TIDE’s name implied. One person replied that it meant “taking care of the sea, preventing other countries from fishing, and watching the borderline between countries”. According to another person the combination meant “preservation and conservation, and building human development and preserving wildlife”.

The Draft of *Components of a Human and Economic Development Strategy for Toledo, Belize* (Ford and Damon 1999: 25) defines sustainability as follows:

Sustainability is a word that is often used in reference to ecological effects of various activities. While this is an essential component within its framework the concept of sustainability must also be considered in a broader context to include the sustainability of social and economic activities as well. Sustainability is closely tied with social stability, which is a key component in food security, social equity, and increased adequacy.

6. Discussion and Conclusion

6.1. Implications of Findings for Theory

6.1.1. Sustainability and Sustainable Development

6.1.1.1. Existing Theories

The existing theories on sustainability and sustainable development can roughly be categorized into three groups: those with prime economic focus, such as the definition of the World Commission on Environment and Development, weak sustainability approaches, neo-liberal, and to a certain extent environmental economics, those theories with prime focus on the environment, such as strong sustainability approaches and ecosystem approaches, and finally the whole systems approaches which attempt to synthesize both prior categories and integrate economic and environmental considerations.

The major implication of this case study for the theories with economic focus is that economic growth cannot be considered the solution to environmental problems. Unlimited economic growth based on maximum resource extraction in the Port Honduras area will result in resource depletion thus undermining the basis of the fishing economy in Toledo and eventually causing economic recession. However, if fishermen change their economic resource extractive activities, such as refraining from unsustainable fishing methods in the Reserve, the marine resource base will be able to grow and in turn is likely to result in financial benefits for the fishermen. The case study therefore supports Meadow's claim (1972) that economic growth on its own cannot solve environmental problems. It further supports O'Riordan's (In: Archibugi and Nijkamp 1989) and Daly's (1990) appeal to define sustainable development not via economic growth but change. The case

study shows that change in economic activities can increase financial benefits of resource users in the long run, whereas current maximum resource extraction with the object of short-term economic growth will result in environmental degradation. This consequence would undermine both long-term economic and overall sustainability.

In regard to those theories that are based on environmental input-output models, such as environmental economics and ecosystems approaches, this case study points to the potential inaccuracy of such models. As Hilborn (1994), Flaaten et al. (1998) and Weeks and Berkely (2000) emphasize, fisheries stock assessments for a certain area are a very complex and often uncertain task. In addition, it is very difficult to make accurate predictions as to how the environment will react to human modifications. This is particularly true for marine environments due to too many unknown factors regarding fisheries depletion and regeneration (Hilborn 1994, Flaaten et al. 1998, Weeks and Berkely 2000).

To a certain extent, TIDE together with the fishermen has been able to establish that overfishing has caused depletion of the Port Honduras fish stocks. However, due to the uncertainties in stock assessment, it would be very difficult to determine specific catch quotas per person to ensure sustainable fisheries. Although environmental input-output models are usually designed in order to protect the environment they do not offer full protection, if mathematical models for calculating change brought about by humans are inaccurate.

The case study therefore supports the claim that environmental input-output models can be unreliable in some situations. If the use of these models is to be applied successfully, planners need to take care to reduce unknown factors as much as possible when dealing with marine environments.

Whereas those approaches to sustainability with economic focus tend to neglect environmental considerations as basis for natural resource based economies, those approaches with environmental, eco-centric emphasis tend to neglect economic needs of resource users. The case study however, illustrates that environmental and economic factors are inevitably interrelated. Protecting the Reserve's natural resource base will result in long-term economic sustainability for the fishermen

through regeneration of fisheries. On the other hand, addressing the fishermen's current and future economic needs by suggesting sustainable resource extraction, such as the use of sustainable gear and fishing and increased fishing outside of the Reserve, will enable them to protect the environment without suffering economic repercussions. The case study therefore suggests moving away from treating sustainability for human benefit as separate from sustainability for the benefit of the environment.

The holistic approaches to sustainability come closer to this integration of anthropocentric and eco-centric considerations. Holistic approaches also allow for the integration of other relevant factors related to sustainability. The case study has shown that even the integration of environmental and economic considerations is not sufficient for achieving sustainability, but that successful approaches to sustainability also have to include awareness of the socio-cultural context and the appropriate political administrative framework for effective planning and management for sustainability. Those holistic approaches that take into account all relevant factors therefore come closest to achieving sustainability.

