



*Opportunities and threats to
local sustainable development:
Introducing ecotourism to Venado Island,
Costa Rica*

Prepared by

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Executive Summary

The growing global tourism industry is providing opportunities for economic development in the most remote locations. It is widely recognized this industry is amongst the largest in the world and is on a pace to double in size over the next decade. The number of travelers eager to escape the masses in search of pristine unexplored nature and distinct cultures has triggered an increasing trend for ecotourism within the tourism industry. Many developing countries with unique nature are keen on promoting this type of development, to stimulate economic opportunities with the intent to conserve their natural environment to attract tourist, rather than removing it for energy, agriculture or ranching. Still this development in remote areas comes at a cost, as new cultures are introduced to the local societies and consumption patterns change.

The definition of ecotourism incorporates *travel to natural areas*, which has typically involved the trekking of new paths of development into rural areas and communities. Unfortunately the rest of the definition... *conserving the natural environment and improving the welfare of the local communities* is much more challenging to hold up, and somewhat of a gray area. Undeveloped rural communities often invite and welcome the development for economic reasons but they are not prepared to manage the growth or impacts that would threaten their ecological and social environment.

The focus of this study is to assess opportunities and threats to local sustainability from introducing ecotourism to the rural community of Venado Island. This island is the subject of the case study due to the economic situation and the interests to introduce ecotourism. A multidisciplinary approach was incorporated in the data collection and writing of this thesis, therefore environmental, social and economic aspects are referred to and researched throughout the paper. Initially a literature review was performed concerning three aspects: sustainable development, rural community development and ecotourism to establish the theoretical framework for the paper and to identify possible actors, factors, and stakeholders involved. The literature is complimented with the data collected during the fieldwork in Costa Rica, primarily consisting of interviews with internal and external stakeholders related to Venado Island. Supportive comparative data was collected from the archipelago of Bocas del Toro, Panama since a recent introduction of ecotourism there could foreshadow similar effects of ecotourism on Venado Island.

A system incorporating environmental, social, and economic aspects on Venado is designed to illustrate possible impact scenarios of ecotourism. The system together with a SWOT analysis of introducing ecotourism to Venado Island creates the foundation for the analysis and discussion. The encompassing themes are Venado's infrastructure carrying capacity, participation, empowerment, and competition. Strategies to avoid potential negative impacts are suggested throughout the analysis and discussion.

The findings from the analysis conclude that a democracy institution on the island ought to be formed, which could enable the locals to capitalize on ecotourism and avoid similar mistakes made in Bocas del Toro. Social fragmentation may lead to uncontrolled development. Investors may easily exploit the island by purchasing land from willing residents. The majority of potential impacts on local sustainable development will come from the development of the community and increasing consumption patterns. Additional pressure to the island's basic infrastructure plus limited profiteers will have delayed effects on the environment and society. Necessary infrastructure improvements would include the zoning of the land and capacity building for ecotourism employment and other opportunities.

In short, introducing ecotourism could generate economic opportunities for the residents of Venado Island, but the community ought to participate in the management of the ecotourism economy to assure investment into the local infrastructure and people. This may be accomplished with a democracy to represent the locals' concerns and needs. Furthermore, community involvement could progress into a bottom up approach for the implementation of potential sustainable policies to control and monitor the development on the island.

List of contents

	page
ACKNOWLEDGEMENTS.....	II
EXECUTIVE SUMMARY.....	III
LIST OF CONTENTS.....	IV
LIST OF FIGURES.....	V
LIST OF TABLES	V
1 INTRODUCTION	1
1.1 PROBLEM DEFINITION AND PURPOSE	1
1.2 SCOPE AND LIMITATIONS.....	2
1.3 DEFINITIONS.....	3
1.4 STRUCTURE OF THE THESIS.....	3
2 METHODOLOGY	4
2.1 GATHERING OF DATA	4
2.2 SELECTION	5
2.3 ADAPTATION OF DATA	6
2.4 VALIDITY AND RELIABILITY	6
3 CONCEPTS OF SUSTAINABILITY AND DEVELOPMENT.....	7
3.1 SUSTAINABLE DEVELOPMENT.....	7
3.1.1 <i>Why a vague definition?</i>	7
3.1.2 <i>Protection and carrying capacity: Environmental aspects</i>	8
3.1.3 <i>Empowerment and poverty problems: Social aspects</i>	8
3.1.4 <i>Economic liability to the environment: Economic aspects</i>	9
3.2 POSSIBLE IMPACTS FROM TOURISM	9
3.2.1 <i>Environmental aspects</i>	9
3.2.2 <i>Social aspects</i>	10
3.2.3 <i>Economic aspects</i>	11
3.3 SUSTAINABLE TOURISM.....	11
3.4 ECOTOURISM.....	13
3.4.1 <i>Defining ecotourism: What it is and what it's not</i>	13
3.4.2 <i>Rural community development objectives</i>	14
3.4.3 <i>Island tourism</i>	14
3.4.4 <i>Fundamentals for ecotourism development</i>	15
4 EMPIRICAL FINDINGS	18
4.1 VENADO ISLAND.....	18
4.1.1 <i>Environmental aspects</i>	19
4.1.2 <i>Social aspects</i>	19
4.1.3 <i>Economic aspects</i>	22
4.1.4 <i>Development regulations and implementation</i>	24
4.1.5 <i>Plans for tourism on Venado Island</i>	24
4.2 BOCAS DEL TORO	25
4.2.1 <i>Environmental aspects</i>	26
4.2.2 <i>Social aspects</i>	27
4.2.3 <i>Economic aspects</i>	27
4.3 COMPARISON.....	27
5 ANALYSIS AND DISCUSSION	28
5.1 SYSTEM OF POTENTIAL ECOTOURISM IMPACTS	28

5.1.1	Definitions of the system's variables.....	28
5.1.2	Driving forces between the variables	29
5.2	SWOT ANALYSIS.....	30
5.3	EXCEEDING THE INFRASTRUCTURE'S CARRYING CAPACITY	32
5.3.1	Identifying potentials for sustainable development	33
5.3.2	Land management: problems and potentials	34
5.3.3	Water scarcity.....	35
5.3.4	"Bridging" the island.....	35
5.4	PARTICIPATION.....	35
5.4.1	Social organization	36
5.4.2	Losing the harmony of Venado.....	37
5.4.3	Precautionary planning.....	37
5.5	ECONOMIC GROWTH AND OPPORTUNITIES	37
5.5.1	Land rights and power.....	38
5.5.2	Long run competition	39
5.6	MANAGING THE ECOTOURISM ECONOMY FOR SUSTAINABILITY	39
6	CONCLUSIONS AND RECOMMENDATIONS	41
6.1	RECOMMENDATIONS	41
6.2	FURTHER RESEARCH.....	42
	REFERENCES.....	43
	BOOKS AND REPORTS	43
	INTERNET SITES.....	45
	INTERVIEWS AND PERSONAL COMMUNICATION	46
	ACRONYMS AND ABBREVIATIONS.....	46
	APPENDIX: SUMMARY CHART.....	47

List of figures

	page
Figure 1-1: Map of Costa Rica and Vendo Island	2
Figure 2-1: Internal and external stakeholders to Venado Island	6
Figure 3-1: The three rings of sustainable Development	8
Figure 3-2: Possible approaches to sustainable tourism	12
Figure 3-3: Ecotourism as sustainable tourism strategies and sustainable development	12
Figure 3-4: Ecotourism as a subset of sustainable tourism	14
Figure 3-5: Simplified formula for rural development	14
Figure 4-1: Map of Venado Island in the Gulf of Nicoya	18
Figure 4-2: Population distribution and living areas of La Florida and Jicaró	20
Figure 4-3: Social sub-divisions of Venado Island's society	22
Figure 4-4: CLD, driving forces behind the declining fish stocks	23
Figure 4-5: Map of Bocas del Toro, Panama: Colon Island and Bastimentos Island	25
Figure 5-1: CLD, potential impacts of ecotourism	28
Figure 5-2: CLD, pre-ecotourism infrastructure system	32
Figure 5-3: CLD, infrastructure system including ecotourism development	33
Figure 5-4: Social organization of Venado Island	36
Figure 5-5: Three aspects of sustainability tied together by infrastructure	40

List of tables

	page
Table 3-1: Doxey's irritation index	10
Table 4-1: Profile of three organizations interested in developing ecotourism	25
Table 4-2: Summary comparison of Venado Island and Bocas del Toro	27
Table 5-1: SWOT analysis of ecotourism on Venado Island	30

1 Introduction

Many developing countries have promoted nature-based tourism to build up their economies, while regarding it as sustainable development and a tool for nature conservation (Hawkins & Khan, 1998). Still there are many adverse effects of tourism on the host destination that are over looked due to potential economic growth (Mowforth & Munt, 1998). Furthermore, tourism is one of the largest industries consisting of 4.4% of the 1999 global GDP and growing rapidly when measured by gross output, value added, capital investment, and employment and tax contributions (WTTO, 1999). Within the tourism industry, there is an increasing trend towards nature tourism, contributing to the growth of the ecotourism industry (Eagles & Higgins, 1998; Fennell, 1999). This has led to a number of development models that attempt to attract tourists to nature areas for economic growth (Ceballos-Lascuráin, 1989).

Costa Rica has marketed its abundant and unique tropical nature to promote ecotourism as a development model and has also realized the swift growth of the industry. Fueled by national policies, foreign aid and investments into the tourism industry, the country observed a tripling in the number of tourist arrivals between 1986 and 1996 (Eagles & Higgins, 1998). By 1993, Costa Rica announced tourism as its largest foreign currency earner and in 1994 the industry represented 8.9% of their GDP (Budowski, 1996; Honey, 1999). Today, Costa Rica is considered a preferred ecotourism destination (Honey, 1999), noting 58.4% of foreign tourists visit the national park, 35.9% participate in birdwatching and 48.2% visit to observe flora and fauna (ICT, 2000c). Some organizations and enterprises have perceived this ecotourism market as an opportunity to activate economic development in rural areas, such as in the case study site Venado Island, located in the Gulf of Nicoya.

Venado Island was chosen as the case study to assess the sustainability of introducing ecotourism, to this rural fishing community. Potential environmental, social and economic impacts caused by ecotourism development are researched throughout the study. Economic possibilities could initiate premature development on the island, challenging the infrastructure and community to manage the booming capabilities of tourism. Therefore a holistic case study of Venado Island is done to identify opportunities and threats that ought to be recognized prior to development.

Development patterns of past situations similar to Venado Island are important for recognizing preventative possibilities to reduce undesired impacts. Therefore the recent development of ecotourism in the rural islands of Bocas del Toro, was studied since it could foreshadow future impacts on Venado Island. Aspects of ecotourism development on Bocas del Toro, Panama will be utilized as a comparative aid to assess possible outcomes of ecotourism on Venado Island.

1.1 *Problem definition and purpose*

Careless planning and managing of ecotourism may cause the local environment and community to suffer irreversible negative impacts (Archer & Cooper, 1998). Controlling the development of ecotourism in remote areas may prove to be complex, due to lack of local experience and economic driving forces that may endanger the destination's carrying capacity. Therefore an assessment of potential environmental, social and economic impacts is necessary for the planning of sustainable ecotourism development on Venado Island.

The main purpose of this thesis is to identify potential environmental, social, and economic impacts that may result from introducing ecotourism on Venado Island, and to assess these

impacts within the dimensions of local sustainability. The author intends to address the purpose through the following research questions:

- **What impacts on the community's environment, society and economy may result from the development of ecotourism?**
- **What factors should be considered prior to introducing ecotourism to Venado Island?**
- **How can ecotourism be utilized as an instrument towards local sustainable development?**

1.2 *Scope and limitations*

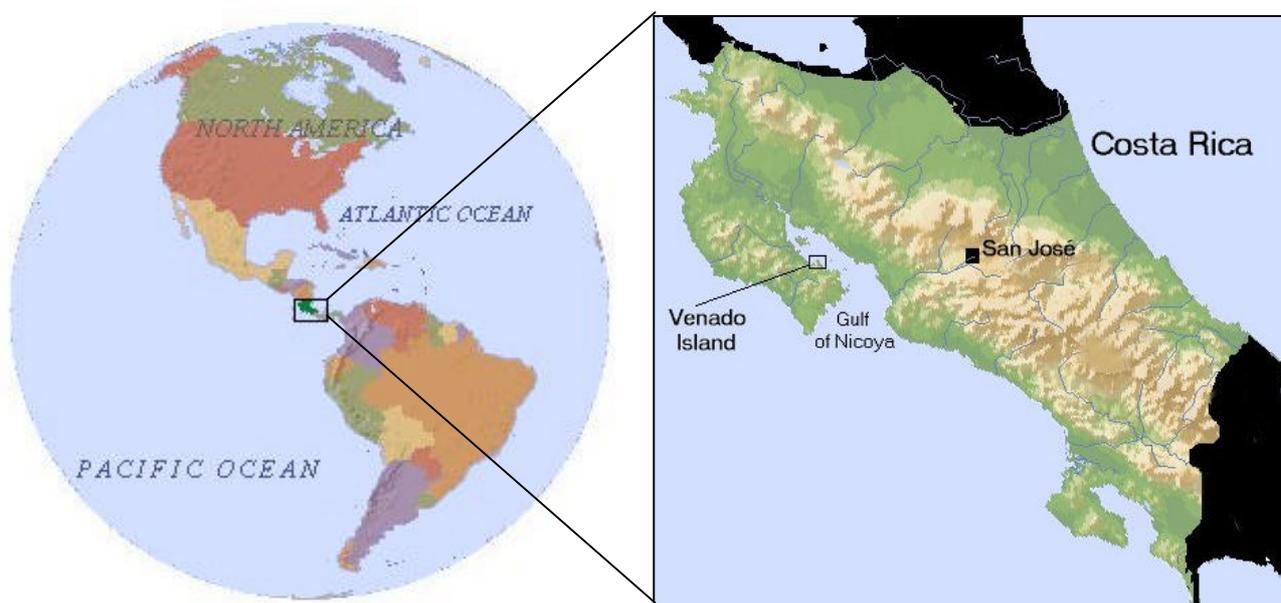


Figure 1-1: Map of Costa Rica and Venado Island

Ecotourism development is a broad topic, including every aspect of it in this thesis would be impossible. The focus of this thesis has been limited to the assessment of potential environmental, social, and economic impacts on the host community related to introducing ecotourism to Venado Island.

Although the focus of ecotourism development is limited to the case study of Venado Island, Costa Rica (figure 1-1), data was also collected from the archipelago of Bocas del Toro, Panama. This is due to the similarities of the two sites. Specifically the islands of Colon and Bastimentos were surveyed. The research from Bocas del Toro was limited, therefore the findings are used as supportive comparative data.

The recommendations of this thesis ought to be considered in the context of ecotourism on Venado Island. Yet they are not comprehensive of all the factors that would be involved in ecotourism development in general.

Information accessibility, thesis restrictions and language imposed limitations throughout the study. The amount of public and previous research data about Venado Island is limited due to the remoteness of this rural community. Furthermore a conflict between the Municipality of Puntarenas, which has jurisdiction over Venado Island, and the Municipality of Jicaral, which

has the majority of public information concerning Venado, created difficulties in retrieving information. Therefore the author contacted lecturers and students from the National University, Heredia who had previously done research on the island, for data that was not supplied by the Municipalities. Another limit to the extent in which more specific details can be covered is the length allowed for the specific use of this paper, such as the LUMES thesis restrictions of fifty pages and the time constraints imposed on this thesis. Particularly for Bocas del Toro, locating data and references demanded time. Lastly the language barrier may have limited the report, since Spanish is not the author's native language. Interviews were sometimes restricted by the author's vocabulary, as complex issues became difficult to articulate in Spanish.

1.3 Definitions

The following definitions are given as initial reference of how they will be used in the context of this thesis. The author will expand upon the meaning of sustainable development, sustainable tourism and ecotourism in chapter 4.

Sustainable Development: *"meeting the needs of the present without compromising the ability of future generations to meet their own needs"* (WECD, 1987, p.43).

Travel and Tourism: *"comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes"* (WTTO et al, 1997 p.30).

Sustainable Tourism: *meeting the needs and improving the standard of living of the host population in the short and long term, continually attracting tourists, satisfying their demands, and protecting the environment from degradation* (adapted by Cater & Goodall, 1992).

