Livelihoods,
Community Well-Being, and Species Conservation

A Guide for Understanding, Evaluating and Improving the Links in the Context of Marine Turtle Programs

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Acronyms

ANAM National Environmental Authority (Panama)

APRORENANB Association for the Protection of Natural Resources of the Ngöbe –Buglé

CBMAP Mesoamerican Biological Corridor project of the Panamanian Atlantic

CBNRM Community-based natural resource management

CCC Caribbean Conservation Corporation

CEASPA Panamanian Centre for Social Studies and Action

CLIP Community Livelihood Improvement Program

ECO Environmental Conservation Organization

ICT Institute of Tourism of Costa Rica

IPAT Panamanian Institute of Tourism

IUCN The World Conservation Union

MINAE Ministry of Environment and Energy (Costa Rica)

MTCP Marine Turtle Conservation Program

NGO Non-governmental organization

Abstract

Despite international acceptance of the concept of sustainable development, which recognizes the need to reconcile conservation and development, the practical application of this concept continues to be the greatest challenge. Nonetheless, there is a growing recognition that community livelihoods and well-being are intimately linked to the state of the natural environment, and that each impacts the other. This manual presents a conceptual framework for making the link between marine turtle conservation, community livelihoods and community well-being. It establishes a methodology for identifying and monitoring the components of, and relationships between, community livelihoods and well-being, and marine turtle conservation. Finally, the manual provides a road map for improving the integration of conservation efforts with progress in community well-being. Environmental conservation and community development practitioners, in particular, may find this document helpful. Marine turtles are chosen throughout the document as a 'golden thread' to illustrate the concept and methodologies, but we believe that this approach is equally valid for community-based projects related to other natural resources.

Conventional approaches to community development have for the most part been based on socio-economic indicators. The holistic approach proposed here considers community well-being as the interaction between a wide spectrum of objective community assets, on the one hand, and subjective perceptions regarding the satisfaction of a wide spectrum of fundamental needs, on the other. Community assets include financial capital, as well as natural resources, built capital, social, cultural, political and human capital. Fundamental human needs include the organic needs of subsistence, protection of person and place, the need for affection, and liberty of movement and expression, as well as the existential needs of understanding, participation, creation, leisure, identity, and transcendence. Improved community well-being through time is seen as progress along four major lines: (1) greater sustainability of the natural resource base and long term satisfaction of fundamental needs; (2) greater equity in accessing community assets for satisfying needs; (3) greater autonomy in taking control over decisions affecting the community; and (4) greater security through reducing community vulnerability to environmental and socioeconomic threats by means of improved information management and diversification of local economies.

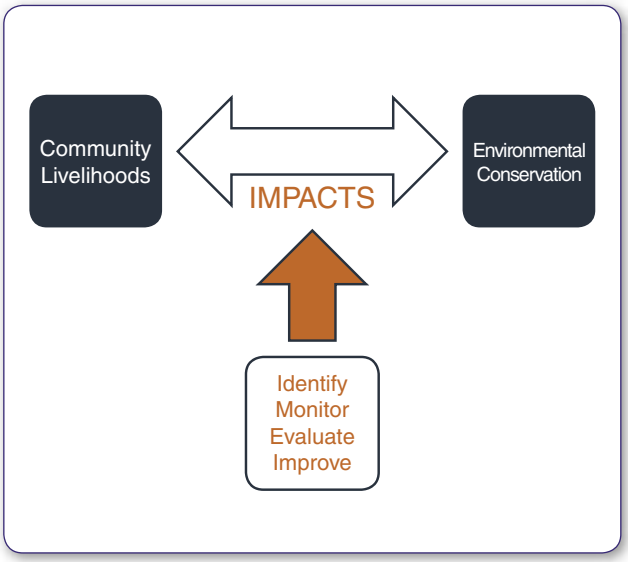
The methodological approach of the Community Livelihood Improvement Program (CLIP) proposed here involves: (1) establishing a multi-pronged partnership, including the local community, the environmental conservation organization with external experts, and the local government authorities, along with other possible stakeholders; (2) creating a CLIP based on a shared vision of who the community is, what it does, what it has, how it is, and where it wants to be; and (3) implementing data-based adaptive management based on objective local data that is collectively gathered, monitored, evaluated and constantly updated for effective decision-making. All these elements are carried out following the principles of participation, equity, and local appropriation of the process. Finally, at the end of the document, three case studies from Central America (Tortuguero, Junquillal, and Chiriquí) are included for illustrative purposes representing different stages of implementation of the CLIP.