6.1.1.2. Lack of Emic Perspectives in Existing Theories

While some theories place more emphasis on the economy and others more on the environment, and the holistic theories attempt to integrate both perspectives, almost all theories have in common that they neglect the emic perspective on sustainability. The various authors advocate their theories as answers to achieving sustainability. However, most proponents of the various theories do not realize that they are approaching sustainability from a theoretical perspective. The case study shows that while many theories might sound plausible in the abstract, they fail when applied to practical problems. The reason for this divergence between theory and praxis can largely be traced to the fact that hardly any of the theories consider emic perspectives. That is to say they neglect to integrate stakeholders' understandings on sustainability. The result of these abstract approaches is that

natural and social scientists develop their theories in a top-down manner without communication with affected stakeholders. Most authors of theories on sustainability assume that they know the answers based on their academic knowledge. However, the case study shows that such top-down approaches fail to meet stakeholders at their level thus missing the chance of theories being informed by stakeholders' perspectives and local knowledge on sustainability. Even the so-called holistic approaches do not automatically include emic perspectives. Empowerment and participation should ensure the integration of local perspectives and knowledge but the case study shows that participation can occur without a true exchange of knowledge between planners and stakeholders. The holistic approaches to sustainability therefore need to be expanded to include participation in a way that allows exchange between etic and emic perspectives so that the theoretical approaches can be informed by stakeholders' experiences and knowledge.

TIDE also makes the mistake of neglecting emic perspectives. The organization's failure to integrate emic perspectives of stakeholders results in miscommunication that prevents stakeholders from understanding the actual purpose of the Port Honduras Marine Reserve and imposes conservation strategies in a top-down manner. The main emic perspective that TIDE fails to integrate is the fishermen's focus on economy. For the fishermen, sustainability means maintaining or increasing their current income. They are concerned that restrictions on fishing gear and areas will decrease their income and thus economic viability.

Although the fishermen's concerns center mostly around meeting their economic needs, emic perspectives in regard to environmental sustainability also exist among the fishermen. First of all, many fishermen are aware that over-exploitation will result in depletion of the natural marine resource base. Besides considering fishing restrictions as a means to an end to secure economic needs, many fishermen also appreciate the intrinsic value of the environment. This can be seen in the existing stewardship and peer monitoring system. In practical terms though, in many cases, imminent economic needs, or even desires, will cause

fishermen to put economic considerations first, which can be seen in the continued use of gill nets and long lines.

TIDE neglects to integrate the fishermen's perspectives both regarding the marine environment and economic needs. TIDE does not see the fishermen as stewards but as the exploiters of the marine environment. In addition, TIDE's attempt to involve fishermen in tourism, shows that they do not truly respond to the fishermen's perspectives on economic viability, because given the current small number of tourists in Toledo, the organization is asking the fishermen to engage in something that is not economically sustainable and thus not in their self-interest. This situation shows that TIDE almost uncompromisingly holds on to its own etic, environmentally based ideology of sustainability. The emic and the etic do not meet in the Port Honduras case study, thus moving further away from sustainability instead of closer.

TIDE's partner organization, the Nature Conservancy, is also introducing its own etic approach to sustainability in Toledo, which is primarily conservation focused. Both TIDE and the Nature Conservancy give the appearance of involving fishermen's knowledge, but in most cases they follow their own strategies regardless of stakeholders' needs and concerns. The Nature Conservancy, which is instrumental in the promotion tourism as environmentally sustainable, in this instance engages in a one way transfer of knowledge.

6.1.1.3. Integrative Approach

My integrative theory is derived from whole systems approaches to integrate environmental, economic, socio-cultural and administrative political considerations. As the review of the whole systems approaches has demonstrated, a successful approach to sustainable development will consider all relevant factors. Environmental considerations are necessary to protect the marine ecosystem; economic considerations are necessary to ensure acceptable living standards for resource users and thus in turn protect the natural resource base; socio-cultural

considerations are required to generate the necessary public support for the Reserve; and political administrative considerations are necessary to create an effective framework for implementing the regulations of the Reserve, thus ensuring its effectiveness.

As I illustrated in the discussion on the existing theories on sustainability, holistic approaches are in fact not holistic if they do not integrate emic perspectives on sustainability. It is essential that theories be informed by local knowledge and experience related to sustainability, if they are to be truly holistic. I will therefore add the inclusion of emic perspectives through a two-way communication between planners and stakeholders to my integrative theory

Another aspect the case study brings to attention is that even if TIDE took into account all these elements, its internal problems would still obstruct management for sustainability. A decisive component to add to the integrative theory therefore is an effective management style for the organization itself and for its conservation strategies. Without sound management even an integrative whole systems approach is bound to fail.