Ecotourism: *"responsible travel to natural areas that conserves the environment and improves the welfare of the local people"* (Budowski interview 22-9-00; cf. Honey, 1999 p.21).

Ecotourism Development: *"a sustainable tourism approach that is small scale, locally managed and attempts to develop with the concepts of ecotourism to benefit the local community"* (France, 1995, p. 24).

Community: *"a community is a group of people, often living in the same geographic area and who identify themselves as belonging to the same group"* (Sproule, 1996 p.4).

Tour Operator: a person or organization managing a service for tourists.

Carrying capacity: *refers to a point beyond which further levels of visitation would lead to an unacceptable deterioration in the physical environment and visitors experience* (Getz, 1983; O'Reilly, 1986 in Archer & Cooper, 1998).

1.4 Structure of the thesis

To provide a transparent outline of the author's multidisciplinary approach to the thesis and his line of logic, a methodological explanation is necessary before introducing the issue suggested for discussion.

In chapter 3, a theoretical framework for the thesis is provided, beginning with the broad concept of sustainable development and gradually narrowing the issues down to ecotourism and rural development.

In chapter 4, the main case study is presented, providing background data of the environmental features, social systems and economic systems of Venado Island, giving the reader an idea of the overall situation on the island. Then the reference case study, Bocas del Toro is briefly presented, illustrating the impact of ecotourism development on two islands in this Caribbean archipelago. The author structures the text in chapters 4 and 5 into three parts, environment, society and economy.

In chapter 5, based on the theoretical framework and with the data from the findings, the author presents his own interpretation of a system of potential ecotourism development impacts. Then a SWOT analysis, more specific to the situation on Venado Island is formulated. The combination of the presented system and the SWOT inspires a discussion regarding the potential threats and opportunities. The connections drawn between the system's variables aid the discussion to forecast scenarios. Mitigating methods are suggested to maximize the benefits and minimize the negative impacts in an effort for sustainable development.

In chapter 6, the conclusions of the thesis and further research suggestions are posted. The recommendations in this chapter summarize strategies discussed in chapter 6.

2 Methodology

Considering that tourism does not yet exist on the island this thesis is conceptually based. An analysis was done on how ecotourism development could effect the social and natural environment of Venado Island. Another set of islands, in Bocas del Toro, was investigated due to similarities of the islands and development objectives. The results have been used to identify possible impacts from developing ecotourism in rural island settings.

2.1 Gathering of data

A multidisciplinary approach was incorporated in the data collection and writing of this thesis. Sustainable development and the tourism industry are dynamic multifaceted issues involving various stakeholders and aspects. The multidisciplinary refers to collecting and discussing data that is related to the environment, society and economy throughout the thesis.

Initially a literature review was performed concerning three aspects: sustainable development, rural community development and ecotourism. This general background information helped to identify actors, factors, and stakeholders involved in ecotourism development.

Contact with the International Oceans Institute (IOI) in Heredia and the Earth Council in San José was established prior to arriving in Costa Rica. The IOI provided a majority of contacts in relation to professionals working with the community of Venado and University professors in the fields of rural development, sociology and geography. The Earth Council provided contacts in the professional field related to sustainable development and ecotourism in Costa Rica. Contacts in Costa Rica proved to be very valuable sources of information.

The case study on Venado Island, Costa Rica was conducted, generating primary qualitative data, via informal interviews, observations, and participation. Venado Island was selected as

the subject for the fieldwork since the IOI had been working with locals on the island for over two years. Also two groups on the island were interested in developing ecotourism.

Interviews concerning ecotourism and sustainable development with professionals and key stakeholders were conducted in a semi-structured manner. Carefully formulated open-ended questions, followed by discussions produced the majority of qualitative data collected (Patton, 1980).

Venado Island was visited on four different occasions over a two-month period. Prior to each visit to Venado Island, objectives were planned in order to maximize the usefulness of the time on the island. The first visit was over the duration of five days, to establish contact with the general population and local group leaders, to conceive a general picture of the island. For the second visit, the author arrived with an rural aid organization affiliated with IOI, to observe the interaction between the local groups and the IOI as an outside organization. Information collected from the first and second trip was reviewed to establish the purposes of the third visit. In this visit of six days, data was collected on assessing the real aims and goals of the groups wishing to develop ecotourism, and to also investigate deeper into the social structure of the island.

Between the third and fourth visit the author traveled to Bocas del Toro, Panama, where ecotourism had began to develop in the last six years. Conservation NGOs, the local National Marine Park director and local residents were interviewed for their perspectives on the development of ecotourism in Bocas del Toro. The information from Bocas del Toro was then utilized to formulate the fourth and final visit objectives.

Secondary sources included published literature from professionals, municipalities, institutes and organizations related to tourism and statistics in Costa Rica. The majority of the literature used throughout the thesis were academic books and journals published in the US and UK, with the focus on developing countries and rural island societies.

Conducting the majority of research in Costa Rica was seen as an important aspect to this thesis. Discussions with Latin American peers offered alternative perspectives and interpretations of development and sustainable development concepts.

2.2 Selection

Interview subject selections can be categorized as internal and external stakeholders in the development of ecotourism on the Venado Island. The local residents were perceived as the most valuable stakeholders as they would be the most impacted by ecotourism on their island. Interviews, observations and participation with individuals and organizations on the island were central to the research of this thesis to generate an understanding of the people and their interests. Municipalities, local interest groups and organizations working with the island were also selected for interview due to their influence, interests and ties to Venado Island.

External stakeholders were interviewed and studied to understand the scope of ecotourism development in Costa Rica. Governmental organizations, the Costa Rican Institute for Tourism (ICT), land law experts and NGOs (both local and international) provided practical information for developing tourism in the Gulf of Nicoya. The ICT and other experts in the field of ecotourism were interviewed to conceptualize ecotourism and its possible implications on Venado Island. Figure 2-1 illustrates the system of stakeholders with potential influence to ecotourism development on Venado Island.

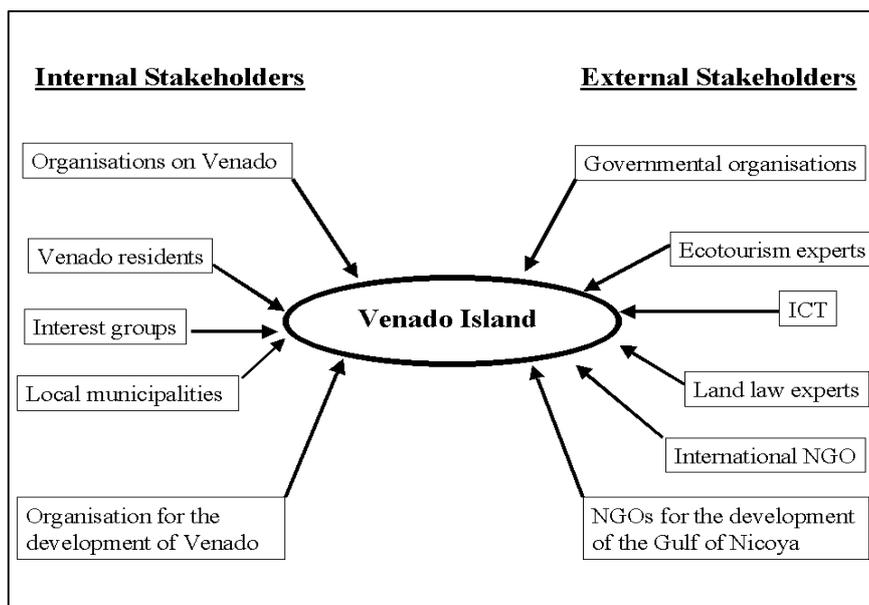


Figure 2-1: Internal and external stakeholders to Venado Island

2.3 Adaptation of data

A systems dynamics approach was applied to the adaptation of data, defining "systems" as "a group of interacting, interrelated and interdependent components that form a complex and unified whole" (Anderson & Johnson, 1997, p. 2). Connections were drawn between different components of complex systems involved with an emphasis on causal feedback loops. Cause and effect relationships between the components makes the system, where one system may interact with another (Churchman, 1968). Data was initially grouped as environmental, societal or economic components, then the components were combined to form a single system. This was exhibited throughout the thesis in the form of causal loop diagrams (CLD).

2.4 Validity and reliability

The majority of data collected was through qualitative interviews. Data relevant to the island is not considered completely reliable, as there is limited data available and there are only a few studies that could back up the present information. Data collected from the residents of the island may be inconsistent, as there are no records of activities discussed by the locals. Gerardo Budowski is considered an accredited expert in the field of ecotourism, he has published work related on nature tourism since the 1970's, worked as the executive director of IUCN and continues to lecture on the topic at an international level. Interviews and statistics from the ICT (Costa Rican Tourism Institute) are acknowledged as information from an institute that is promoting tourism, and may therefore attempt to protect the tourism industry. In Bocas del Toro, interviews were conducted with two environmental organizations, therefore their comments on the environmental quality of the area may be more critical compared to others in the area.

3 Concepts of sustainability and development

In order to comprehend ecotourism in the context of this paper, relevant concepts of sustainable development and sustainable tourism will be considered. Therefore sustainable development and tourism impacts will be reviewed, concluding with a definition of ecotourism. Themes of island development, rural development and ecotourism guidelines are sub-sections in the ecotourism section.

3.1 Sustainable development

The concept of sustainable development is widely used, but is seldom clearly defined. It typically promotes integrated approaches to development, involving the environment, society and economy. The term was first introduced by the World Conservation Union (IUCN) in 1980 in their publication *The World Conservation Strategy* (Hall & Lew, 1998). By 1987 "sustainable development" entered the political platform when the World Commission on Environment and Development (WCED) published *Our Common Future*, otherwise known as the Brundtland Report. This report defined new principles and objectives relating to the concept of development due to the social and environmental degradation caused by earlier development modes (Wackernagel & Rees, 1996). The Brundtland Report defined sustainable development as:

"... development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

(WCED, 1987, p.43)

Since this definition is vague, there is a need to identify more specific aspects. Hall & Lews, 1998 p.3, identified the following principles as such in the Brundtland Report:

- holistic planning and strategy making
- preserving essential ecological processes
- protecting both human heritage and biodiversity
- fairness and opportunity between nations (people)
- developing sustainable productivity methods for future generations

The phrase sustainable development acquired further recognition as a focal point in the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil also known as the Earth Summit. The Earth Summit managed to elevate sustainable development concepts internationally by drafting three non-binding agreements known as the Rio Declaration, Agenda 21, and the Statement of Forest Principles.

Two principles from the Rio Declaration, which are especially relevant to this paper, the precautionary and subsidiarity principles.

- **The precautionary principle:** implies cost-effective measure should not be postponed because of scientific uncertainty, if there are threats of serious or irreversible damage. In other words, when in doubt about impact of development manage it according to the worst case scenario to protect the environment.
- **The subsidiarity principle:** refers to the processes of planning and decision-making should rest on the local community, encouraging local ownership of resources and responsibility for environmental problems.

3.1.1 Why a vague definition?

Sustainable development has been used widely due to the WCED's vague definition, which allows open interpretations of the term (Wackernagel & Rees, 1996, Hall & Lew, 1998). On the other hand the very same ambiguity has jeopardized its practical implementation since

almost any action could be justified under such a broad definition (Connley & Smith, 1999). Still the vagueness of the definition may be necessary, since more explicit definitions could be too specific to use.

Sustainable development should focus on the type of development instead of economic expansion (WCED, 1987). Wackernagel and Rees (1996) argue that development has often emphasized economic growth while neglecting the ecological limitations and social welfare of the society. They claim progress ought to be redefined and measured in quality of life indicators such as access to education, food and health care compared to previous indicators centered around capital growth. Sustainable development would seem more sustainable if the term were changed to developing sustainability (Wackernagel & Rees, 1996).

Sustainable development ideologies typically incorporate the integration of three key aspects, the environment, society, and economy. To achieve sustainable development all three aspects should develop together (Selman, 1996). The following diagram (figure 3-1) illustrates the relation between sustainable development and the three aspects of development.

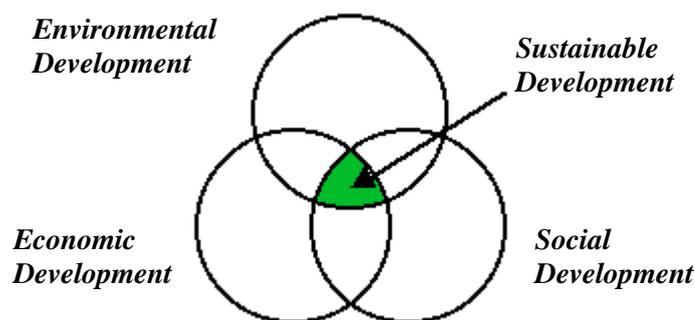


Figure 3-1: The three rings of sustainable Development

The local context may determine which development path will be emphasized in the development process. In the case of Venado Island, the economic development path is of immediate concern. The stagnating island economy is in need of new economic development to stimulate it. Field specific concepts of development will be addressed in the following text to assist the defining of sustainable development.

3.1.2 Protection and carrying capacity: Environmental aspects

Environmental protection and carrying capacity are key components when referring to environmental development paths. Affirmation of natural resource scarcity and staying within the limits of the environment's carrying capacity are main themes related to environmental development. Still, the environment is typically valued as a resource that ought to be protected from extinction while being ventured (Bartelmus, 1994). Therefore sustainable environmental development could be defined as *optimizing carrying capacity while allowing long term extraction of resources* (Sum & Hills, 1998; Wackernagel & Rees, 1996).

3.1.3 Empowerment and poverty problems: Social aspects

Sustainable social development could be defined a *development towards (improving the quality of life) equality, freedom, health, security, education, etc. while staying within the limits of environmental carrying capacity* (Bartelmus, 1994; Wackernagel & Rees, 1996). Education is an important factor in social development, because it is related to individual empowerment (Mowforth & Munt, 1998). Poverty is often seen as a barrier to sustainable development and a major cause of environmental degradation. Starving communities' options

may be limited and lead to overexploitation of natural resources, since it may be the only available resources for survival (WCED, 1987, Elliot, 1998). Poverty on Venado Island exemplifies this since the people have no other option but to fish in over-fished waters, thus worsening the situation. They will continue this unsustainable practice until all the fish are extinct or economic alternatives are found.

3.1.4 Economic liability to the environment: Economic aspects

Economic development should incorporate ecological limits and be liable for its activities to be sustainable (Wackernagel & Rees, 1996; Sum & Hills, 1998). Sustainable economic development could be defined as... *acknowledging natural capital scarcity, while producing a continual supply of goods and services* (Bartelmus, 1994). In other words, economic activity that does not exhaust its resource base, so that it may continue to stay in business. In ecotourism the resource base is the natural surrounding.

3.2 Possible impacts from tourism

Tourism development generates various environmental, social and economic impacts, which shall be reviewed and placed in the context of Venado Island.

3.2.1 Environmental aspects

Impacts to the environment may not always be evident until it is too late (Hunter & Green, 1995). The consumption of resources, built environment, land use, behavior of tourists and amount of tourism will effect the host destination's environment (Swarbrooke, 1999). Environmental degradation may occur in the form of:

- Overexploitation of natural resources
- Biodiversity loss
- Disruption of species breeding habits
- Soil erosion & land reclamation
- Soil contamination from waste disposal
- Coastal and ground water pollution from waste, sewage and oil disposal

(Hunter & Green, 1996)

Tourists' consumption will increase demand for local natural resources, which in many cases has led to environmental degradation. This is evident in the Himalayas of Nepal, where the demand for cooking and heating wood has increased in parallel with the rising number of mountain trekkers. Consequently, this demand has led to further deforestation and soil erosion (Ceballos-Lascuráin, 1996).

Vegetation is often cleared for the construction of tourist facilities and pathways, which may destroy wildlife habitat and increase soil erosion (Hunter & Green, 1995). Reclaiming land is often a result from the pressure on coastal areas. Mangrove forests are typical targets due to their shallow waters. They are also the nursery grounds for a wide range of marine life and prevent coastal erosion (Miller, 1999). In Belize, coastal development has resulted in the removal of mangrove forest to allow for the construction of tourism facilities. On the island of Ambergris Caye previously protected mangroves swamps are being cut to provide space for housing and tourism growth (Cater, 1994).