Introduction

During the last sixty years, the process of economic growth throughout the world has significantly compromised the natural resource base that sustains all life. In response, environmental conservation efforts have arisen to counteract some of the deleterious effects of development. However, as the problems of environmental degradation and poverty continue to grow in many parts of the world, it becomes ever more necessary to develop effective ways of addressing these complex and interrelated issues. Up until the 1980s, most environmental conservation projects focused on the biophysical aspects without taking into account the livelihoods and well-being of human communities, except, perhaps, as the culprits of environmental degradation. On the other hand, well into the 1980s, most community development projects aimed for socio-economic improvement, with little or no concern for the protection of the environment, except, perhaps, as a resource for subsistence. Despite the arrival in the international arena of the concept of sustainable development, conservation and development efforts have often continued in parallel with little or no substantive integration of each other's aims. There have been, nonetheless, an increasing number of initiatives of community-based natural resource management, in line with this document, promoted by a wide range of NGOs (World Bank 1995; Ford Foundation 2006).

There is a growing recognition that community livelihoods and well-being are intimately linked to the state of the environment, and that they have a mutual impact on each other (O'Gorman 2006). Accordingly, there is a need to direct efforts toward bringing the two together. The present document aims to contribute to filling some of the gaps of knowledge and practice that exist between environmental conservation and community development initiatives, by identifying, monitoring, and evaluating the impact that the two approaches have on each other, in an effort to improve their interaction for the benefit of both conservation aims and community well-being.[1]

Endangered species conservation efforts, like environmental conservation efforts in general, have not traditionally focused on human community well-being. Recently, however, it was shown that species conservation projects can contribute to improve local livelihoods (O'Gorman 2006), although most of these projects may not have been initially conceived with this goal in mind. It is increasingly evident that greater attention must be paid to local community well-being if conservation efforts are to be sustainable (Frazier 1999, Arnold 2001; Elliot 2001; Reed and Tharakan 2004). Recently, the Marine Turtle Conservation Program of WWF, the global conservation organization, has made a conscious effort to include community well-being in its strategy. In the document *"Money Talks – The Economics of Marine Turtle Use and Conservation"* (Troëng and Drews 2004), WWF shows that marine turtles are a source of significant cash income to coastal communities in marine turtle range worldwide, and that non-extractive uses, such as tourism, can generate more revenue than the trade of marine turtle products. After this first analysis, the Marine Turtle Conservation Program has continued with a more holistic approach beyond solely the economic sphere, to include social, cultural and political concerns, among others (Drews 2005; Prescott-Allen 2001). This is believed to lead to more profound and long-lasting improvements in livelihoods, which may in turn facilitate the adoption of long-term and sustainable conservation measures. While marine turtles are chosen throughout the document as a 'golden thread' to illustrate the concept and methodologies, we believe that this approach is equally valid for community-based projects related to other natural resources.



[1]By demonstrating progress in these areas we would also be contributing towards some of the Millennium Development Goals: 1) Eliminating extreme poverty and hunger; 2) Achieving universal primary education; 3) Promoting gender equality and empowering women; 4) Reducing child mortality; 5) Improving maternal health; 6) Combating HIV/AIDS, malaria and other diseases; 7) Ensuring environmental sustainability; 8) Developing a global partnership for development (O'Gorman 2006).

Many societies have a stake in the conservation of marine turtles, and for a variety of reasons (Frazier 1999). The livelihoods of coastal communities where marine turtles nest have been linked to these marine animals since time immemorial. Marine turtles have been used for food (meat and eggs) and other commodities (bone, leather, oil and shell). Recently, marine turtles have also become important as tourist attractions, as well as the focus of scientific research, education and conservation efforts, all of which can provide employment, information and cash revenue. Both extractive and non extractive uses directly affect the livelihoods of local human communities (e.g. Salao 2005). The conservation of marine turtles allows for the protection of livelihood strategies that depend on turtles and their habitats. In addition, marine turtles have immeasurable worth as cultural assets in the Americas, Africa, Asia, the Mediterranean, Australia and the Pacific (e.g. Frazier 1999; Vargas-Mena 2000).