After revising my integrative theory in light of the findings, I conclude that my initial theory lacked both the managerial component and the inclusion of emic perspective on sustainability. The integrative theory therefore now includes considerations for the environment, the economy, the socio-cultural context, and the political administrative framework. At the same time, theoreticians and planners need to base their approaches on theories that are informed by emic perspectives. Last but not least all elements need to be integrated under careful, well thought out planning.

6.1.2. Integrated Coastal Management, Marine Protected Areas and Fisheries Management

6.1.2.1. Integrated Coastal Management and Marine Protected Areas

The case study illustrates that holistic management is necessary if sustainability of the marine ecosystem specifically and overall sustainability is to be achieved. The findings support those approaches in the literature that advocate a holistic approach to Marine Protected Area management. The case study shows the relevance of Vallega's (1999) call for planning and management that addresses cross-cutting issues and sectors and coordination of planning between inter-sector and inter-rank decision-making centers. Many of the problems TIDE is experiencing with stakeholders stem from the fact that the organization is not successfully combining the single sector concern of conservation with resource users' concerns for a continued secure income. The results from the case study also emphasize the importance of coordination between decision-making centers. There are at least three main decision-making centers for the Reserve: TIDE, the Toledo Fisheries Department, and implicitly the Honduran and Guatemalan authorities responsible for foreign relations and fisheries management. Due to lack of coordination between these centers, TIDE is currently at an impasse concerning the problem of illegal fishing by foreigners, which undermines the effectiveness of the Reserve in a substantial way. Holistic management for Marine Protected Areas therefore needs to address issues as interrelated and not as separate concerns. This in turn will lead to the integration of all relevant decision-making centers related to Marine Protected Areas.

6.1.2.2. Fisheries Management

The regulations of the Port Honduras Marine Reserve are mainly based on gear restrictions and the closing of the comparatively small conservation and preservation area to extractive fishing. The national Fisheries Department regulations, which also apply to the Reserve, include closed seasons for lobster and conch and minimum catch size for these species.

The fact that the Port Honduras area is rich in nursery areas and spawning aggregations calls for regulations that protect both these areas themselves, and also the young fish. Iversen (1996) supports the indirect method of closed areas as an effective way of protecting young fish. He also supports the advantage of closed seasons for certain species also to protect the young offspring of these species. Finally, direct regulation of establishing minimum size limits also protects young marine animals (Iversen 1996). The fact that the co-ops all over in Belize have a reputation for strictly adhering to these limits when buying fish, lobster or conch supports Iversen's (1996: 287) claim that "this regulation is generally accepted by fishermen if desirable market sizes are above the minimum size limit".

The planners of the Reserve introduced gear restriction in order to reverse the threat of fisheries depletion through overfishing, which is in line with the common rationale behind gear restrictions (Iversen 1996). The resistance of some fishermen to these restrictions finds resonance in Iversen's (1996: 290) observation that "gear restrictions ... are generally unacceptable to fishermen because (they make) their job... harder".

For most of the regulations applied to the Reserve, biological data on fisheries stocks, spawning areas, and nurseries are necessary. The restrictions in the Reserve were made based on assumptions that they would cause regeneration of fish species. The consensus in the fisheries literature (Iversen 1996, Hilborn and Walters 1992) shows that stock assessments are necessary to make the particular management strategies as successful as possible.

6.1.3. Non-Governmental Organizations

The theory of the comparative advantages of NGOs is based on the assumption that mainstream agencies of development, such as governments and large international organizations have not been successful in achieving sustainable development. In the case study of Toledo, TIDE emerges primarily as a negative example of an NGO involved in sustainability, not fulfilling the alleged comparative advantages. TIDE's proceeding in the planning and implementation of the Reserve in fact shows that the organization has been unsuccessful in pursuing true participation in the sense of Midgley's (1986, in: Carroll 1992: 16) definition of "direct face-to-face involvement of citizens... in decisions that affect their own welfare" since most fishermen do not feel that they are sufficiently involved in the planning and management of the Reserve.

TIDE also fails to take into account another crucial component of participatory management, which is the consideration of local practices and customs and the creation of a dialogue between the planners and the affected stakeholders (Carroll 1992). Although TIDE's predecessor, the Center for Environmental Studies in Belize, and TIDE itself tried to involve the fishermen in the planning process in the past, their current education efforts occur in a one way direction. Instead of learning about the fishermen's perspectives on sustainability, TIDE is attempting to impose their environmentally based ideology of sustainability on the fishermen, thus inadvertently engaging in a top-down relationship with stakeholders. TIDE has the potential of being a grassroots organization, due to its connectedness through its local staff to the local community members, and the mechanism of advisory committees and board of directors. However, as the data shows, TIDE does not use these connections in a way that promotes true stakeholder participation.