A common consequence of poorly planned tourism is the overloading of local waste and sewage infrastructures causing pollution of coastal waters and groundwater (Hunter & Green, 1995). Sewage in coastal waters increases the biological oxygen demand, reducing the level of oxygen in the water and threatening marine life (Hunter & Green, 1995; Miller, 1999).

This is exemplified in the Caribbean islands of Guadeloupe and Martinique, where tourism has contributed to the destruction of marine life due to the sewage and waste present in the water (Burac, 1993).

3.2.2 Social aspects

Social impacts due to tourism usually take time to be noticed. Once a social cultural change has occurred, reversing the effects is virtually impossible (Swarbrooke, 1999). Cultural interactions between locals and tourists combined with the revenues from tourism often result in conflicts within the local society (Ceballos-Lascuráin, 1996).

Interaction between host and visitor cultures may result in the decline of the local culture. Locals have been known to neglect their own heritage and imitate the tourists' customs. This concept is recognized as the "Demonstration Effect" where "locals modify their own behavior and aspirations by following the example of the tourist," (Hunter & Green, 1995, p.39). Original traditions, religion, norms and/or value may be deserted in the process, but benefits may include those who seek education to improve their standard of living or seek gender equality. The Demonstration Effect usually occurs amongst the host youth population. Consequences of this effect are conflicts within the community between the "modernized" youth and elder "traditionalists" (Shaw & Williams 1994).

Tourism is a service industry that requires cooperation and friendly interactions between host and visitors (Richards & Hall 2000; WTO, 1998), but as tourism increase, the relationship may deteriorate. When tourism interrupts the daily private lives of locals, the stress between visitors and hosts may grow (Smith, 1989). Noting that relations typically evolve for the worse, Doxey (1976; in Swarbrooke, 1999) created an "irritation index" which labels possible attitudes of locals towards tourists. This is illustrated in table 3-1 below (Shaw & Williams, 1994, in France, p.107). Increasing numbers of tourists and time are typical driving forces towards a higher irritation level.

Irritation Level	Low			High
Classification	<i>EUPHORIA</i>	<i>APATHY</i>	<i>ANNOYANCE</i>	<i>ANTAGONISM</i>
Local attitudes towards tourist	Initial phase of development, visitors and investor welcome.	More formal (commercial) interaction between hosts and visitor	Tourist arrivals reaching saturation point, reservations towards tourism and tourists begin to grow.	Irritation openly expressed, visitors blamed as the cause of all societal problems.

Table 3-1: Doxey's irritation index

Tourism may offer employment to host residents, presenting women and youths the opportunity to earn a wage, which before was not possible. This may also cause conflict within homes, where the incomes of women or the youths may empower them, allowing them to challenge their traditional roles at home and in society (Ceballos-Lascuráin, 1996). The challenging of traditional roles will also lead to changes in the culture.

Concealed pre-existing divisions between community members may be enhanced as certain individuals may benefit from tourism while others could be excluded from participating. As tourism develops there may be many economic potentials, where the first to capitalize may be quick to dominate the market. This may erupt in issues of fairness, jealousy and resentment within the community (Sproule, 1996).

Local moral values may change as a result of tourism and the money involved. Prostitution, begging, drug use and crime have been correlated to the growth of tourism (Hunter & Green, 1995). Costa Rica has noticed a sex tourism market that has developed over the years (ICT, 2000a). Some may try to take advantage of economic opportunities by offering prostitution and drugs to tourists (Ceballos-Lascuráin, 1996; Shaw & Williams, 1994). Crime and social deviance may increase where some of the community becomes marginalised (Hunter & Green, 1995). With the increased inflow of capital, the distribution of it plays an important role for the development of the community.

3.2.3 Economic aspects

As mentioned before, tourism is a rapid growing industry generating capital inflow into the destination location. Diverse economies are more likely to integrate tourism into their economy, compared to less developed (single or dual export) economies where impacts could be severe and unexpected (Butler, 1999). Main issues related to the local economy are employment opportunities and the amount of local goods and services utilized for the tourism operation.

Typically, employment offered to the local communities are less-skilled and lower wage earning jobs, such as cleaners, bartenders, waiters, transportation operators, and cooks (Lea, 1988). Positions demanding a specific training or education are often brought in from outside the community such as managers and bilingual guides. Tour operators typically import skilled labor because they do not have to invest in the training of local people. Furthermore, employment in the tourism industry is seasonal, therefore incomes may not be secure (Lockhart & Drakakis-Smith, 1997).

Imports that substitute labor and/or goods cause leakage in economic benefits to the host economy (Fennell, 1999). An example could be fruits imported from urban markets to a rural area where locals could supply this food. Goods supplied by the tour operator may be imported due to local availability and price (Lea, 1988 & Ceballos-Lascuráin, 1996).

The real estate market in the destination location could be considered as a driving force for the growth of the tourism industry and as a tool for empowerment (Budowski, interview 09-22-00). Land investors may raise the market value of the land by purchasing it from locals and developing it. Locals profit from the sell of their land initially, but in the long term, they concede sovereignty to the new landowners (Mowforth & Munt 1998). Thus the new landowners obtain power in the development process.

Investment in tourism infrastructure may benefit the local community by improvements in communication networks, roads and ports. This may allow for other economic opportunities for the local area (Archer & Cooper 1998).

3.3 Sustainable tourism

Sustainable tourism attempts to apply the Brundtland Report's definition of sustainable development to tourism (Burns & Holden, 1995, Swarbrooke, 1999). It is defined as *meeting the needs and improving the standard of living of the host population in the short and long term; continually attracting tourists and satisfying their demands; and protecting the environment from degradation* (Cater & Goodall, 1992).

Again the three aspects: society and economics apply to sustainable tourism. The primary factors could be categorized as the destination environment, the destination community and

the tourist. Figure 3-2 (France, 1997, p.24) exhibits different strategic approaches to sustainable tourism defining different types of tourism and their impacts.

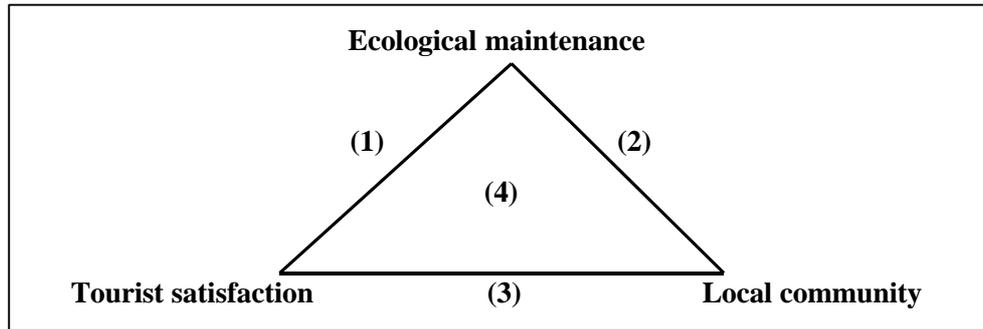


Figure 3-2: Possible approaches to sustainable tourism

The relationships described in figure 3-2 are explained as follows:

- 1) "Could be demonstrated by a small number of tourists visiting a remote natural area. Tour operators are usually large multinationals or local elites, where profits are unlikely to filter into the local community.
- 2) Usually small-scale local guesthouses offering low standard of comfort. The local residents usually benefit directly with a low environmental impact.
- 3) Large tourism enterprises employing many host residents as unskilled labor. The community benefits economically but usually the environmental impact is high.
- 4) Possible equilibrium point between the three aspects, which is small-scale locally managed and spreads the benefits throughout the community."

(France, 1997, p.24)

Similarities relating sustainable development and sustainable tourism strategies can be concluded when superimposing the above (figure 3-2) with the three aspects of sustainable development (figure 3-1). This is presented below in figure 3-3, with ecotourism within sustainable development, as a sustainable tourism strategy. Sustainable tourism is a specific type of sustainable development, therefore ecological maintenance, local community and tourist satisfaction are each placed inside their corresponding development rings below.

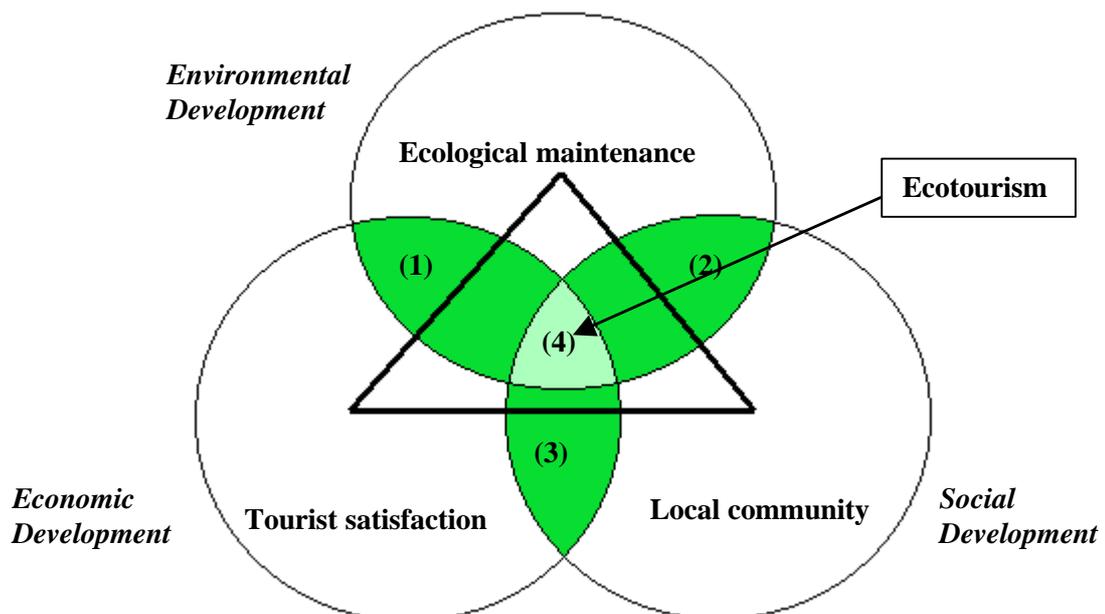


Figure 3-3: Ecotourism as sustainable tourism strategies and sustainable development

Tourism approaches 1 through 3 each lie outside one of the three rings of development. Sustainable aspects of the excluded rings are more likely to be neglected by the particular tourism approaches as mentioned in the definitions following figure 3-2. In this diagram, approach 4 is the only point that incorporates all three of the development paths and could also be defined as an ecotourism strategy.

3.4 Ecotourism

There is no widely accepted definition of ecotourism. After reviewing sustainable development and sustainable tourism concepts the author considers the following definition of ecotourism as the most appropriate and will be used as reference for the analysis:

"responsible travel to natural areas, conserving the natural environment and improving the welfare of the local communities"

(Budowski, interview 22-9-00; cf. Honey, 1999 p.21).

The definition integrates local environmental and social aspects in the economic activity of tourism, satisfying all three of the dimensions of sustainability. The ensuing text will outline ecotourism principles and characteristics. Thereafter principles of rural and island development shall be presented, leading into ecotourism guidelines/strategies relevant to the case study.

3.4.1 Defining ecotourism: What it is and what it's not

Ecotourism is a specific integrated type of sustainable tourism involving interaction between the environment, and the primary stakeholders: the local community, tour operators, and the tourists. Presently there are various definitions of ecotourism, but principles that commonly apply to the term are:

- Responsible travel to a pristine natural area
- Minimal impact on the natural and cultural environment
- Develop environmental awareness via education (both the tourists and local community)
- Direct financial benefits for protection of nature area
- Provide economic benefits for the local community
- Respect for environment and local community

(Ceballos-Lascuráin, 1996; Honey, 1999; Ziffer, 1989; Fennell, 1999)

The word "*responsible*" applies to all three of the primary stakeholders, with the following responsibilities extended to the tour operator since they coordinate the travel in the area.

- proper planning and management
- involving the local community
- teaching environmental education (both local and tourists)
- managing tours within the carrying capacity of the environment

(Mercer, 1996; Honey, 1999; Ceballos-Lascuráin, 1996 Fennell, 1999)

Differentiating ecotourism from other types of nature related tourism is necessary to avoid confusion. Ecotourism is a subset of nature-based tourism since not all nature-based tourism necessarily incorporates "responsibility" by definition. Ecotourism implies education, conservation, and community involvement in the tourism activity (Drumm, 1998). Nature-based tourism tours can simply give tourists the chance to see exotic places and people before they change or become extinct (Wallace, 1992 in Ceballos-Lascuráin, 1996). In nature tourism the tourist is the focal point while ecotourism is planned by the host community to benefit the local area as well as offer an experience to the tourists (Ziffer, 1989). Figure 3-4 illustrates ecotourism as a subset of sustainable tourism and nature based tourism.

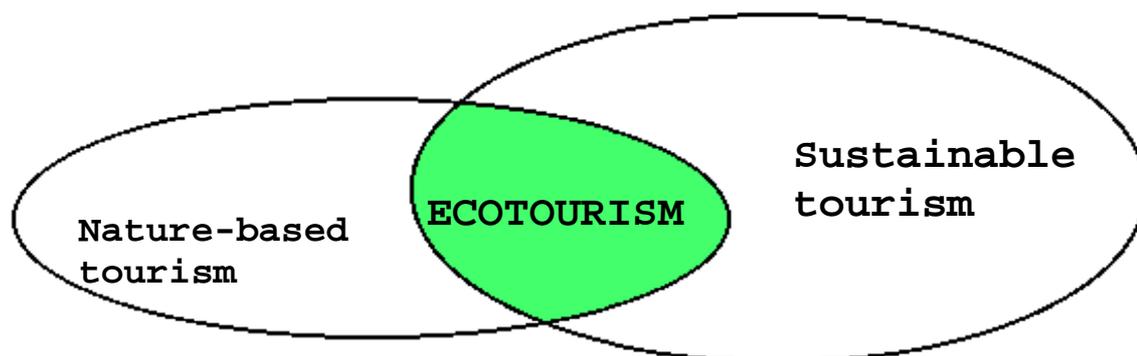


Figure 3-4: Ecotourism as a subset of sustainable tourism

The overall ideology of ecotourism is to involve the local community in the management of a natural area for tourism. The capital generated from the tourism is then reinvested into the infrastructure of the conservation area and distributed amongst the community. The objective is to protect the nature and improve the local standard of living (Honey, 1999; Fennell, 1999).

3.4.2 Rural community development objectives

Ecotourism development is related to rural development, since "pristine natural areas" are typically distant from the urban domain and inhabited by rural communities. Singh (1999) considers development to occur in rural communities when their quality of life actually improves, utilizing basic necessity indicators: food, clothes, shelter, basic literacy, primary health care and security of life and property. He also suggests economic growth is necessary for this improvement, but should not be used as the sole measurement tool for community development.

Community participation is essential for development to happen, developers/investors and community members ought to learn from each other's skills for progress. Development and advancements can not be simple given to a community from outside, it must take place within the community (Carmen, 1996; Chambers, 1989; Singh, 1999). In short, the author summarizes the rural development concepts in a simplified formula (figure 3-5).

Rural Development = local participation + improved quality of life

Figure 3-5: Simplified formula for rural development

3.4.3 Island tourism

The physical separation and relative isolation of islands have made them popular tourist destinations. Tourists in search of relaxation and escaping their everyday life are somehow fulfilled by crossing over water in a boat or plane to arrive at their island destination (Baum, 1997). This separation poses obstacles and threats to the development of tourism on islands.

Sustainable development ought to be the objective of all development plans for islands since islands are fragile integrated systems (WTO, 1998). Land and resources are limited and therefore may be easily exhausted with the consumption demand of tourism development. Goods are then imported to meet the demand, thus reducing the self-sufficiency of the island (Lockhart & Drakakis-Smith, 1997).

Small island infrastructures are usually less developed and inadequately able to support an increased population of tourists, because water and energy are established to the consumption patterns of the local community. Water, energy, waste, and sewage management on islands are vital factors that must be examined during development, because resources and space are limited (Conlin & Baum, 1995).