Marine turtles are also precious ecological resources, as they are components of various ecosystems including coral reefs, sea pastures and areas of high productivity where jellyfish, the main staple of leatherbacks, are abundant. The health of these ecosystems in turn determines the availability of marine resources such as fish, mollusks, mangroves and marine turtles themselves. And marine turtles transport thousands of tons of nutrients from the sea to the coast in the form of eggs and hatchlings, which are food of many species both coastal and marine. Finally, because marine turtles migrate thousands of kilometers and take decades to mature, they serve as powerful, charismatic indicators of the health of coastal and marine environments on both local and global scales (Frazier 1999), and illustrate the need for international collaboration in facing several marine conservation challenges. The conservation of marine turtles implies the protection of a wide array of ecosystems that sustain them around the world and on which human societies depend, hence their choice as flagship species by conservation organizations (see contributions in Frazier 2005).

Marine turtles are endangered today because of various historic, present and future threats. Overexploitation took a great toll in centuries past and continues to be of local significance to the survival of these species, mostly where nest poaching for the egg trade is rampant and at sites where the demand for turtle meat causes thousands of turtles to be killed every year. Habitat degradation due to coastal development prevails as a scattered threat to nesting sites and in some feeding habitats. Mortality in the nets and hooks of the world's fisheries as unintended bycatch is the greatest current threat to marine turtles. Habitat alterations due to the effects of climate change, however, are probably the most severe future threats to these ancient mariners.

Some of the threats to marine turtles are local in origin, and hence merit a community-based approach for their mitigation. But even remote threats to marine turtle populations can have consequences on the livelihoods of coastal communities elsewhere. The sharp decline in leatherback turtles caused in part by bycatch mortality in distant waters, for example, reduces the prospects for prosperity in communities that depend on the same turtles as tourist attractions. Therefore, a community-based intervention may be justified on the grounds of local threat mitigation, but also in order to document the socio-economic impact of marine turtle declines caused at distant sites.

In looking at the link between marine turtle conservation and local community livelihoods, it is necessary to consider the interactions of marine turtle conservation efforts with all of the elements that combine to make up community well-being. To focus only on economic assets, for example, without considering social and cultural assets, ignores important aspects of community well-being and limits the appreciation of the possibilities of these assets interacting positively with marine turtle conservation efforts.

This manual is expected to contribute to the design and implementation of community-based conservation projects with long-lasting outcomes. It presents a *conceptual framework* for making the link between marine turtle conservation, community livelihoods and community well-being. It establishes a *methodology* for identifying the component parts of livelihoods and well-being and their relationships to each other, and monitoring the mutual impact between marine turtle conservation and community livelihoods. Finally, it provides *a road map* for improving the integration of conservation efforts with long-lasting improvements to community well-being.

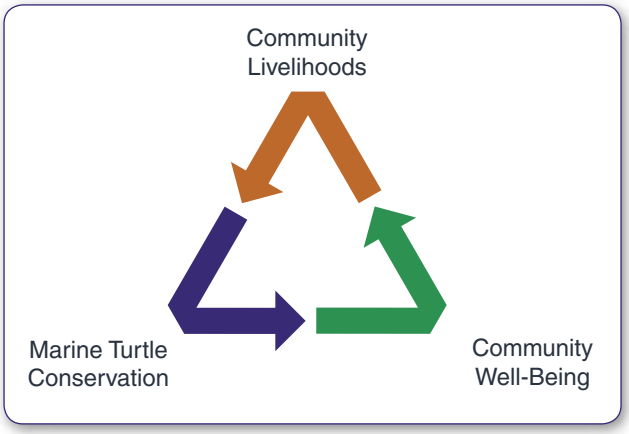
The following three axioms are the premises upon which this manual is based:

- Environmental conservation and community well-being are inextricably linked and can be mutually beneficial (World Resources Institute 2005).

- Environmental conservation and community well-being can most efficiently and effectively be sustained in the long term if local communities are actively involved in the efforts.

- Without community well-being, most environmental conservation efforts are seriously compromised, and without environmental conservation, community well-being cannot be sustained (Prescott-Allen 2001).

Based on these premises, this manual departs from conventional approaches to community development by taking advantage of the synergies that exist between environmental conservation and community well-being, and by using the existing expertise of an environmental conservation organization (ECO) as a platform from which to launch initiatives for improving community livelihoods and well-being.