The case study shows that the literature, which reviews NGOs in a predominantly positive light neglects considering relations between different NGOs. In Toledo, the rivalry and misunderstandings among the leading NGOs in the sector of environment and ecotourism seriously limit the potential of the NGOs individually and obstructs cooperation. Even if one NGO on its own may realize

comparative advantages, lack of coordination and goodwill with other organizations can undermine these comparative advantages.

The fact that TIDE hardly fulfills any of the comparative advantages does not mean that supporters of NGOs necessarily are wrong with this claim. On the contrary, the case study shows that the potential for comparative advantages exists, but TIDE is not realizing it. This situation brings a caveat to the theories that uncritically believe in the advantages of NGOs. The case study shows that internal problems, the lack of a holistic approach to sustainability, and failure to integrate stakeholders' emic perspectives can seriously undermine the success of an NGO in achieving sustainable development.

6.2. Summary of General Implications of Data

TIDE's failure to realize the comparative advantages of NGOs and to manage successfully for sustainable development can largely be traced to the fact that TIDE's approach is not holistic. It fails to integrate all relevant factors which are vital to achieving sustainability.

TIDE's motive for establishing the Reserve was mainly related to conservation. The management plan also reflects this focus and the regulations of the Reserve promote benefits mainly for the marine environment. However, even in regards to environmental protection, TIDE has not addressed all the issues in the Port Honduras area. The executive director's neglect to confront the problem of the oil lease and the private lease of cayes in the Reserve are two examples of TIDE's failure to deal with important environmental issues. Also the legal limbo created by the disagreement over the Memorandum of Understanding between TIDE and the government that prevents the rangers from taking action against illegal foreign fishermen diminishes the full effectiveness of the Reserve in terms of environmental protection. The illegal fishermen both prevent the Reserve's full environmental benefits and also steal the Reserve's economic benefits from the local fishermen.

When one compares the numbers of local fishermen who fish with nets to the number of estimated illegal foreign fishermen, the significance of illegal foreign fishermen emerges. At the time of Heyman's survey (1996) only 12 local fishermen were fishing with nets, and in 2000 a fisherman estimated 30 as the number of fishermen using nets. Heyman's survey estimated that 50 per cent of the people fishing in Port Honduras were illegal foreigners and in 2000 the Port Honduras ranger made the same estimation. This would mean that in addition to the 178 local fishermen, there would be another 178 illegal foreign fishermen. The comparison of these numbers shows that the illegal foreign fishermen are a much more significant problem than the local fishermen fishing with nets.

TIDE's attempt to involve fishermen in tourism in large numbers although this is presently not a viable economic alternative is evidence of that the organization is ignoring the economic realities of Toledo. The analysis of Heyman's (1996) comparison of income of commercial fishermen and fly-fishing guides shows that due to the low number of tourists in Toledo, the income goal for fly-fishing guides cannot currently be met. TIDE also failed to provide funds for transaction costs that would help the fishermen make the transition from commercial fishing to fly fishing guides. The list of alternatives to fishing in the *Voice of the Southern Fishermen of Southern Belize* (TIDE 1998) also shows that TIDE has not seriously considered income generating alternatives for fishermen, since two out of six alternative actually still are based on fish extraction (cf. p. 84). TIDE therefore is not fulfilling the promise of its mission statement of combining preservation with sustainable high-quality livelihoods for local residents.

TIDE has failed to integrate the socio-cultural context largely because the organization merely promotes its ideology of environmental sustainability in a top-down way without integrating the emic perspective of stakeholders on sustainability. TIDE's own perspective of sustainability is based mainly on concerns for the environment. On the values continuum for sustainability TIDE falls on the ecocentric side. Even though the mission statement says that TIDE is seeking to balance environmental and economic considerations, TIDE's practices and projects are tilted toward environmental protection. The fact that there had

been no community meetings until eight months after the establishment of the Reserve emphasizes that community involvement is not one of TIDE's top priorities.

TIDE's understanding of even the organization's own concept of sustainability remains ill-defined and in some instances contradictory as the contrast between the mission statement and the failure to secure stakeholders' economic needs shows. TIDE's own lack of understanding of sustainability undermines the communication efforts with stakeholder communities. TIDE's communication with the fishermen is fundamentally flawed because it fails to emphasize the benefits of the Reserve to the fishermen. Although the staff members refer to the goal of fisheries regeneration in community meetings, this is only done in passing, and the Reserve's statement of objective does not specifically mention this goal.