Small islands are typically a singular or dual market economy due to their limited resources. Once large foreign investment begins to develop tourism these island economies often become dominated by the industry, and dependent on the tourists (Lockhart & Drakakis-Smith, 1997; WTO & UNEP, 1998).

3.4.4 Fundamentals for ecotourism development

Planning and management of an ecotourism project will influence the level of sustainability and impact on the natural and human environment. Central themes for ecotourism development are local community participation and awareness of carrying capacity limits (Wearing & Niels, 1999).

Participation and preparation

Community participation may be able to achieve local support of ecotourism development and encourage environmental conservation (Richards & Hall, 2000). Locals directly effect the environment, incorporating their attitudes, knowledge and management will enhance the development of ecotourism. Participation can provide a platform for empowerment, where local representation in the decision making process can promote profit sharing and social concerns could be addressed (Sproule, 1996; Selman, 1996; Shepherd, 1998). Acceptance and support for ecotourism can be achieved if there is active local participation in the development (Pimbert & Pretty, 1995; Sproule, 1996; France, 1997). Development imposed on a community without local support and participation will not be sustainable (Mowforth & Munt, 1998).

The participating community should not be thought of as a homogeneous group since individuals within the community are different (Fennell, 1999; Sproule, 1996). Sproule (1996) defines communities as "... a group of people, often living in the same geographic area, who identify themselves as belonging to the same group " (Sproule, 1996, p. 4). Inside these groups, individual interests and power may vary because of social prestige, wealth, age and/or religion (Sproule & Suhandi, 1998; Bramwell, B. & Sharman, A. 2000). Typically affluent community members are more influential in the development process and may therefore benefit more than others. Despite this, the entire community should participate in the development (Fennell, 1999).

Participation can be practiced in various forms, each depending on the type of local involvement in the decision making process, (Mowforth & Munt, 1998). Pretty (1994: in Pimbert & Pretty, 1995) classified 7 different types of participation ranging from *passive participation* (development plans created without the input of the community by external institutions who then give roles and positions for the community to fill), to *self mobilization* (the locals initiate their own development independently from outside institutes).

Pretty's participation type of *interactive participation* will be considered as the type of participation most applicable for the community of Venado. This is due to their wish to manage the development, but need guidance and capital to do it. Therefore they would need outside investment to support the development. Interactive participation is defined as:

"People participate in joint analysis (between locals and professionals), which leads to action plans and the formation of new local groups or the

strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions and so people have a stake in maintaining structures or practices"

(Pretty 1994: in Pimbert & Pretty, 1995, p. 26).

The participation involves the community interacting with professionals for education and advice to manage the development.

The education and capacity of the participating community members is important to consider since ecotourism requires certain knowledge and technical skills. The more conscious locals are about how the natural and human environments interact, the more prepared and capable the community will be to develop and manage ecotourism (Mowforth & Munt, 1998). An example of a technical skill needed for sustainable ecotourism development is the ability to understand and set carrying capacity limits.

Carrying capacity

Carrying capacity limits should be used as precautionary tools to preserve the environment and quality of the ecotourism (San Ramon interview 04-09-00). It is especially relevant in the case of Venado Island, since it is an island with limited resources. O'Reilly (1986 in Archer & Cooper, 1998) refers to carrying capacity as *a point beyond which further levels of visitation would lead to an unacceptable deterioration in the physical environment and visitors experience*. In order to monitor the impacts of ecotourism, environmental and social indicators ought to be researched and established (Wearing & Niels, 1999). The impacts of ecotourists should be known since ecotourism's resource base relies on a pristine nature with the objective of a minimal impact on the natural and cultural environment. Indicators related to the carrying capacity are based on precautionary principle values (section 3.1).

Carrying capacity is a relative term depending on the management of the tourists and the behavior of the tourists (Budowski interview 22-9-00). Simply setting a numerical limit may not be as influential to preservation as controlling the behavior of tourists. Codes of conduct may be useful to influence the attitudes and behavior of the tourists for reducing the aggregated impact of each visitor (Mowforth & Munt, 1998). This may be achieved by informing the visitors what type of conduct is not accepted, such as photographing the local people. Codes may also serve as educational tools, but are typically voluntary (Budowski interview 22-9-00). An example could be tour guides warning visitor to not walk along the beaches at night during the mating season of sea turtles. Also "stay on designed trail" signs to restrict the movement of the tourists, concentrating the interaction between the visitors and the environment. Impacts due to visitation can be reduced if the tourists are controlled and informed.

Different aspects related to the development of ecotourism should be considered for successful ecotourism. Ceballos-Lascuráin (1996) identifies the following four basic components of ecotourism carrying capacity as: biophysical, socio-cultural, psychological and managerial components.

Biophysical component recognizes the limits of natural resources and defines a threshold for tourism activities. Every ecosystem varies depending on the sensitivity to the tourism activities. Beyond the threshold, irreversible impacts to the biosphere such as species loss or population loss may occur.

Socio-cultural components refer to the threshold of tolerance of host residents to the negative impacts of tourism. Carrying capacity of this component is difficult to measure, as each host resident may have different thresholds, residents working for the ecotourism may have higher tolerances compared to residents not dependent or benefiting from the industry.

Psychological components relate to the maximum number of tourists in a certain area while still offering a quality experience. Isolation is often sought out by ecotourists. If they

encounter high numbers of other tourists during their tour the level of satisfaction may decline. The influx must therefore be monitored.

Managerial components refer to the maximum number of manageable visitors to a specific area. The facilities and staff ratio are the main factors of this component.

(Ceballos-Lascuráin, 1996)

It should be recognized that carrying capacity components are not always used to limit but can be utilized to increase tourism. If limits established by the carrying capacity have not been reached, this may serve as a driving force to attract more visitors. Therefore the selection of indicators used for establishing the carrying capacity could be determined by the objectives of the management (Williams & Gill, 1998).

4 Empirical findings

This chapter presents the case study, Venado Island, in environmental, social, and economic perspectives. The case of Bocas del Toro is briefly mentioned, observing impacts related to their recent introduction of ecotourism.

4.1 Venado Island

Venado Island is located in the Gulf of Nicoya, Costa Rica, see map (figure 4-1). Costa Ricans first settled the island in the early 1900's, since then, two villages on the island have been established, with a current population of 722. Local values and social norms are based around the family with some influence by the churches on the island. The economy relies on artesian fishing in the Gulf, which until 15 years ago, was as sufficient resource for the people. Although isolating the environmental, social and economic development aspect is difficult because of their interconnections, it will be attempted and presented in the following text.



Figure 4-1: Map of Venado Island in the Gulf of Nicoya

4.1.1 Environmental aspects

The physical features and infrastructure of Venado Island are identified as the environmental development aspects. The following information is mainly descriptive, to provide a profile of the island's environment and explain threats to the natural resources.

Physical features

Total area:	3.5 square kilometers
Distance to mainland:	2.9 kilometers to La Penca
Highest point:	Cerro Venado, 157 meters
Coastlines:	Mangrove swamp in the south, sand and rocky cliffs in the north.
Climate:	Tropical, wet and dry seasons, temperatures vary between 22 and 33 degrees Celsius, year-round.
Biodiversity:	Turtles, crocodiles, howler monkeys and a wide range of birds

The soil of Venado is a vulnerable physical feature to the island, since it is classified as highly erosive and should be protected according to the Municipality of Puntarenas. The island's vegetation has played an important role in preventing erosion along the mountainsides (Ministerio de Hacienda Dirección General de Tributación, 2000).

Infrastructure

Venado Island is dependent on the mainland for its electricity and the majority of its fresh water. Since 1989 electricity has been connected to the island via underwater lines. Electricity has allowed the valuable resource of ice to be produced on the island for preserving fish to be sold to the fish markets. In 1997 an aqueduct connecting a watershed from a local mountain on the Peninsula, began to deliver water to the island. The introduction of fresh water reduced the dependency on the island's poor quality and low quantity salty ground water (Rojas, 2000). Not everyone has access to the fresh water, in 1999 a survey revealed nearly a quarter of the locals are still dependant on ground water for their homes (Fernandez, 1999).

There is no organized waste disposal or sewage infrastructure on Venado. Waste is usually dumped into a pit dug in the ground near the residents' homes. Eventually the waste is burnt and buried. The Fernandez (1999) survey recorded over 90% of the waste is buried or burnt while the rest is thrown into the Gulf or left on the ground. Sewage from their toilets is disposed in septic tanks or latrines. The ground absorbs the majority of wastewater while the rest is released into the Gulf (Fernandez, 1999).

4.1.2 Social aspects

Social aspects are categorized as demographics, island remoteness, access to social services and the social system of the island. The objective is to offer insight into the social organization of the locals and their standard of living.

Demographics

The current population of Venado Island is 722, with 38.6% of the population under the age of 15 years old, according to Venado Island's Caja Costaricense de Seguridad Social (CCSS).¹ Various population censuses of Venado Island have been done, where the population has ranged from 568 to 980 for the same year, 1999. The population of the island fluctuates during periods when fishing restrictions (*Vedas*) are imposed, as some residents

¹ The CCSS is Costa Rican social security, which offers local clinic/hospital services. Residents, who have visited the clinic or are registered with the local CCSS, formulate the CCSS population statistics.

move to the mainland for seasonal work. The statistics from the CCSS seem to be the most reliable.

The population of Venado is distributed amongst three villages on the island, La Florida, Jicaro and Oriente. Jicaro and Oriente will be referred to as Jicaro since there is no clarified borders between them. The center of the island is not inhabited due to the thick forest and steep slope of the mountain. Residents living along the south coast of the island in La Florida represent about 41% of the population. Jicaro's population is almost four times as dense with 59% of the population living within an area which is less than half that of La Florida. Figure 4-2 below displays the population distribution and living areas of the two villages, the lower-shaded zone is considered La Florida, and the upper-shaded zone is considered Jicaro.

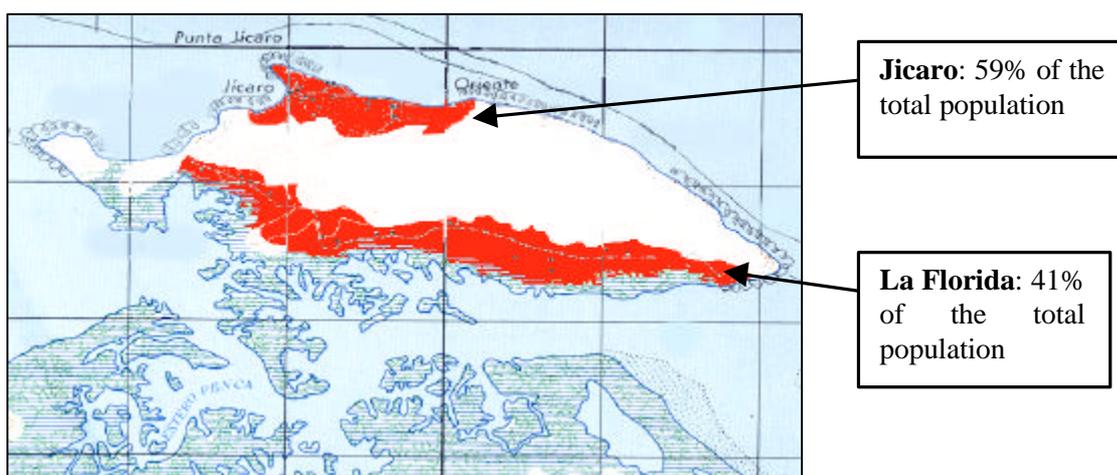


Figure 4-2: Population distribution and living areas of La Florida and Jicaro

Island remoteness

Venado Island is difficult to reach from the mainland despite its proximity to the Peninsula of Nicoya. The low population density, small number of roads and limited public transportation on the Peninsula contributes to the remoteness of the island. In 1972 a ferry connected Puntarenas to the Peninsula increasing the accessibility to this region. Puntarenas, the largest city in the Gulf of Nicoya with an estimated population of 100,000, is 25km. southeast of Venado and is about 30 to 45 minutes by boat depending on the boat. There is public transportation from Puntarenas via ferry and then bus to the closest inlet on the Peninsula, La Penca. From here there is no public transportation to Venado Island.

During low tide the Gulf's waters can recede up to 50 meters from the La Penca dock. Therefore boats have to be anchored in deeper waters of the mangrove forest where passengers must walk through soft mud to reach the dock. This is the same situation on the island since there are no deep-water docks, thus complicating low tides arrivals and departures.

Access to social services

Remoteness features have limited the amount and quality for social service provided by the state, such as education and health care. In 1999 the first secondary school was established on the island. Due to the relative isolation of the island, the secondary school is based on a distance learning education program from Mexico. Students follow textbooks and video lectures with teacher support four times a week. The teachers estimate that roughly half of the children on the island attend school.

Once a week each of the two health centers on the island are visited by a doctor from the Peninsula. For medical emergencies there is a motor boat docked in Jicaro, to transport patients to the Municipal Hospital in Puntarenas, about thirty minutes away.

The residents of Venado are limited to two public phones for communication. There are mobile phones on the island, but only very few of the locals can afford one. Other media that reach the island are in the form of television and radio. The remoteness of Venado Island has contributed to the unique society that has developed with limited intervention from the mainland and the government. This is discussed into further detail in the following text.

The social system of Venado

The family and church have been main actors in the social structure of the island, influencing local social norms and values. There is no formal community committee on the island to represent, govern or uphold the law for people of Venado Island. In general, people live a slow paced day to day lifestyle where there are few social class barriers. Despite this there is some social fragmentation amongst the people.

The history of the present population began with migration from the mainland to the island around 1915 (Fernandez, 1999). Initially the families living on the island were quite isolated from each other, but as the families grew and more people migrated to the island, two villages became established, La Florida and Jicaro. These two villages essentially make up two subdivisions of the Venado Island community. The Catholic Church was the first church on the island and provided a majority of communal traditions for the people of the island (pers. comm. Rigo Barrio 27-08-00, Venado resident). Since then lifestyles have changed, especially with the introduction of three protestant churches, and more recent electricity and fresh water supplies (pers. comm. Olger 18-09-00 & Rigo Barrios 27-08-00 Venado residents).

There is a certain sense of harmony on this tropical island connected to the slow tempo and common level of living. Residents tend to describe themselves as "... *very easy going and easy to talk to*" (pers. comm. Jorge Barrios, 08-05-00, leader of the youth group of Venado). This could be related to small population, where everyone knows everyone on the island. "*Here on the island we are all at the same level, that is what I like some much about the island.*" (pers. comm. Leshey 22-08-00 Venado resident of 2 years). As the majority of the population lives below the poverty line the people of the island many consider each other as equals, living at the same standard of living. (Ruiz, interview 25-09-00). Residents of Venado Island tend to pride themselves on their easygoing culture.

Another part of their culture, as in any country today, is the tradition of gender roles. Typically the men are responsible for fishing, while women take care of their children and maintain the homes. Women also fish, but usually do not have access to the same technology as the men such as boats with motors or fishing nets. The leader of the women's group Las Pioneras, Epifania Barrios, spoke about difficulties some of the members' faced while working with Las Pioneras along with their responsibilities to their homes. "*Some women had to leave the group because of problems at home.*" (pers. comm. Epifania Barrios 28-08-00, leader of the women's group, Las Pioneras)

Las Pioneras is one of fifteen autonomous organizations on the island. The number of organizations and their autonomy is reflective of the social organization of the island, independent and fragmented. Each group has their own objectives and interest ranging from education and religion to fishing and women's productive projects on the island (Rojas pers. comm., 2000; Fernandez, 1999). The lack of unite has left some families to feel isolated. A local frustrated with her families poverty situation, claims "*everyone has their own here on the island*" (pers. comm. Venado resident 25-08-00).

Different religious beliefs may contribute to a covert disunity and division amongst the population. There is a religious atmosphere about the island, with a majority of churches having two sermons on Sunday and one during the weekdays. The addition of three Protestant Churches and the converting of local religions were often brought to the attention of the author throughout the fieldwork. This could be reflected as a local woman reflected on her friend's decision to go to one of the new churches. *"Initially we had problems because she began to interpret the bible different from me /.../ but now I have respect for her and her beliefs, as she does mine."* (pers. comm. Venado resident 27-08-00)

The fragmentation that exists amongst the community may relate to the history and the independent development of the families who migrated to the island. Family development took place more or less independently within the family itself, while the church was the main place where beliefs were united. The history of families taking care of themselves could be the reason why there is no central committee to coordinate the people of the island as a whole. This fragmentation amongst the people of Venado is illustrated below in figure 4-3.