As a guide for evaluating, monitoring and improving the links between community livelihoods, community well-being, and marine turtle conservation, this manual brings together ground-breaking perspectives (see Max-

The livelihoods of coastal communities where marine turtles nest have been linked to these animals since time immemorial. An egg trader in the Maldives, a sign to attract tourists in Trinidad, turtle carapaces in Bahía Magdalena in Mexico and the paintings on building walls in Panama and the Seychelles illustrate marine turtles as natural and cultural assets.

Neef *et al*. 1986; Emery and Flora 2006), best practices in community-based natural resource management (see McCay 1998; Uphoff 1998; Pathak and Kothari 2001), and sustainable livelihood approaches (see Arnold 2001).

First, it recognizes a wide spectrum of different aspects of community wealth that are rarely taken into consideration and thus it provides a more complete understanding of these assets and greater opportunities for making effective use of them for the benefit of the community (Emery and Flora 2006). Second, it promotes a universal framework for measuring community well-being (Max-Neef *et al.* 1986) that, unlike the reductionism, opens the spectrum of fundamental human needs beyond the organic, to include existential as well as transcendental needs. While being amenable to local interpretation, this document can be used as a simple monitoring and evaluation tool for community well-being. Third, it proposes a simple fourfold parameter to measure changes in community well-being through time. Fourth, it recognizes the fundamental contribution of natural resources to community livelihoods and well-being, and in doing so, explicitly links community livelihood improvement with environmental conservation programs. Under current trends of increasing environmental degradation and growing poverty in coastal areas of developing countries, a comprehensive and integrative approach such as this for stimulating positive synergies between community livelihoods and environmental conservation is urgently needed.

This manual is directed primarily at ECOs, and specifically at those with marine turtle conservation projects, that seek to incorporate goals of community livelihood improvement into their programs. Hence, while aiming for general applicability to the interface between environmental conservation and community well-being, the case studies at the end are limited to examples of relatively small rural coastal communities where external environmental conservation organizations implementing marine turtle conservation projects are interested in incorporating community livelihood improvement goals and activities into their projects.

Turtle tourism in (clockwise) Costa Rica, French Guiana, Mexico, South Africa and the Seychelles. Non-extractive uses such as tourism usually generate more revenue than trade in marine turtle products, turning these animals into a significant source of cash income to many coastal communities.

Chapter 1

Presenting the Conceptual Framework

Presenting the Conceptual Framework

Identifying, monitoring and adjusting the links between marine turtle conservation and community livelihoods so that they become increasingly mutually beneficial, requires that we identify as clearly as we can what we are observing, as well as what changes represent positive movements in both these areas and in their relationship to one another.

It is important that we start out by defining terms. For the purposes of this manual, 'marine turtle conservation' represents efforts to protect marine turtles and their habitats so that their populations remain viable. These efforts include many actors, such as Environmental Conservation Organization (ECO) personnel, local communities, and governments, and they include many actions, such as controlling hunting and egg harvesting, education and raising awareness, restoring or maintaining terrestrial and marine ecosystem health, reducing bycatch mortality, creating appropriate laws and regulations, etc. The process of monitoring marine turtle populations has traditionally included keeping track of numbers of nesting individuals, and interpreting an increase in numbers as an indicator of positive change.

Marine turtle conservation represents the efforts of people to protect marine turtles and their habitats so that their populations remain viable.

1.1 Communities

It is often taken for granted that the concept of 'community' has a single definition. In practice, however, it is not so simple. For example, because people are mobile, the spatial dimension of community is constantly in flux. Moreover, because a community is defined at least in part by who belongs to it, it enters the realm of perception and identification. Therefore, a community is an elusive entity that is constantly being redefined geographically and temporally, as well as by other possible characteristics such as race, class, ethnicity, age, nationality, profession, religion, or dress. A community may be defined by "insiders" who subscribe to a particular community identity, or by "outsiders" who define the "other" community in terms of perceived differences from themselves. Identification with a community can differ not only from person to person, but within a single individual whose perception of community may shift depending on the context. In the context of a village, community identity may be split along kinship lines; in a province, it may be defined in terms of townships. In the context of the nation state, communities may differ by ethnicity; and in the international arena, they may well be nationalities. In a project context it is therefore necessary to clarify the definition of this term to justify the type of intervention being implemented.