TIDE's disregard for community perspectives contributes to its negative image. The unfulfilled promises TIDE has made or is perceived to have made to the fishermen and communities contribute to the organization's bad reputation in the stakeholder communities. The lack of financial and overall transparency is another reason why most community members are suspicious and resentful of TIDE.

Another aspect that falls under the socio-cultural context TIDE fails to address successfully is the rivalry between the leading Toledo NGOs. The joint meetings with the other organizations show that TIDE is trying to create goodwill. However, in many instances, the management still chooses to ignore criticism from the other NGOs, which undermines TIDE's overall success and increases tension between the Toledo NGOs.

In regard to the political administrative situation, TIDE's refusal to sign the Memorandum of Understanding, and thus create an effective framework for implementation and enforcement of the Reserve's regulation. TIDE has so far also not undertaken the vital step of giving incentives to Guatemalan and Honduran authorities to control the problem of residents of these countries fishing illegally in the Reserve.

Finally, TIDE's management problems not only hamper the organization's internal functioning, but also its effectiveness in carrying out its projects to

preserve the environment. All in all, TIDE fails to fully achieve its primary goal of environmental protection by cutting out those areas that are inevitably linked to overall sustainability in Toledo. As illustrated above, the organization also does not fulfill its goals related to the economy and stakeholder involvement.

7. Recommendations

7.1. Improving Internal Management

In order to ensure effective functioning, it is necessary for TIDE's management to become aware of and react to its internal problems which include lack of communication between the two managers themselves and between the management and the staff, spontaneous planning, and high staff turnover. TIDE's two managers could solve their communication problem by making communication a component of their management style. The findings showed that informal communication between the two managers is not a solution. This being the case, it would be helpful for the executive director and the operations manager to allocate a certain time over regular intervals, where they both update each other on plans and projects. To optimize communication, such meetings should probably be held weekly.

A similar approach could help solve the communication problem between the management and the staff. The management could also update the staff on current projects in weekly reporting sessions, which might help create a stronger sense of team effort with everyone. By integrating staff input in such meetings, TIDE's management would also move one step closer to a grassroots approach not only in terms of its stakeholders, but also its staff. TIDE's management should be aware that two-way communication is the key aspect to successful management.

Although flexibility is an important element to integrate into planning, TIDE's management is too spontaneous. Improved communication between TIDE's two managers and careful consideration of potential projects would help prevent frequent changes of plans. Given the enthusiastic nature of the executive director, it would be helpful if he avoided jumping onto projects spontaneously. An evaluation session together with the operations manager and the staff would help evaluate which projects are worthwhile. This determination in turn would prevent TIDE

having to give up projects when it has only just started on them. A yearly management plan might also improve planning. With such long-term planning, however, it is important to integrate flexibility. All in all TIDE should try to find a balance between more effective guidelines in planning and flexible changes to already designed plans.

Overall improvement of TIDE's internal management style could help prevent staff turnover in that it would minimize the staff members' frustration and thus give them less reason to resign. Although TIDE cannot ultimately prevent staff from leaving, the management can ensure smoother functioning through improved human resource management. For instance, if the managers know that a staff member is about to resign, it would be important to determine whether this member should be replaced, and if so, to take early steps for finding a new person. The management should also avoid switching staff members spontaneously from one position to another. Again, when changes do occur, it is vital that all staff members be informed. Communication and improved planning in general will also help TIDE in regard to its staff management.

7.2. Reversing the Negative Image

Five main steps can help TIDE improve its negative image in the Toledo communities. The first is to find a way of being financially transparent to the public, second the organization needs to follow up on promises made in the past. As a way of responding to criticism, it is important to pinpoint the exact nature of criticism and respond to specific challenges. TIDE should also distinguish between justified and unjustified criticism and find a balance between integrating criticism but not being thrown off track. Finally, it would be helpful for TIDE to find a way of reducing the rivalry and resentment of other NGOs in Toledo.

To reverse its image of a rich NGO that is using money for its own benefits, it is essential for TIDE to find a method of being financially transparent. One way of reacting to the communities' resentment would be to avoid unnecessary display of

wealth. This could include for instance avoiding making expensive trips to Guatemala or Mexico to buy supplies for festivities. Another way of showing more openly how TIDE uses donor moneys would be to occasionally attract funding for projects that will directly and visibly benefit the communities. The already existing free youth camp would be an example of such a project. Other possibilities would be to provide free fly-fishing gear to the people TIDE has trained as tour guides. Even if TIDE is not willing to publish their financial records it can still achieve financial transparency in other ways. For instance, the organization could name the donor agencies and grants and specify what projects their money is going to be used for, for instance state that "organization X gave us this grant, we will use it to buy the buoys for Port Honduras Marine Reserve".