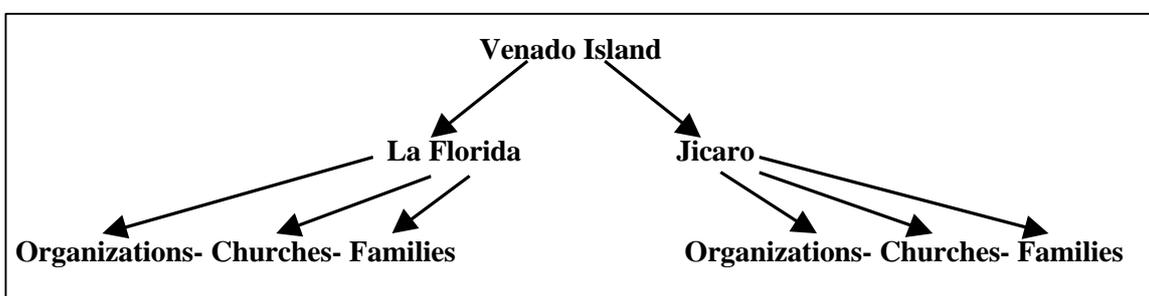


Figure 4-3: Social sub-divisions of Venado Island's society

4.1.3 Economic aspects

Economic development aspects are categorized as the commerce, labor and money management presently on Venado Island. Thereafter the state of the fishing industry in the Gulf of Nicoya is presented.

Commerce of Venado Island

The economy of the island is heavily dependent on a single resource, the fish stocks of the Gulf. Almost everyone, men and women, young and old, fish in the Gulf (Rojas., interview27-07-00). These artisan fishermen are the first link in the fishing industry of the Gulf of Nicoya. They usually fish in local waters and sell to one of the seven fisheries on the island. Records of the amount of fish bought and sold from the island do not exist. The fisheries are either family owned or cooperatives. The other businesses on the island are small-scale enterprises such as food/supplies shops, cattle, two cantinas and a few cafes. For the most part the fruits and vegetables, except beans and rice, are grown on family gardens for auto-consumption.

The most valuable seafood caught by the islanders is jumbo shrimp. The surrounding mangroves are used by the shrimp to lay their eggs before retreating to the deep waters of the Pacific. Nearly all of the shrimp caught in the Gulf are then sold for export (INRECOSMAR, 2000; Rodriguez, interview 25-09-00).² The price per kilogram of the jumbo shrimp caught

² The Institute of Coastal and Marine Resources (INRECOSMAR), is reference frequently throughout the report due to their extensive research and programs related to the Gulf of Nicoya and their attempt for sustainable development in the region.

by the locals is usually up to ten times the price per kilo of top quality fish from the Gulf. Therefore shrimp are also the most researched and monitored species in the Gulf's fish stocks.

Labor market

In general, there is ample supply of potential laborers on the island. The majority of present labor skills on the island are limited to artesian fishing, since it has been the only industry of the economy. There have been a few programs by NGOs and governmental organizations to teach trade skills for producing export goods, such as bath sponges and bananas. Locals acquired sewing and small scale farming techniques, but faced difficulties selling their products off the island.

Money management

The money earned on the island is typically stored in the homes of the families, due to the lack of a local bank on the island. Projects demanding a large capital investment such as the building of homes, schools, the aqueduct and electricity lines have been funded by foreign and national aid.

Overexploited fish stocks

The average yearly catch per fisherman in the Gulf of Nicoya has been declining over the last thirty years. This could be explained by the fall in total metric tons of fish in the Gulf in combination with the increased fishermen population (INRECOSMAR, 2000). Fishermen of Venado Island have responded to drop of average catches by spending more time fishing. Despite the drop in fish catches people have moved to the island from other regions to fish. "What you catch in a week in the Caribbean takes only 2 days here on the island " (pers. comm. 17-08-00 Venado resident). This migration to the Gulf increases the fishing population and contributes to the overexploitation of the Gulf. A simplified system of components and their relationships are presented in the CLD below (figure 4-4), to explain driving forces in the overexploitation of the fish stock in the Gulf³. The increase in fisherman population reduces the average fish catch, and drives the fishermen to fish more in an attempt to avoid a reduction in income. This intensified fishing adds more strain and reduces the total fish stock. The feedback loop is completed as the diminished stocks further decrease the average fish caught.

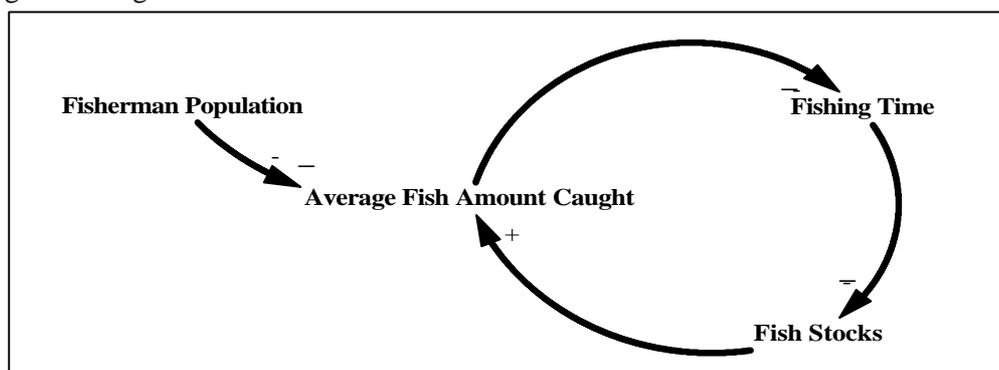


Figure 4-4: CLD, driving forces behind the declining fish stocks

Over the last ten years the government has responded to the over exploitation of the Gulf's fish stocks by installing two yearly fishing restrictions known as "Vedas."⁴ (INRECOSMAR, 2000). During the *Veda*, Venado's economy is obviously hit hard and hunger becomes a serious problem. Mangrove forests in the Gulf have started to feel the impact of the declining

³ Positive relations (+): the variables move in the same direction, an increase gives an increase, and a decrease gives a decrease.

Negative relations (-): the variables move in opposite directions, an increase gives a decrease and vice versa.

⁴ Fish stocks refer to all marine life taken for the purpose of the fishing industry.

fish stocks as they are being cut for alternative income resources (INRECOSMAR, 2000). To reduce this effect and the potential for other environmental degradation, organizations have been investigating other economic potentials for the fishing communities that will reduce their dependency on fishing. Ecotourism has been considered a likely possibility.

4.1.4 Development regulations and implementation

Venado residents are not allowed to have titled land because of Costa Rican law, *Ley sobre la Zona Maritimo Terrestre 6043*, restricting development on all small islands. Still the citizens may obtain a land concession with the local municipality for legal rights to the land. The benefits of obtaining a concession are double, development could be regulated and land ownership would be legal.

In order for Venado residents to be granted a land concession, the community must finance the National Geography Institute (IGN) to issue a "*Plan de Regulador*," (PDR) or zoning plan of land use norms for the island. The IGN would survey and study the conditions of the island, such as the soils, landscape and natural environment. Then they would zone the land according to the studies in an effort towards sustainable land use (Chinchilla, interview 25-09-00). Examples would be designating specific areas for housing, schools, industries, and also designing a blue print for sewage systems. This could regulate and coordinate the development on the island.

Implementation and enforcement of the law seldom occurs due to insufficient municipal funds. Past governmental poverty alleviation funds for the construction of public schools, health centers and homes violate the PDR. Thus government funds have been used for development where land development has not been legally granted. This brings into question the actual authority of the concession and enforcement of development codes. None the less, land ownership is fundamental for the connection between the residents of Venado Islands and the future development of the island.

4.1.5 Plans for tourism on Venado Island

Presently organized ecotourism does not exist on Venado Island, but there are three different parties interested to introduce it. They all favor idea of ecotourism development, to preserve the natural surroundings and benefit the local economy.

Two of the three groups are from the island, *Asociación Mujeres Pioneras de Florida de Venado "Las Pioneras"* (a group of women from the village of La Florida) and *Asociación Juventud Unida para el Progreso y el Ecología de la Isla de Venado "Los Jovenes"* (the island's youth group). Both of these groups would like to begin small-scale ecotourism, where they could control it and protect the island's natural and human environment. Their planned natural attractions would be forest hikes up the mountain and boat tours of the surrounding area, including the mangrove forest and other islands. Both groups are interested in attracting national and international tourists to the island. The youth group, *Los Jovenes*, is especially interested in attracting other national youths. Potential loss of identity and conflicts due to cultural differences with the tourists are the main fears of both these groups. For example, they prefer to avoid the construction of bars and the promotion of alcohol consumption.

The other group *Asociación Peninsular de Microempresarios Turísticos (APMETUR)* is an interest group from Jicaral, the nearest town on the Peninsula.⁵ The objective of the *APMETUR* is to introduce tourism to Venado Island, Chira Island (north of Venado) and to increase the overall amount of tourism in the Gulf of Nicoya area by creating a "*demand for tourism*" to attract foreign tourists (Villalobos, interview 24-08-00). The proposal claims an

⁵ *APMETUR* translates to, Association of Small Businesses for Tourism on the Peninsula

ecotourism strategy and mentions the development of attractions such as horse rides and boat tours. Fundamental to the plan is to improve the roads along the Gulf and in the Peninsula to encourage the inflow of tourism. The ideology behind the proposal is for families to managed tourism projects created in the development. Table 4-1 outlines the three groups and their objectives.

Organization	Scale of Project	Target tourists	Activities	Management
Las Pioneras	Small	Foreign	Nature walks, boat tours of mangrove forest and surrounding island	Local
Los Jovenes	Small	Foreign & Youth	Same as above	Local
APMETUR	Large	Foreign	Same as above, plus creating more attraction	Local

Table 4-1: Profile of three organizations interested in developing ecotourism

4.2 Bocas del Toro

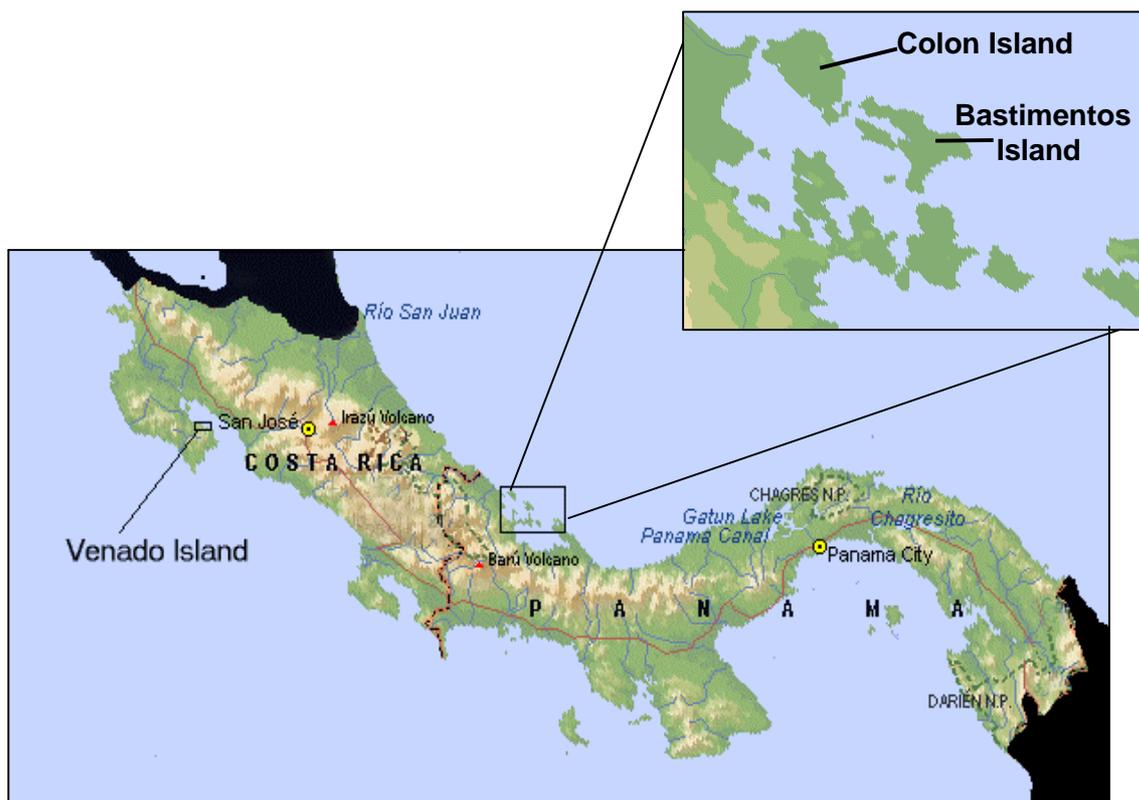


Figure 4-5: Map of Bocas del Toro, Panama: Colon Island and Bastimentos Island

Venado Island is presently in a similar situation the archipelago of Bocas del Toro, Panama was in about 13 years ago. Bocas del Toro was relatively isolated to the rest of Panama until the early 1980's when a road connect these region to the rest of Panama, only accessible by plane, boat or by land from Costa Rica (Eltringham et al., 1999). In the 1980's number of stakeholders worked together to develop the region, such as governmental organizations, NGO, Panamanian Tourism Institute, (IPAT), and local community members. An outcome of

this was Panama's first National Marine Park, on Bastimentos Island, in 1988, followed with plans to develop ecotourism (Pizarro, interview 2000). Over the last 6 years the tourism industry has expanded and is growing at a pace difficult to monitor and control (Binns, interview 07-09-00). The director of the National Park argues that the islands' infrastructures are being overloaded and are not able to handle such tourism inflows (Binns, interview 07-09-00). The planning and development of ecotourism in Bocas del Toro has not prepared the community or the infrastructure for the project (Gonzales, interview 07-09-00). The majority of information was collected on the islands of Colon and Bastimentos, since Colon is the largest and most developed island and the National Marine Park is located on part of Bastimentos.

4.2.1 Environmental aspects

The crystal clear waters of the islands of Bocas del Toro offer a very high biodiversity above and below the sea. The rainforests, mangrove forests and coral reefs are major attractions for tourists, but are extremely fragile environments (Handley, 1993; in Córdoba et al, 2000).

Environmental conditions in Bocas del Toro have worsened since the tourism development (Binns, interview 07-09-00). The majority of the environmental degradation is a direct and indirect result of the tourism growth. This is related to the overloaded infrastructure of the islands and the lack of environmental awareness of the residents (Binns, interview 07-09-00; Córdoba et al, 2000).

The infrastructure of the largest and most developed island, Colon, is facing problems concerning their sewage and waste management. Tourists are warned to avoid tap water and to drink bottled water while on the islands. There is a wastewater treatment plant but sewage is still being released directly into the sea, since not all the residents are connected to the system (Córdoba et al, 2000). As a result, fecal coli counts have risen in the waters, but only slightly since currents from the north clean out the island's waters (Binns, interview 07-09-00; Gonzales interview 07-09-00). There is a waste collection system that dumps the garbage into a landfill on the island, but there have not been any studies or new methods to update this system (Gonzales, interview 07-09-00). Recycling is impractical since the amount of recyclable materials used is too small to export off the island. These factors are fueled by an increased consumption patterns of the island related to tourism are challenging the island's carrying capacity.

"Meso American biodiversity's biggest enemy is the education factor" (Binns, interview 07-09-00). Careless behavior by tour operators has led to direct effects on the environment. Locals with access to boats have become self-employed water taxis, offering coral reef snorkeling excursions to tourists. They also have the habit of anchoring in the coral reef thus causing damage. The accumulation of this action has destroyed some of the surrounding reefs and ecosystems. In the last year there have been brochures to educate the locals in Bocas about the damage being caused. Reducing these effects depends on the awareness of their impact on the reefs (Binns, interview 07-09-00).

Tourist consumption demands for seafood has led to declining lobster and fish stocks at a faster rate than before the tourism. Ironically the development plan was to reduce the pressure on fish stock but this is not the case. Fishermen can sell their catches directly to tourist restaurants earning a higher price per kilo and therefore adding to the driving force to extract more seafood.