Here, the definition of local community refers in great measure to a "community of place", i.e. as those people whose livelihoods take place, at least to some extent, in the proximity of marine turtle nesting or foraging sites. These communities may be single or multiple units, depending on the other elements of identification at play in these locations, such as ethnicity, class or gender. Ultimately, however, in this manual there is an intention of fostering a wider "community of interest," or a sense of community, among diverse stakeholders around efforts to improve marine turtle and environmental conservation, as well as community well-being.

Our definition of "local community" is a "community of place" made up of people whose livelihoods take place, at least to some extent, in the proximity of marine turtle nesting or foraging sites. But we hope to foster a wider "community of interest" around marine turtle conservation and improved community well-being.

1.2 Livelihoods

With regards to 'community livelihoods and well-being', we should provide definitions that will not only be pertinent for diverse peoples under diverse conditions, but will also be holistic and amenable to being linked to environmental conservation efforts in general and marine turtle conservation in particular. However, these definitions must be specific enough to allow us

to monitor changes in livelihood strategies, community well-being, and marine turtle conservation, as well as the relationships among them.

Community *livelihoods* include the ways and means of satisfying peoples' fundamental needs, and how well these needs are satisfied determines the *well-being* of the community. 'Livelihoods' are defined as the activities, assets, capabilities and strategies required and employed as a means of living (Schuyt 2005). Livelihoods are thus 'ways of living', and not only ways of 'making a living'. Livelihood *activities* referred to include all energies expended throughout work days and days of rest throughout the year and down through the years. Livelihood *assets* are, for the most part, what livelihood activities invest their energies in. These assets have also been termed "community capitals" (Flora 2004, Flora *et al.* 2004) in the sense that capitals represent the accumulated product of invested energies which can be used to produce more community assets and satisfy community needs. In the community context, these assets include financial and built (infrastructure) capitals, in addition to social and cultural capitals, all of which are the product of the invested energies of community activities. Other livelihood assets include personal skills and capabilities, or human capital, and organizational capacities for representation and access to power, or political capital. Community assets also includes the "gift of nature" or natural capital, whose wise management also requires the investment of community energies.

Community assets/capitals are interconnected and can interact in complex ways (Flora *et al.* 2004, Flora 2004, Fey *et al.* 2004). Fey *et al.* (2004) illustrate how community capitals can be measured and provide recommendations for the implementation of projects that consider community capitals in their approach (see also Emery *et al.* 2006, Emery and Flora 2006).

Livelihoods are ways of living, and not only ways of "making a living". They include all the activities, assets, capabilities and strategies employed in satisfying fundamental needs.

1.3 Poverty and Well-Being

Initially, approaches to defining community development were based for the most part on economic indicators, disregarding fundamental aspects of community well-

The human capital of a community includes skills and traditional knowledge, education, and health. "Quencho", a former turtle hunter, is a key researcher and teacher in a marine turtle conservation project in Panama (top). Secondary school and adequate health care are rare commodities in indigenous coastal communities of Panama (center) and Nicaragua (bottom).

being. More integral approaches have also included social indicators, such as aspects related to health and education, as in the case of the Index of Human Development developed by the United Nations Development Program. Recent poverty-environment indicators include indicators of status, enabling conditions and social capital (Reed and Tharakan 2004). The holistic approach to community well-being proposed in this manual is based on several perspectives that take into consideration a wide spectrum of fundamental human needs (see Max-Neef *et al*. 1986; Sen 1999), a wider spectrum of community assets (see Montoya 1999; Flora *et al.* 2004), the acknowledgement that environmental conservation is the foundation for sustained community well-being, and recognition of the need for community appropriation of the processes that improve their well-being (Talor-Ide and Taylor 2002; Reed and Tharakan 2004), as well as other perspectives, some of which emerge later in this document.

Community well-being is the increasing satisfaction of fundamental human needs.

We define poverty as the absence of well-being, and well-being is defined as the increasing satisfaction of fundamental human needs. According to Max-Neef *et al.* (1986), these fundamental human needs are not infinite, as is often suggested, but are finite and few in number. Furthermore, fundamental human needs are universal, common to all humanity in different places and times. This proposal allows a universal application of our conceptual framework, facilitating analysis across cultures and over time. With a limited set of perceived needs, it becomes relatively simple to monitor changes in the satisfaction of these needs and therefore gauge the well-being (or poverty) of a community. If we consider community well-being to be the sum of satisfaction of fundamental needs, any unsatisfied need presents a gap in the fabric of well-being, and represents a specific form of poverty. In other words, each unsatisfied need represents a specific poverty within a community. So, instead of considering poverty as an all-encompassing term and by considering its component parts of fundamental needs, we can better monitor the corresponding changes in a community by considering poverty in the plural.