A substantial amount of resentment against TIDE among the fishermen stems from the fact that they believe the organization made promises which it did not keep. TIDE would have to follow up on the promises made in the past as soon as possible. This would include buying nets from the fishermen and providing equipment for sustainable fishing methods. In instances where community members perceive TIDE to have made promises when this is not the case, TIDE has to address these misunderstandings. Some community members' claim that the organization promised the communities a million dollars would fall under such misunderstandings.

In regard to the widespread criticism of TIDE in the Toledo communities, it would be important for TIDE to react to specific challenges. TIDE should avoid broad statements that advertise the organization because they are likely to backfire if the public does not believe in them. Instead, TIDE should establish a dialogue with its opponents. By asking them to bring forward their specific points of concern, TIDE could react to the criticism directly. In some instances, criticism might be justified, in which case it could be helpful for TIDE to admit to mistakes. This would be more convincing than covering up mistakes that are known to the public and cause the other parties to recognize that they are not perfect either.

Last but not least, TIDE should take care to distinguish between unjustified and justified criticism. Even though it is essential for TIDE's success to take

criticism seriously, the organization should also avoid overreacting to every criticism. Distinguishing between justified and unjustified criticism, TIDE could adjust its strategies in a constructive manner but yet avoid losing its focus.

7.3. Improving Relations with Other Toledo NGOs

In regards to its relationship with other NGOs in Toledo transparency in an overall sense would be important. Many of the misunderstandings among the leading Toledo NGOs result from the fact that the organizations do not inform each other about their activities. One way of solving this problem would be to create a mechanism of information sharing. This could be done in the form of brief monthly or even quarterly newsletters in which the organizations describe their current main projects. Another way would be to have quarterly meetings in which the organizations report to each other on their activities. This method would also help the different NGOs to determine who is responsible for what area so as to avoid overlap and interference with each other's projects.

7.4. Creating an Effective Administrative Political Framework for the Reserve

One of the most important steps to ensuring the Reserve's success is creating an effective administrative political framework. It is essential that TIDE create a working relationship both with the responsible government branches in Belize and also in Guatemala and Honduras. Concerning the government branches in Belize, TIDE would benefit by eliminating the ambiguity created by the unsigned Memorandum of Understanding. In order for the rangers to have enforcement authority, it is essential that TIDE come to an understanding with the government. The best solution is for TIDE to compromise and sign the Memorandum of Understanding. However, TIDE could in turn work out a compromise with the

government. For instance, a solution could be approached where TIDE allows the government access to scrutinize its finances, if the government refrains from charging TIDE any fees. This step also would help solve TIDE's overall problem of financial transparency.

The problem of illegal foreign fishermen from Guatemala and Honduras is the most significant factor that undermines the Reserve's effectiveness. To abate this problem, the responsible Guatemalan and Honduran authorities would have to be contacted, which would include the branches of Fisheries, Customs and Immigrations. Establishing cooperation between these parallel branches both in Guatemala and Honduras, and in Belize, could help addressing the problem of illegal foreign fishing in its origins and prevent foreigners from actually entering the Port Honduras Marine Reserve. The lobbying across different national and international government could be a place for The Nature Conservancy to step in. The international U.S. based organization would have the ability to reach across borders and may also be considered more impartial than TIDE by the Guatemalan and Honduran authorities. The Nature Conservancy's broad experience in dealing with international conservation issues would be an advantage for the lobbying that is necessary to coordinate agreements between the Belizean authorities, TIDE, and the Guatemalan and Honduran authorities. TIDE itself could address illegal foreign fishing by creating solidarity with the local fishermen. By emphasizing that TIDE wants to ensure that the locals are the beneficiaries of the Reserve, TIDE is likely to gain more support from the fishermen. Immediate and effective enforcement will at the same time help reestablish TIDE's credibility and help reverse the negative public image.

Ideally, TIDE would have to reach an agreement with the Toledo Area Representative to prevent him from granting Belizean nationality to foreigners without legal justification. Solving the current ambiguities with Belizean government and gaining control over the problem of illegal fishing by foreigners are both essential components for establishing an effective political administrative framework which will allow for overall sustainability in the Port Honduras Marine Reserve.

7.5. Ensuring Stakeholders' Economic Security

TIDE's aim is to give incentives to fishermen to extract less resources in the Reserve. The review of successful Marine Protected Areas shows fisheries increase within a reserve's boundaries. Given the fact that the Port Honduras Marine Reserve can act as a replenishment pool for the fisheries within the Reserve, TIDE could encourage fishermen to increase their fishing activities outside of the Reserve. This strategy would allow the Reserve to regenerate its fisheries and at the same time enable the fishermen to maintain a fairly steady level of catch.