4.2.2 Social aspects

The total population of the district of Bocas del Toro is estimated at 9,883. There has been a decline in Colon Island's population from 5,274 in 1990 to 4,011 in 2000. Bastimentos population has risen from 988 in 1990 to 1,324 in 2000 (Contraloris de Estadística y Censo, 2000). In the surrounding islands the majority of the population is indigenous, living in their native villages. Some indigenous villages offer tours of their islands to tourists. Most actively involved are Panamanian nationals and foreign investors located on Colon Island.

Conflicts over local rights were the first signs of the social impacts of tourism investment. The majority of the land was untitled without defined deeds. As investors attempted to purchase land, there were disputes over who owned what land, with no legal documents to prove it.

4.2.3 Economic aspects

Before tourism, Bocas del Toro depended on fishing and the surrounding banana plantations for income. Today new technologies in the banana fields replacing manual labor have left many unemployed. Declining lobster population also has repercussions on the earlier economy. The inflow of tourists has created new economic opportunities both in the small and large scale (Gonzales, interview 07-09-00).

In the large scale, the tourism economy is booming, and has benefited many foreign investors in Bocas del Toro. Foreign investors have been the driving forces for the growth with the construction of hotels and restaurants in the area, creating jobs and opportunity. Land prices have increased significantly in the last 10 years. The real estate market on Colon Island has developed to the point where investors can even bid for land on the internet.

In the small scale, entrepreneurial locals have participated as tour operators in the tourism industry by offering food services and rooms in their homes, or water transportation services between the islands with their fishing boats. With minimal capital investment some locals have become tour operators. This development is not monitored or controlled thus offering the possibility for anyone to contribute to the growth of the tourism on the island.

4.3 Comparison

The table below, 4-2, is a summary comparison of the two sites.

Characteristics	Venado Island	Bocas del Toro
ECOTOURISM	Does not exist	Began ~ 6 years ago
AREA	3.5 square kilometers	<i>Colon Island:</i> 61 square kilometers <i>Bastimentos Island:</i> 51 square kilometers
ENVIRONMENT ATTRactions	Mangrove & tropical forest	High biodiversity, coral reefs, mangrove & tropical forest
POPULATION	722	Bocas del Toro 9,883 Colon Island 4,011 Bastimentos Island 1,324
ECONOMY	Single economy (Fishing)	Dual economy (bananas & fishing) (pre-tourism)

Table 4-2: Summary comparison of Venado Island and Bocas del Toro

5 Analysis and discussion

Analyzing the situation of Venado Island with the previously established theoretical framework, the author has created a conceptual system to interpret the relation between the different variables and components related to potential impacts of ecotourism development. This system is illustrated as a CLD in figure 5-1, below. The positive and negative signs combined with the numbers below explain these relationships and the assumptions.⁶

5.1 System of potential ecotourism impacts

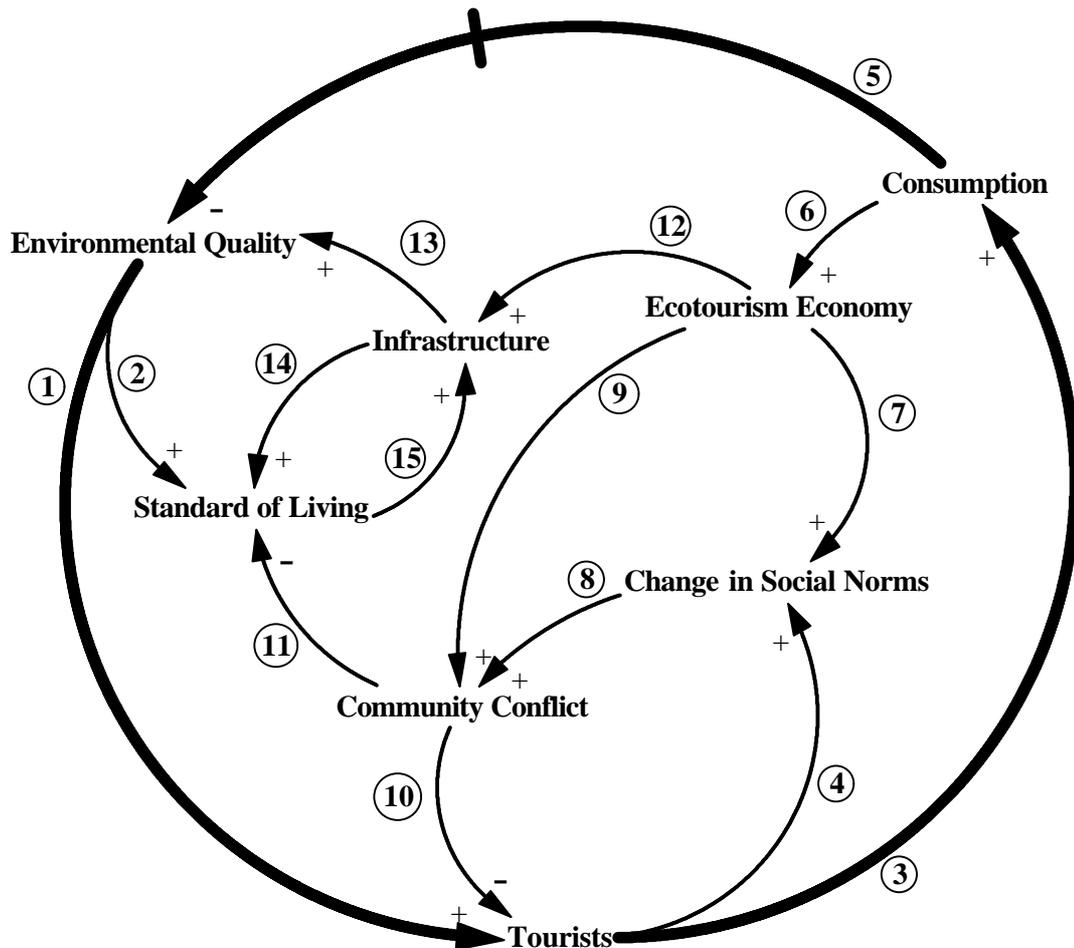


Figure 5-1: CLD, potential impacts of ecotourism

5.1.1 Definitions of the system's variables

Environmental Quality: refers to the state of the surrounding environment, the more environmental quality the less environmental degradation, and visa versa.

Tourists: refers to the number of tourists visiting the ecotourism destination.

Consumption: refers to the consumption of natural and human resources.

⁶ Positive relations (+): the variables move in the same direction, an increase gives an increase, and a decrease gives a decrease.

Negative relations (-): the variables move in opposite directions, an increase gives a decrease and vice versa.

Ecotourism Economy: capital generated, related to an ecotourism operation, including employment and the sub-markets that support ecotourism (ie. transportation & services).

Change in Social Norms: relates to the degree of change from the primary culture and traditions of the host population.

Community Conflicts: relates to the intensity of social conflicts in the host community as a result of the ecotourism development.

Infrastructure: refers to the management efficiency of the water, energy, waste, sewage, nature, health, land and social systems on the island.

Standard of Living: refers to the quality of education, healthcare, food, cloths, housing, and level of security of Venado's population.

5.1.2 Driving forces between the variables

The most significant feedback loop in the system is the peripheral loop connecting the Environmental Quality, Tourists and Consumption. A high quality environment that attracts tourists may lead to its own degradation because of the consumption patterns of the tourists. The delayed effect from Consumption to Environmental Quality may relate to slowly exhausting or contamination of local resources.

- 1) Positive relation: ecotourism is dependent on high quality of environment, if the environment is degraded the attraction to the destination could be reduced.
- 2) Positive relation: a clean environment contributes to positive health and well-being aspects of life.
- 3) Positive relation: more tourists demand goods and services.
- 4) Positive relation: more tourists may increase the amount of interactions between the local population and tourists altering local behavior (see Demonstration Effect and Doxey's Irritation Index section 3.2.2)
- 5) Negative relation: the increased consumption could lead to an increased use of land and natural resources, it may also lead to an expansion of imported goods, thus augmenting waste on the island via packaging. All of these factors, though some are delayed effects, contribute to the degradation of Environmental Quality.
- 6) Positive relation: increased consumption could translate into increased spending, thus creating employment and economic opportunities and enlarging the Ecotourism Economy.
- 7) Positive relation: a rising economy generates more money for the local economy and individuals, empowering them from a dependency position towards an independent position in society. This may lead to challenges of traditional roles, thus increasing the amount of Changes in Social Norms (see section 3.2.2).
- 8) Positive relation: an increase in the amount of Changes in Social Norms could increase the amount of Community Conflicts (section 3.2.2; Ceballos-Lascuráin, 1996)
- 9) Positive relation: the growth of the Ecotourism Economy may generate more money for individuals in the local society. This may lead to an increase of Community Conflicts due social divisions that may grow fueled by resentment and jealousy (see section 3.2.2; Sproule, 1996).
- 10) Negative relation: an increase in the amount of Community Conflicts may create an unfriendly atmosphere, as tourism is a service industry, therefore service may decline along with the amount of tourists.
- 11) Negative relation: security and harmony could be reduced in the local community as conflicts increase.
- 12) Positive relation: growth in the amount of capital in the economy could increase the efficiency of the local infrastructure.
- 13) Positive relation: an increase in the efficiency of the infrastructure may improve the environmental quality (reduce environmental degradation), via conservation management, improved waste, sewage and water management and environmental education.

- 14) Positive relation: as the infrastructure increases, which translates into more capital to improve the efficiency of public services such as health care and education housing, roads, and waste management.
- 15) Positive relation: increased standard of living could increase the efficiency of the infrastructure because of environmental consciousness.

5.2 SWOT analysis

The main purpose of the thesis is to identify aspects that should be considered for ecotourism development and to note the impacts it may have on Venado Island. Therefore a SWOT analysis⁷ of a potential impacts specific to the island is presented in table 5-1.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Natural surroundings; mangrove forest & tropical forest • Tropical biodiversity (alligators, birds, turtles, etc.) • Warm tropical climate • Island - relative isolation • Fresh water & electricity supply • Easy going lifestyle • Remote fishing community • Diet consisting of natural local produce • Island groups interested in ecotourism • NGO aid to the island • Available labor market • Majority of food produced on the island • Costa Rica; renowned ecotourism destination 	<ul style="list-style-type: none"> • Heavy rains in the wet season • Soil with high erosion rate • Dependency on mainland for water & electricity • Lack of community governance (legal land rights) • Gender roles • Inexperienced in tourism & limited level of education • Fragmentation among the community • Infrastructure; island access, paths and waste disposal • Little enforcement of laws & regulations • Limited production possibilities • Single export economy • Competition within Costa Rica tourism industry
Opportunities	Threats
<ul style="list-style-type: none"> • Establish organization to govern island • Open new markets on the island • Tours of mangrove and mountain forest • Environmental education • Conservation plan for the island (zoning) • Improve infrastructure (ex. collect garbage) • Popularity of island destinations; marketing • Improve locals' quality of live • Educate locals in skills for participation • Employment • Supply organic foods for tourists meals 	<ul style="list-style-type: none"> • Selling land to foreigners and land disputes • Hijacked Project- foreign competition • Overloading island infrastructure • Sensitivity of mangrove forest • Environmental degradation; deforestation and erosion • Out of control growth; exceeding carrying capacity • Tourism benefits to few limited individuals • Mediocre management of ecotourism • Family conflicts over income and traditional roles • Decline in morals (drugs, prostitution & crime) • Culture clash, between locals and tourists • Scarcity of resources on island (water, electricity & food)

Table 5-1: SWOT analysis of ecotourism on Venado Island

From the SWOT analysis, the author considers three critical topics for the planning and development of ecotourism on Venado Island: infrastructure, participation of the locals and

⁷ Strength - Weaknesses - Opportunities - Threats

economic growth. The SWOT can be used to identify where weaknesses/threats of ecotourism development can be overcome, by utilizing the island's strengths/opportunities. Weaknesses such as Venado's single export economy and limited produced goods on the island, can be lessened by the opportunities of ecotourism development to create new markets. This example plus others within the three themes mentioned above will be discussed further in the following text from environmental, social and economic perspectives.

5.3 Exceeding the infrastructure's carrying capacity

Overloading the infrastructure of Venado Island would be counterproductive to ecotourism development, as it will lead to environmental degradation.⁸ Resource consumption on the island will increase along with land use, water and electricity. To avoid overloading it, the infrastructure should be able to handle the current population plus withstand the influx of tourists during the high season. Presently, one could argue that the infrastructure's carrying capacity is already being exceeded due to the resident's dependency on the mainland for water and electricity, and their methods of waste and sewage disposal.⁹ Thus stressing the need to improve the current infrastructure for future development. Precautionary methods include limiting land use, identifying indicators for monitoring the development and establishing carrying capacity limits for the sustainability of ecotourism or any other development on the island.

The infrastructure of Venado Island prior to ecotourism development has been simplified into a system, which is made up of five general factors, **Population**, **Consumption**, **Utilized Land**, **Production** and **Imports**. Island population is considered the current driving force for Consumption and Utilized Land. An increase in Population would lead to an increase in all the factors. All of the relationships between the factors are therefore assumed to be positive. The increase of land use could raise the production of goods and housing via increases in construction and land cultivation. Currently the population is using the land for housing, small-scale farms and small-scale cattle grazing. Imported goods will increase if the consumption demands exceed or differ from what the locals can produce. Water and electricity demand would also increase, but these components are not presented in the system, since they are provided from outside the island. The pre-ecotourism infrastructure system is depicted in the CLD below (figure 5-2).

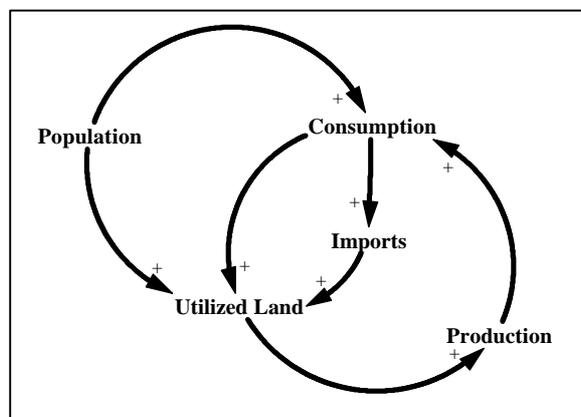


Figure 5-2: CLD, pre-ecotourism infrastructure system

In the following CLD (figure 5-3) **Ecotourism Development** is added, illustrating how ecotourism development on the island will apply more pressure on the current infrastructure via Population. It is assumed that Utilized Land will be the first factor to increase in preparation for ecotourism. This relates to the fact that tourism does not exist on the island,

⁸ The definition of infrastructure in this section is specific to the infrastructure related to the flow of natural resources and waste. Note the difference from the definition in section 5.1.1, which is more comprehensive, including public services such as education and health care.

⁹ Sewage released into the Gulf waters, threaten the mangrove forest, which is the also the location where the jumbo shrimp lay their egg (larva).

therefore facilities will be constructed to house tourists.¹⁰ Consumption of goods by the tourists could also add pressure to cultivate more land and produce local goods. The demanded goods for ecotourism that are not meet on the island will result in an increase of imports.

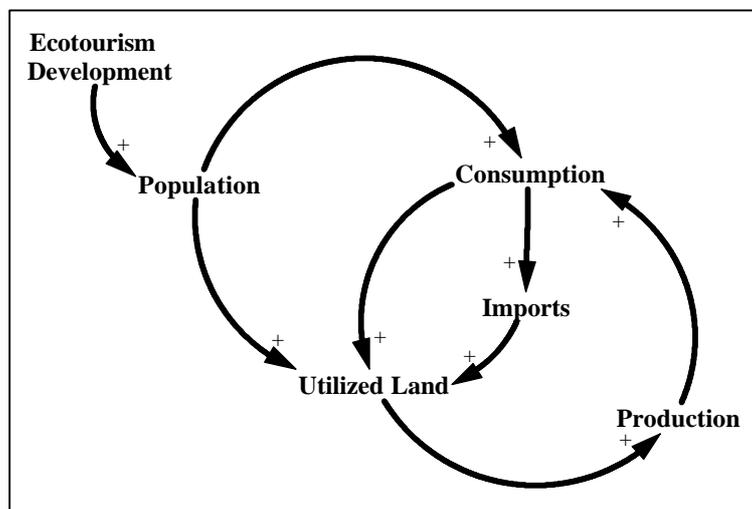


Figure 5-3: CLD, infrastructure system including ecotourism development

5.3.1 Identifying potentials for sustainable development

The overall limitation of Venado Island's infrastructure is land, which also has the potential to provide resources, therefore the Utilized Land component is an essential factor. Ecotourism could intensify the use of land for the construction of accommodations, pathways around the mountain, and docking points along the coast. Locals may attempt to expand their farms in an effort to meet the demands of the additional consumption on the island, thus increasing the amount of utilized land. Land could also be reclaimed from the mangroves, as in Belize (section 3.2.1) to relieve some of the pressure for land. This would not be sustainable, since the mangrove ecosystem is valuable for ecotourism and jumbo shrimp reproduction (section 4.1.3), but it is still a threat. Utilizing the land for producing goods may aid the local economy but there are carrying capacity limits, which should be considered. Therefore under the precautionary principle (section 3.1) indicators should be establish and used to monitor the land's capacity and to notice land degradation before it is too late.