Each unsatisfied need represents a specific poverty within a community.

Contrary to the limited set of fundamental needs, the ways and means these needs are satisfied, on the other hand, are vast in number, subject to change, and are culturally and temporally specific. Herein lays the diversity of human communities. Each community has its own ways and patterns of allocating its resources and energies (physical, mental and social) to develop the satisfiers of its needs. *Satisfiers* include ways of being, having, doing and residing (Max Neef *et al.* 1986). Among the satisfiers developed by a community, some may be **particular**, satisfying a single need, or **multiple**, satisfying various needs independently; they may be **synergistic**, satisfying various needs with a multiplying effect; or they may be **destructive** satisfiers that, while satisfying one need, are compromising the satisfaction of other ones. These may also be **pseudo-satisfiers**, only apparently satisfying a need.

Satisfiers of human needs are innumerable and subject to change. They include ways of being, having, doing, and residing.

Fig. 1. Needs satisfaction, well-being and poverties. Community well-being is determined by the extent to which fundamental needs are satisfied by livelihood strategies.

Children from different communities relate differently to marine turtles. Some children help their parents to obtain eggs for subsistence (top), while other children travel to the nesting site as tourists to observe these ancient reptiles (bottom). Some children grow up in a community like Río Caña in Panamá that has decided to fully protect marine turtles and seek ways to tangibly link conservation with local well-being.

1.4 Fundamental Human Needs

Using Max-Neef *et al.* (1986) as a guide, we propose ten fundamental human needs that should be considered in diagnosing community well-being. While well-being must be considered as a whole, we propose that there is a general hierarchy of needs, starting with 'organic' needs, continuing with 'existential' needs, and finally with 'transcendental' needs, where the distinctions between one category and another are not clearly separated, but rather merge into each other. In general terms, the satisfaction of organic needs is indispensable before existential needs can even be fully expressed as such, much less be satisfied. The final category of 'transcendental needs' may or may not even be relevant in different cultures. Nevertheless, we include all ten needs in our framework.

Organic Needs

- **Subsistence:** the need for nutritious food and drink, either gathered, cultivated or bought, required for body maintenance, growth and reproduction.

- **Protection of person and place:** the need for health, security, and safety, which include clothing and shelter, sanitary conditions, personal integrity, risk avoidance, vulnerability reduction, and environmental integrity.

- **Affection and communication:** the need for social intercourse, association and communication with family, spouse, friends and community.

- **Liberty of movement and expression:** the need for the freedom of physical movement and expression: for example, the need for travel, liberty of thought, speech, and other forms of expression. These are blended into existential needs.

Existential Needs

- **Understanding:** the need for acquiring, manipulating and applying information and knowledge; includes diverse forms of education and learning.

- **Creation:** the need for expression and invention by the manipulation of tangible, ephemeral and intangible elements; includes technical, scientific, artistic and other forms of creativity.

- **Participation:** the need for taking control over one's condition and destiny as a person or community.

Leisure, affection and communication are fundamental human needs. A soccer game in Playa Junquillal, Costa Rica, becomes a meeting place for community youth, where they can talk and learn about marine turtle conservation (top and center). Time to relax is often combined with social interaction with friends and family in Río Caña, Panama (bottom).

- **Leisure:** the need for solace, rest, or enjoyable activities, as well as the time and external conditions that permit the exercise of this need.

- **Identity:** the need for defining one's place in the universe, the need for belonging to a human group and locality.

Transcendental Needs

- **Transcendence:** the need for exploration, growth and expansion beyond one's own organic and existential limitations in spatial, temporal, and spiritual terms.

The level of satisfaction of human needs is ultimately a matter of perception. For every community, the conceptualization of each of these needs, the value placed on them, and the energy dedicated to creating ways of satisfying them, is different, and must be taken into consideration when establishing a baseline assessment of community livelihoods and their well-being.

While human needs are finite, including organic, existential and transcendental needs, the satisfiers of these needs are practically infinite, and mark the diversity of human cultures, communities, and individualities.