So far TIDE has been focusing on ecotourism as economic alternative to unsustainable fishing. However, the findings show that engaging full-time in tourism at the present is not a viable alternative for the Toledo fishermen. A solution to this problem could be for TIDE to promote tourism as a part-time occupation in the context of many fishermen's multiple occupations. This way, more fishermen could benefit from less tourists. Because their profit would be smaller, a part-time focus on tourism would also imply expanding other part-time alternative income-generating activities to fishing. One possibility would be for the fishermen to increase their activities in the service sector or provide manual labor, such as construction and masonry, for which it is relatively easy to find temporary contracts. In order for TIDE to maintain or restore credibility, it is essential that the organization find viable alternatives to unsustainable fishing.

With its current sole emphasis on tourism TIDE also fails to realize the potential negative effects of increased tourism. If the number of tourists visiting the Reserve rises to the extent that fishermen can really give up fishing and make more income on tourism, the increased tourism is bound to have a negative effect on the Reserve environmentally. There would be several boats a day anchoring at the larger cayes in the Reserve and the quality of the water and the corals around the cayes would degrade even further through human activities such as snorkeling and swimming. If TIDE is not careful, tourism could have the same or even a worse negative effect on the Reserve than the past activities of fishermen. One way to avoid the negative

effect of tourism on the Reserve would be to determine a daily quota of tourists that can visit the Reserve. Such an arrangement would have to be carefully planned with tour guides and boat charter services in order to ensure fair distribution of tourists to everyone engaged in the tourism business.

7.6. Educating about the Reserve's Economic Benefits

In its education efforts, TIDE has so far neglected to show the fishermen that the Reserve is in their interest. If the main purpose of the Reserve is to create an intact ecosystem, this should also include the regeneration of fisheries in the area. By emphasizing this point, TIDE could make the fishermen understand that environmental protection will ultimately result in economic benefits. TIDE would have a very convincing case if it strengthened this argument with case studies of successful marine reserves. These examples should be an essential part of TIDE's education efforts about the Port Honduras Marine Reserve.

As a way of demonstrating the success of the Reserve over time, scientific monitoring is necessary. By showing the fishermen positive results in terms of size and number of fish stocks over time and in comparison to areas outside of the Reserve, TIDE would have additional strong evidence for the success of the Port Honduras Marine Reserve in particular which in turn would help build support among the fishermen. Since The Nature Conservancy has a high level of expertise and experience in management of marine protected areas, The Nature Conservancy could focus on working together with TIDE in education efforts that are based on successful example of marine protected areas.

7.7. Averting Environmental Threats to the Reserve

Although TIDE's strongest considerations are for the environment, the organization has yet to address remaining issues to ensure environmental and overall sustainability of the Port Honduras Marine Reserve. These issues include the imminent development threats to the Reserve, such as the lease to the oil-company for drilling in the Reserve, the leases of cayes to private owners, logging on adjacent lands, and increased agriculture and aquaculture in the Monkey River watershed.

Concerning the lease to the oil-company, TIDE would have to take steps to reverse this lease. This would involve contacting the government branch that is responsible for giving out the lease. TIDE could organize protests against the lease, for instance in form of signatures, and use community back-up to increase pressure on the government to withdraw the oil lease. There is also a possibility for TIDE to confront the responsible government branch with the management plan for the Reserve. This plan lays out the incompatibility of environmentally unsafe activities in the Reserve, such as oil-drilling. Referring to the management plan would be a strong weapon for TIDE when approaching the government, since the plan was approved and revised by the Department of Fisheries.

TIDE could pursue a similar tactic in addressing the lease of cayes to private owners. It is essential for the management to overcome their hesitation to confront the responsible government branch on this issue. Although it is in TIDE's interest to maintain a good relationship with the government, this consideration should not compromise TIDE's strategies where the essential effectiveness of the Reserve is concerned.

As for logging on adjacent lands to the Reserve, TIDE would have to confront the Scandinavian large-scale developer who is largely responsible for these activities. TIDE again could organize community protest against the logging. The organization could also make a case of the detrimental effect of the logging on the Reserve and then take its findings to the Department of Environment. If the

developer's environmental impact statement showed the detrimental effects, the Department of Environment would have to take action. TIDE could put pressure on the Department of Environment to actually do so in practice. TIDE could pursue a similar tactic concerning the imminent increase of agriculture and aquaculture activities in the Monkey River watershed. If the Reserve is to be effective, TIDE cannot ignore these substantial environmental threats.