Waste management

Packaging material included in Imports will also increase the demand for land because of the current waste management methods. Visiting tourists could demand more imported goods than the local population because of cultural preferences and differing consumption patterns. Imported products contain solid waste via packaging material, thus the landfills could fill up at a higher rate due to ecotourism consumption. The burning of plastics, color printing inks, batteries, and rubber products produces ashes that may contain polluting heavy metals, such as lead, mercury, copper, arsenic and zinc. This ash can then leach into the ground contaminating the soil and ground water, reducing the amount of arable land for potential farming, and posing health risks (UNEP, 1996; Miller, 1999).

¹⁰ Accommodating tourists in the locals' homes was discussed, but the consensus of Las Pioneras and Los Jovenes was to construct a housing facility for the tourist.

Confining the disposal of waste to a single area could reduce the environmental impact of the current waste disposal practices. The landfill could be lined to reduce leakage¹¹ of pollutants into the ground (UNEP, 1996). Potentially, Knowledge about highly contaminating waste such as batteries that contain heavy metals could encourage collection and disposal of these items to specific areas, which could then be exported off the island to the mainland or at least kept out of the landfills. These methods would improve the sustainability of the land use, but it is still limited. Colon Island, Bocas del Toro uses this method but the island is faced with the same problem Venado would face, limited available space with increasing flows of garbage.

Utilizing locally produced goods is a preventative method for reducing the amount of imported goods and the impact of solid waste, while also benefiting the local economy. Ecotourists in search of remote nature do not necessarily need the same products as at home, local foods could enhance the uniqueness of the visitor's experience.

Recycling or exporting toxic waste from the island would be the most sustainable practices but they are not presently realistic. As in Bocas del Toro there is not enough recyclable goods used on the island to export to the mainland.

Controlling and monitoring the land use may help to avoid exceeding the carrying capacity of the island. Vulnerable geographical characteristics, such as the soil's high erosion rate and the hilly landscape ought to be incorporated, since clearing vegetation for housing and cultivating could risk landslides during the rainy season. Sustainable land use is a critical factor as Venado's land is limited by water boundaries.

5.3.2 Land management: problems and potentials

Zoning and regulating land development could improve the sustainability of the current patterns of land use. Presently Venado Island does not have a land management plan but the National Geography Institute (IGN) could provide the services of producing a "*Plan de Regulador*" (PDR) for the island, as mention previously. This zoning plan could benefit Venado Island by providing a framework for sustainable land use; designating certain areas for natural reserves, housing, farming, commerce, and designing a blue print for sewage lines.

Financing the PDR creates a problem since Venado residents would have to bear production costs of the document. Typically communities pay for the plan with funds generated from community taxes, but residents of Venado have not been paying community taxes. In reality there is little (if any) regulation of development on Venado. Even governmental organizations have funded development on the island in violation of the law, as mention in section 4.1.4. A bottom up approach would be recommended for implementation of a zoning plan, otherwise a plan could be drafted but no one would follow it.

The reality of a PDR on Venado Island is bleak, since they would need popular support to finance and implement it. Obstacles for a consensus could be the landowners not willing to compromise their control of developing their land freely. Also the establishment of land and municipality taxes that would follow the zoning plan, could be perceived as deterrent to obtaining a PDR. Convincing residents of long term benefits may be difficult, especially in their current poverty situation.

Advantages for the *Plan de Regulador* are that it may provide security and increase the standard of living. Incentives for residents could be: potential improvements of social services such as health care and education, with closer ties to the municipality; land

¹¹ Exposure of toxic leachate (garbage juice) into the soil can be reduced and delay, but not totally preventable (Miller, 1999).

concession for obtaining legal right to the land; and a framework for sustainable land use and development to where the natural environment can be conserved. These factors could be starting points to build popular support for controlling the development on the island before it is too late.

5.3.3 Water scarcity

Water supplies on the island may pose a problem during the tourism high season since it coincides with the climatic dry season. The watershed on the mainland currently supplies enough water for the whole year round, although it may be limited during the dry season. Ecotourism may increase the demand for water in two ways, directly with tourist personal consumption and indirectly with agriculture, as discussed above. The dry season reserves could be depleted if they do not manage it carefully. Therefore the water must be monitored so that the development of ecotourism does not lead to water scarcity on Venado.

Ground water may be able to relieve some of the dependency on the mainland's water catchment, but it must be protected. The current waste management on Venado threatens the quality of ground water as mentioned in the previous section. This reduces the amount of available water on the island and ought to motivate a change in the waste management.

5.3.4 "Bridging" the island

The development and expansion of ecotourism will increase transportation of goods and tourists to the island, resulting in a "bridging" of the island. This "bridging" effect will have environmental, social and economic impacts. To allow an increase in flows of goods and ecotourists to the island, the transportation infrastructure to and from Venado should be improved. Potential impacts on the environment could be air and noise pollution from the outboard boat motors, as well as the construction of docking points on the island.

Increasing the traffic between Venado Island and the Peninsula's closest point, La Penca, could have severe effects on the fragile ecosystem of mangrove forest, which separates these two points. If birds and other animals flee the area, it would threaten one of the main ecotourism attractions to the island. Therefore a carrying capacity of the mangrove forest should be considered as a biophysical component (section 4.4.4) to conserve the biodiversity in this area. A possibility for reducing the impact of the traffic through the mangroves, could be rowboat tours instead of boat tours with outboard motors, to low the noise level.

Bridging Venado Island to the mainland could threaten its uniqueness that attracts ecotourists. Many ecotourists seek isolation from other tourists, this explained in the psychological component (section 4.4.4; Ceballos-Lascuráin, 1996). If access to the island becomes open to the masses, the secluded ambiance of the island could be lost. Thus developers must be aware, as Venado becomes less remote it may lose the very same features, which could draw ecotourists. Social and economic aspects related to possible conflicts and opportunities from bridging of the island shall be discussed in the following text as an effect of ecotourism development.

5.4 Participation

Ecotourism is required by definition to benefit the local community, maintain a minimal impact on the environment and promote environmental education, as mentioned in the theory. Therefore it is essential to have active local participation in the development of ecotourism. Since the locals do not have experience with ecotourism, *interactive participation* with experienced professionals (section 4.4.4) is necessary in the development processes. The objective of participation is to empower the community by incorporating their interests and concerns in the decision-making processes, while securing local benefits (see subsidiarity

principle, section 3.1). Thus, local acceptance and support could be earned in the development of ecotourism.

The most obvious obstacle to local participation on Venado Island is the lack of a democracy institution or a central committee that could serve to represent the island to developers/investors or other authorities such as the ICT. Venado's history of independent development and social organization may hamper the creation of a Venado Island Community Committee (VICC).¹²

5.4.1 Social organization

Independent development paths of Venado's society ought to be coordinated in order to control the potential boom of ecotourism development. Poor communication between organizations and different interests groups may challenge the possibility for reaching a consensus among the residents (see figure 4-3).

Consulting the locals through their representatives would be recommended because the small size of the island almost assures that all the residents will be impacted by ecotourism. Therefore, the communities input may lead to bottom up approaches for the implementation of laws and regulations to protect the island and its community, such as limiting the construction of tourists' accommodations. Although including every community member in the participation process is nearly impossible, there ought to be a significant influence by the community in the development (Sproule, 1996).

Establishing a VICC, and achieving transparency between the community and the committee could be promoted by the relatively small size of the population. The communal bond between the residents, where socially *everyone knows everyone* and as the majority of residents maintain a *common level of living* (section 4.1.2) may facilitate communication between the locals and VICC representatives. It could also translate into the community having a strong influence in the decision-making process of a VICC creating transparency where "everybody knows everything."

The first step to creating a VICC could be accomplished by utilizing previously established groups on the island. Church leaders, youth groups, women groups, fishermen cooperatives and educational groups could each decide who they think should represent the views of all the members and create a committee. The figure 5-4 below illustrates how the input and representation of the different groups could unite the division of identities as one committee.

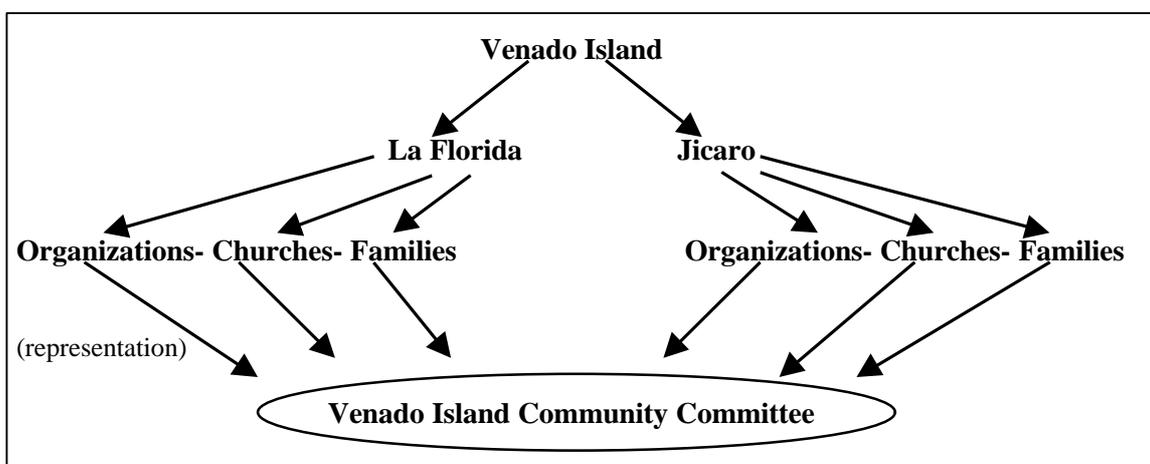


Figure 5-4: Social organization of Venado Island

¹² This committee does not presently exist. The VICC will simply be referred to as a committee that could represent the residents of Venado Island.

5.4.2 Losing the harmony of Venado

The introduction of ecotourism may bring with it unfamiliar faces, alternative lifestyles, new patterns of consumption, while possibly securing or increase residents' incomes, causing a change in the harmonious atmosphere among the people of Venado Island. The remoteness of the island makes the potential of a Demonstration Effect conceivable, with an increase of interaction between locals and foreigner cultures (Section 3.2.2, & Figure 5-1, connections (4) & (7)). As mentioned earlier, cultural exchanges with the tourists could inspire host residents to educate themselves, or pursue gender equality. These changes may cause social conflict and/or a generation gap where past traditions are discarded, and new consumption patterns are adapted.

Assuming that ecotourism on Venado is a success, residents employed in the ecotourism industry on Venado could secure an income and potentially fragment the common level of living on the island. Those who continue to rely on fishing would have an uncertain future. Also the laid back and slow tempo lifestyle could be confronted with new work habits involving work schedules and hourly wages. These alterations could change the social chemistry. Over time, the irritation level of the local could reach the stage of antagonism, in Doxey's irritation index (section 3.2.2), in part due to these changes. Also envy of the profiting locals may lead to further social conflicts (section 3.2.2; Figure 5-1, connection (9)).

5.4.3 Precautionary planning

A prime objective of a VICC should be to create an ecotourism tax system or a direct fund to contribute to the local infrastructure and standard of living, going beyond low wage earning employment. This would be in line with the ecotourism definition by securing benefits for the locals and it could also build local support for ecotourism. Funds could be directed from ecotourism profits to the youth group on the island for education and entertainment events. Therefore the community could see a direct contribution from ecotourism. Events could also function as a preventative method to immoral activities, offering the youth activities and knowledge.

A socio cultural component to the carrying capacity of the island ought to be created to reduce the potential negative impacts and avoid increases in the irritation index due to the visiting ecotourists. Distancing the development away from the two villages could increase this component, by limiting the interaction between locals and visitors.

5.5 Economic growth and opportunities

Expenditure by ecotourists creates an inflow of foreign currency, which should stimulate economic growth on Venado Island. Initial investments could be spent on construction for infrastructure improvements and tourists facilities, thus generating local employment opportunities. Operating the transportation services and the tourists' facilities would be the next development to demand labor. Locals could be easily trained and employed as water taxis, waiters, cleaners, and other services that do not demand highly qualified personnel.¹³

Residents could easily become independent tour operators with only minor initial investment costs, presuming ecotourism on Venado Island attracts tourists. In Bocas del Toro, locals took advantage of tourists in the area by offering services from their own private homes such as food and accommodations, others have utilized their fishing boats as water taxis and offer

¹³ The National Institute for Learning (INA) currently has a program to educate and train members of rural communities for the tourism service sector, such as waiters, cleaners, etc.

boat tours. Residents who take the initiative can become self-employed local tour operators and profit directly from tourists in the area.

Increased goods consumption due ecotourism would generate economic potentials for producing and selling goods locally, thus stimulating Venado's economy (figure 5-1, connection (6)). Fishermen could sell their fish for a higher price to the tourists or tourists restaurants compared to the price offered at the fish market. Also the cultivation of produce could be increased beyond self-provisions. Residents could expand their gardens or initiate small-scale sustainable farming of fruits and vegetables for tourist consumption. Souvenirs and handy crafts could also be produced and sold locally on the island. An example of this from Bocas del Toro, are indigenous groups that sell patches and tapestries with their traditional embroidered designs. Locals of Venado have the potential to expand their sewing skills and learn other handy work to create souvenirs. In order for these new markets to be developed on Venado, training and capacity building of the people is necessary. Currently organizations aiding the community such as the IOI have the resources to offer training course. These opportunities could reduce leakage of ecotourism revenues caused by the importation of goods and services plus activate the local economy.

Limited education and environmental awareness threatens the environment if the locals are to be tour operators. Privately operated boat tours in Bocas del Toro, repeatedly anchored in the coral reefs for snorkeling. The compounded result was the destruction of certain reefs and surrounding ecosystems. Therefore educating the locals about the consequences of their actions could reduce impacts, as it is difficult to control the tour operators. In Bocas del Toro, environmental education to the general public has slowly been introduced in the last year, as brochures about the sensitivity of the local ecosystems have been produced and distributed. These brochures are a reactionary approach to conserving the environment, as damage has already taken place. Local ought to be aware of Venado's surrounding mangrove forest and its sensitivity. Environmental education and awareness is needed prior to development, if the same mistakes leading to environmental degradation are to be avoided by privately managed operations.

High local employment rates may translate into successful conservation. Ecotourism requires capital to be directed to nature conservation and education, since nature is the main attraction. The reality of the nature's fate lies in standard of living of the locals. Poor and starving people may contradict environmental protection if the only resources available to them are from the surrounding nature. Controlling them from exploiting the environment would require guards in a top down approach or a bottom up approach by offering jobs and improving their standard of living. On Venado Island, a bottom up approach could be considered a more realistic and desirable method for conservation. Employment and economic opportunity could prevent locals from extracting resources in protected/ of ecologically fragile areas, such as the mangrove forest. This is illustrated in the CLD of potential impacts (figure 5-1) as the driving forces (2)(13)(14) and (15), where the conservation of nature if effected by the standard of living.

5.5.1 Land rights and power

Land ownership translates into power, since landowners will have a significant influence on the development especially since there is little to no enforcement of laws on Venado Island. In accordance with the subsidiarity principle of the Rio Declaration (section 3.1), local ownership and responsibility should be encouraged. Landowner's authority in the development is welded in their decisions to construct housing or cultivate their land. Residents may decide to sell their land to foreigners with tempting offers.

In Bocas del Toro, foreign investment has driven up the price of land to the point where only other foreigners are purchasing property. Due to the economic situation on the island,

typically foreign investors have enough capital to construct hotels, restaurants and tour operations. Locals have benefited from the construction of these enterprises with employment opportunities but they do not have as much influence in the development of tourism in Bocas del Toro as they sell their land (Gonzales, interview 07-09 00). Resident may earn a short-term profit from selling their property, but also submit power and influence to the buyer, thereby reducing the local influence in the development process.

Locals should be aware of the true value of their land and the connection to land ownership power (Budowski, interview 22-09-00). If they can be convinced to hold on to their land, they could see the value of their land increase significantly while still in their possession, as the island developments. Leasing the land to developers could be an alternative to sell it, therefore locals would not yield all of their power and influence. Otherwise selling land has the potential to initiate a buying and selling between foreigners where the cheapest price was realized by local, and the percent of foreign owned land and foreign influences increase.

5.5.2 Long run competition

In the long run, the economy of Venado Island should be wary of being too dependent on ecotourism, due to fickle flows of tourists. In the high season increased consumption levels related to tourism may cause a boom in the economy, followed by stagnation in the low season. As the ecotourism economy grows, revenues from the high season ought to be reinvested for non-tourism related activity or saved for living costs, to minimize the impact of decreased income in the low season. Ecotourism can be used as one of many developing tools to diversify Venado's economy, but if ecotourism were the sole industry, the economy would be vulnerable to changes in the market.

Venado Island could take advantage of the limited tourism industry in the regional area, by being the first island to offer ecotourism, but they should be cautious of the potential competition. Often competition for tourists has led to the cutting of costs that can cause environmental degradation (Honey, 1999). Two possible methods the island could do to attract ecotourists would be to cut cost and lower the prices where quality may be compromised, or to increase investments in the ecotourism to create a superior quality. Reducing the quality may threaten environment, while improving the quality requires extra capital to invest and would add to the dependency on ecotourists. Ecotourism profits should not focus on only reinvestment in ecotourism development, instead investment into other markets that could diversify their economy, reducing their future dependency on tourism, for example developing a shrimp cultivation farm.

5.6 *Managing the ecotourism economy for sustainability*

The sustainability of ecotourism development on Venado Island could be decided in the management of the Ecotourism Economy to improve the Infrastructure. Venado's infrastructure is the uniting factor to the sustainability variables. This is illustrated below (figure 5-5) in with a re-presentation of the CLD in figure 5-1, note the three aspects of sustainable development, environment, society and economy are represented as Environmental Quality, Standard of Living and Ecotourism Economy.

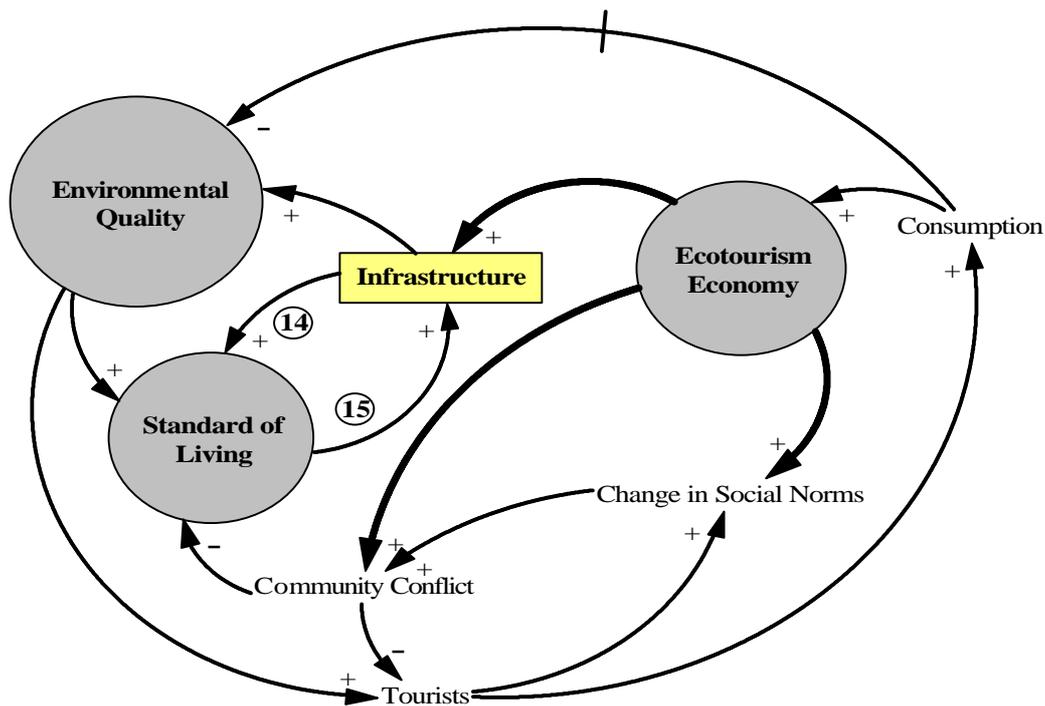


Figure 5-5: Three aspects of sustainability tied together by infrastructure

An institutional democracy, VICC, could be the main actor needed for directing revenues into the infrastructure and improve waste, goods, and human management as discussed previously. The ecotourism economy may contribute to the island's infrastructure in the forms of ecotourism tax, employment salaries and investment in ecotourism. The feedback loop between the Infrastructure and the Standard of Living (figure 5-5, connections (14)(15)) illustrate the potential role the community may play, as contributors or threats to the Infrastructure. The community could support the Infrastructure, and vice versa, in a reaction from improvements in the Standard of Living, such as economic opportunities, education and housing.

Carrying capacity limits and management of ecotourists are elements that should be considered within the infrastructure. Necessary for establishing these carrying capacity limits would be an interactive participation between locals and developers. The most significant carrying capacity would be number of ecotourists the island's infrastructure could maintain. Taking into account the factors that apply pressure on mainland resources: the use of island resources thus influencing land use; imported goods and waste production; and the amount of water and electricity each tourists may demand. A code of conduct ought to be made by the locals and outside consultants to promote proper visitor behavior and reduce the ecotourists impact. This could be in the form of signs that limit access to protect sensitive areas, such as trails specifically designed for hiking up the mountain and lectures to inform the ecotourists of customs of the locals, or behavior which residents may find offensive.

A bottom-up approach to managing the infrastructure seems to be the most practical for Venado Island. Support from participating NGOs to educate the locals about the carrying capacity of nature is essential for the implementation of potential sustainability policies such as land zoning plans and carrying capacity limits. Although the realization of a PDR (zoning plan) is grim, it would create a framework for particular aspects of the island's infrastructure, which are vital. Almost any regulation or control on the island would need popular support for implementation because of the remoteness of the island, thus bottom up approaches are more applicable.

6 Conclusions and recommendations

The main conclusion of this research is that ecotourism has the potential to improve the living conditions of the community on Venado Island. This would be derived from an increase of consumption and from foreign expenditure that could stimulate the local economy. But, at the same time, the islands' community is not prepared for preventing the negative consequences related to ecotourism development. The lack of community organization and representation makes the island vulnerable to poor planning, uncontrollable growth and failure of the existing infrastructure. Overall, ecotourism could be used as one of many development instruments to diversify Venado's economy, but should not be regarded as the sole instrument to be used in strategies for aiming for sustainable development.

Answers to the initial research questions have developed, throughout the study as follows:

What potential impacts on the community's environment, society and economy may result from the development of ecotourism?

- The environment will be impacted with an increase in the land use, while ecosystems such as the mangrove forest, may be disturbed by increases in visitation and contamination from the island. Socially, conflicts could ensue as the residents become exposed to new cultures, causing change in their own traditions and behavior. This social change may be fueled by a modernized economy, which attracts foreign expenditure and creates employment opportunities.

What factors should be considered prior to introducing ecotourism to Venado Island?

- Planning and local involvement is essential for sustainable ecotourism development. Thus a democratic institution ought to be formed for local representation and interactive participation in the decision-making processes with ecotourism interest groups as well as with the central authorities. Outside consultation is likely to be needed due to a deficiency in local experience and knowledge of ecotourism development.

How can ecotourism be utilized as an instrument towards local sustainable development?

- Ecotourism ought to be integrated with other aspects of development for it to be sustainable. At least part of the revenues created from the ecotourism economy should be invested back in the local environment and training of the people, improving the infrastructure and leading to a better standard of living.

6.1 Recommendations

Since the island is not prepared for ecotourism, as mentioned above, the author provides two categories of recommendations: general prerequisites to development and specific suggestions for ecotourism development to be considered once the community is prepared.

General prerequisites for sustainable development

- The existing groups and organizations on the island ought to form a democratic institution, to represent the community as a whole, there by improving the conditions for implementing sustainable policies and regulations and providing a platform for interactive participation with potential developers.
- The local community should approach NGOs and governmental institutes, such as INRECOSMAR and the IOI, for environmental education and tourism service capacity building courses for interested residents. Locals could be made aware of the consequence of selling their land, and be trained as skilled labor. This could avoid or reduce the amount of imported labor.
- The VICC should obtain a Plan de Regulador, from the National Geography Institute for long term zoning, to control land use management on the island. This could coordinate

and supervise the development on the island and provide a framework for the island's infrastructure and sustainable land use.

Specific suggestions for ecotourism development

- With support from the ICT, developers ought to survey the demand for ecotourism along the Gulf of Nicoya's coast, noticing the fluctuations in the high and low seasons.
- Improve access for ecotourists' arrival, including boat taxi services to and from Puntarenas with the construction of floating docks on the island. A public transportation route to the island should be avoided to protect its remoteness and limit the amount of visitors.
- Development should begin at a very small scale for the locals to familiarize and train themselves how to manage ecotourism, possibly starting with only day boat tours of the mangrove forest, then later expanding to restaurants and accommodations when the locals are willing.
- The tourist facilities should be constructed at a distance from the two villages, on the northeastern end, with the consent of the locals. This could reduce the Demonstration Effect, since the tourists would interrupt less the daily lives of the locals.
- If foreign interest in the island increases, local landowners ought to lease their land instead of selling it. Thus they could generate income from their land, but could still maintain some control over its use.
- With consultation from the National University and other participating NGOs, local gardens should be expanded to increase agriculture yields, to meet the demands of visitors and broaden the market.
- With consultation from the National University and the ICT, carrying capacity indicators should be established and periodically checked to monitor change once the development has began.

In closing, the key to sustainable ecotourism development on Venado Island is precautionary planning. Preventative measures should be taken to coordinate and control the development, as the purpose should be the integration of ecotourism with the other economic sectors already existing on the island, in order to enrich the standard of living and improve the local infrastructure. If these aspects are not properly addressed in the development plans, the island may form an economic dependency on tourism, and foreign investors could isolate and export profits from the island. The issues of exploitation of the environment and community are relevant in general to developing countries interested in promoting ecotourism development. Initial foreign investment may stimulate the economy to grow, but if social conditions are not improved then who is really benefiting from it? Ecotourism that does not reinvest in the local surroundings and people essentially is a short-term business that generates profits for its investors. In the case of Venado Island, hopefully the people can organize themselves before socio-economic conditions lead them to a premature and unsustainable path of development.

6.2 Further Research

The results of this thesis should generate further research studies in relation to ecotourism and rural development in island environments. Possible topics for future studies could be:

- What imports could be considered sustainable or unsustainable, for an island ecotourism destination?
- As surrounding areas develop and access becomes more available, how could remote ecotourism operations preserve their environment and uniqueness for their future?
- A deeper study of the relations between the growth of ecotourism development in rural areas and the dependency on imports from the urban market.

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- Arroyo, Carlos,*¹⁴** Former leader of the Association for Integrated Development, Venado Island, continuous discussion from August through September 2000.
- Barrios, Epifania,*** Leader of the Las Pioneras, Association for Women of La Florida, Venado Island, continuous discussion from August through September 2000.
- Barrios, Jorge,*** Leader of Los Jovenes, Venado Island, continuous discussions from August through September 2000.
- Binns, Hugo,*** Director of National Marine Park of Bastiemento Island, Panama, interviewed 07-09-00.
- Budowski, Gerardo,** Director of the University for Peace, Costa Rica, Former Executive Director of the IUCN, and former President of the Ecotourism Society, interviewed on 22-09-00.
- Chinchilla, Eduardo,*** Department of Geography, National University, Heredia, Costa Rica, interviewed 25-09-00.
- Gonzales, Angel,***Regional Director of PROMAR, Bocas del Toro, Panama, interviewed 07-09-00.
- Mora, Ricardo,*** Department of Natural Resources in the ICT, interviewed 09-09-00.
- Pizarro, Francisco,*** Project Coordinator for the IUCN, Latin America, continuous discussion from August through September 2000.
- Rodríguez, Omar,*** Biologist for INRECOSMAR, continuous discussions from August through September 2000.
- Rojas, Fabio,*** freelance researcher and author, retired from the Department of Geography, National University, Heredia, Costa Rica, continuous discussions and consultations from July through September 2000.
- Ruiz, Rose Marie,*** Director of IOI's Venado Island projects and former Director of IMAS (Governmental Poverty Alleviation Program), continuous discussions and consultations from July through September 2000.
- San Ramon, Lorena,** Coordinator for the National Councils for Sustainable Development in the Earth Council, San José and contributor to the Costa Rican Sustainable Tourism Certificate member of CST, interviewed 04-09-00.
- Villalobos, Carlos,*** Director for APMETUR's Gulf of Nicoya Ecotourism Project, continuous discussions and consultations from August through September 2000.

Acronyms and abbreviations

APMETUR	Association of Small Tourism Businesses for the Nicoyan Peninsula
CCSS	Costa Rican Social Security
CLD	Causal-Loop Diagram
ICT	Costa Rican Institute for Tourism
IGN	National Institute of Geography, Costa Rica
INRECOSMAR	Institute of Coastal and Marine Resources, Costa Rica
IOI	International Oceans Institute, Costa Rica
IPAT	Panamanian Institute for Tourism
IUCN	International Union for the Conservation of Nature
NGO	Non-governmental Organization
PDR	Zoning Plan
PROMAR	Foundation for the Protection of the Seas, Panama
TES	The Ecotourism Society
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environmental Program
WCED	World Commission on Environment and Development
WTO	World Tourism Organization
WTTC	World Travel and Tourism Council

¹⁴ The "*" notes interview that were conducted in Spanish. The author translated references and quotes from these interviews into English.

APPENDIX: Summary Chart

Ecotourism Impacts: threats, potentials and strategies for Venado Island

Ecotourism Impacts	Threats	Potentials	Sustainable Strategies
Land Use			
Construction of Facilities	Erosion, removal of vegetation, and loss of biodiversity	Local employment, supply of goods and services	Zoning, limiting construction to certain areas
Farming	Erosion, removal of vegetation, and loss of biodiversity	Local employment, supply of goods and services	Zoning, limiting farming areas. Small-scale farming. Increase local garden output.
Increased Consumption			
Goods	Import dependency and increase of solid waste on island	Increase local produce farming and market island made produces, souvenirs	Capacity building handy crafts and sustainable farming, and waste collection to confine disposal areas.
Services	Imported skilled labor	Local employment	Training of locals for service jobs
Water	Increased dependency on mainland resources, limited water during dry seasons	None	Limit the number of tourists on island and monitor water use.
Electricity	Increased dependency on mainland electricity	None	Monitor use of electricity
Sewage	Pollute ground and gulf water	Fertilizer	Distribute waste over cultivated lands
Transportation (Bridging island)	Boom of tourism industry and out of control growth. Loss of uniqueness and mangrove biodiversity	Allow ecotourist to visit island	Avoid public transportation. Set carrying capacity of ecotourist to limit number of visitors
Social impacts			
Ecotourist: Dividing residents	Demonstration effect and loss of culture	Social equality and empowerment within society	locate ecotourists away from residential areas, to avoid interruptions of local's daily life
Loss of Power Foreign Investment	Social conflicts, land disputes, limited beneficiaries and loss power	Employment opportunities, increase in land value and infrastructure improvements	Single community committee, participation of locals in decision making and leasing land