7.8. Integrating of Emic Perspectives on Sustainability

Last but not least, another component that is absolutely essential for holistic management in terms of the socio-cultural context is for TIDE to integrate emic perspectives in its approach to sustainability. The data shows that the fishermen have their own understandings of sustainability and that many of them actually consider themselves stewards of the environment. TIDE needs to make sure that its approach to sustainability is based on a two-way communication. The best way to begin a dialogue on sustainability is by asking the fishermen to express their views and then building on the existing emic understandings of sustainability. Such a two-way exchange would avoid TIDE's present top-down approach and be much more effective in terms of generating stakeholder support. One method of integrating emic perspectives would be to conduct workshops on sustainability in which stakeholders express their views. This would allow TIDE to learn about emic perspectives. If stakeholders realize that TIDE wants to learn from them, instead of merely imposing its own ideas, they are much more likely to cooperate. Through integrating stakeholder perspectives TIDE can realize the potential of truly being a grassroots organization. This integration could also help TIDE develop a more solid understanding of the organization's own perspectives on sustainability. The integration of emic perspectives on sustainability would thus strengthen TIDE's approach to sustainability by making it comprehensive.

7.9. Develop Holistic Approach to Sustainability

All in all, it is vital for TIDE to review the organization's approach to sustainability. The existing contradiction between TIDE's mission statement and strategies for creating sustainability need to be removed. One way of doing this would be to extend the mission to include a holistic definition of sustainable development that integrates environmental considerations, economic considerations, the socio-cultural context of Toledo, and the political administrative framework, a functional internal management style, and at the same time considers emic perspective on sustainability. By following the recommendations above TIDE would be able to realize this holistic approach to sustainability in practical terms. Each of the recommendations can be categorized according to the elements of the integrative theory. Improving TIDE's internal management falls under the managerial component. Reversing the negative image and improving relations with other NGOs are part of the socio-cultural component. The consideration of emic perspectives also falls under the socio-cultural component. Creating a sound legal framework for the Reserve establishes the necessary political and administrative conditions. Through ensuring stakeholders' economic security and emphasizing the Reserve's economic benefits, TIDE will address the economic aspect. The abatement of environmental threats falls under environmental considerations.

Finally, after clarifying the organization's approach to sustainability, TIDE would improve communication by avoiding the use of contradictory or vague terminology with stakeholders. In keeping with the integration of emic perspectives, TIDE might even want to refrain from using the term 'sustainability' in communication with stakeholders, but rather describe the concept in the same terms as the stakeholders. When TIDE does use terminology related to sustainability, it is essential to provide unambiguous definitions of what the organization means by these terms. A combination of a reviewed holistic mission statement and the integration of emic perspectives should help TIDE move away from abstract catch words to concrete strategies for overall sustainability.

8. Outlook

The findings show that TIDE should to extend its approach to sustainability in a holistic way that includes environmental considerations, economic considerations, the socio-cultural context, and the political administrative framework. The key to TIDE's success in achieving overall sustainability is to include stakeholder emic perspectives. The holistic approach and the integration of emic perspectives then need to be complemented by a functional internal management style. All these factors will bring TIDE closer to achieving overall sustainability. However, it is unlikely that TIDE, even under consideration of these changes, will reach perfection.

So what are the final answers to the leading questions of this thesis? Will the integrative approach result in sustainability, and can NGOs function as successful agents for such management of sustainability? The findings show that even if the answer to both of these questions is yes in theory, the fulfillment of both these goals will be compromised by human shortcomings. Both the idea of NGOs and integrative sustainability are closely related to the precondition of a democratic society. Democracy allows for the existence of non-governmental organizations, and the integrative theory emphasizes a balanced participatory approach between managers and stakeholders. I would like to conclude this thesis with an adaptation of Winston Churchill's famous quote on democracy: "Many forms of Government have been tried, and will be tried in this world of sin and woe. No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of Government except all those others that have been tried from time to time" (Churchill 1947). Applied to the integrative sustainability approach and the role of non-governmental organizations as agents of sustainability, this quote captures the findings of this thesis. The integrative approach is not perfect, but compared to all other approaches that emphasize single elements, it has the most potential for success. NGOs are also not perfect, but they can maximize their

potential if they collaborate with other agencies. Neither non-governmental organizations nor other institutions of democracy are perfect, but again in cooperation they have the highest potential for perfection. Churchill's reference to "sin and woe" would then represent human shortcomings that compromise the potential of both the integrative approach and NGOs. Let us hope that NGOs and stakeholders can overcome as much of this sin and woe as possible and step by step move closer to the integrative approach of sustainability.

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