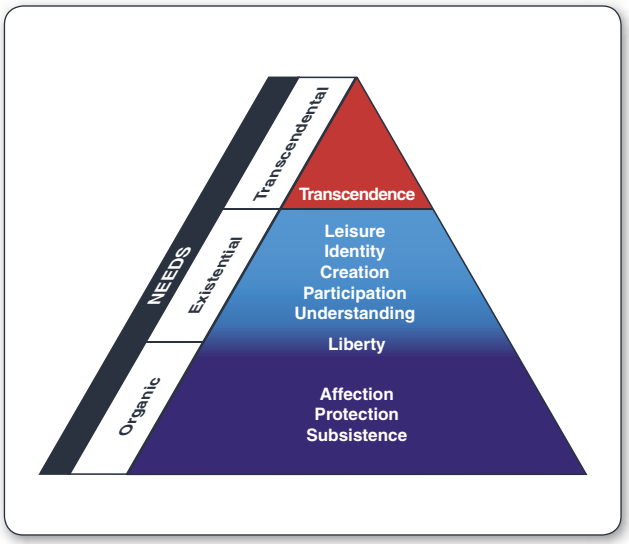


Fig. 2. Fundamental Human Needs. Human needs are limited in number and for the most part, universal. They include organic needs, existential needs, and in some cases, transcendental needs. Adopted from Max-Neef *et al.* (1986).

1.5 Satisfiers and Community Capitals

"Sustainable livelihood approaches highlight the great importance of people's assets and not just their incomes in securing their livelihoods. Assets are recognized as the building blocks on which people develop their livelihoods." (Arnold 2001).

Every community invests its energy in satisfying its fundamental needs in its own way, making every community is different. These satisfiers, however, are extracted from a reduced set of community assets or "capitals". The term "capitals" is used here to denote community assets as the accumulated product of community work, activities and efforts, which in turn may be mobilized to produce more community assets and satisfy needs. The wealth of communities is actively stored in its capitals. Each community has its own "investment strategy" or "portfolio" of capitals, depending on where its members and persons with an impact on the community place their energy.

Capitals are the accumulated assets of communities, products of invested community energy, from which they create the ways and means to satisfy their fundamental needs.

Any investment entails risk, including adverse financial, social and cultural impacts, which imply individual and shared responsibilities. The investment strategy may or may not be explicit, and awareness of the portfolio of assets can differ widely between individuals and between communities.

Using the framework proposed by Flora *et al.* (2004), we work with the following set of community capitals:

- **Financial capital** (money, savings, currency, credits, tax revenues, investments, grants). Activities to "make money", be it through salaried employment, commerce, investment revenues, interests, and others, are ways of investing in financial capital. For example, cash revenue generated by the local tour guide association from marine turtle tourism contributes to the financial assets of the community.

- **Built capital** (machinery, tools, buildings, roads, communication systems, water and sanitation systems). Activities to accumulate such infrastructure are ways of storing community energy in built capital. For example, an office, a computer, a phone and internet service are some of the basic built assets used in marine turtle conservation projects, and represent some of the instruments used to satisfy specific needs in the community.

- **Social capital** (human relations, contacts, networks, alliances, trust, reciprocity, shared visions, collective work). Activities to establish human bonds, relationships of trust and mutual help, alliances, shared visions and others, represent energies stored in social capital. For example, strengthening capacity of the local development association or consolidating a cooperative for the management of key natural resources are investments in social capital.

- **Cultural capital** (information, symbols, language, world view, collective identity, techniques, tools, traditions, local knowledge). The activities of creating and transmitting knowledge from one generation to the next, of storing knowledge in language or books, of developing methods, techniques, tools and technologies, of maintaining customs and traditions, among others, are energies that are stored in cultural capital. For example, the traditional knowledge of the Seri people about the habits of marine turtles in the Gulf of California and the role of turtles in their world view are cultural assets.

- **Human capital** (skills, education, capacities, health, self confidence, self esteem, ability to labor). Working with people to develop skills, capacities, self esteem, motivation, etc., is energy stored in human capital. For example, providing training to women from neighbouring communities in running a catering business for visitors to a marine turtle nesting site is an investment in human capital.

- **Political capital** (structures of representation, voice, power). Activities to develop collective strategies, structures of representation, articulation and diffusion of ideas, processes of negotiation, and access to power, are forms of energy invested in political capital. For example, the seat and active engagements of the village leader in a regional council are valuable political assets for a coastal community.

- **Natural capital** (air, water, soil, biodiversity, landscape). Activities to maintain, restore and improve the integrity of natural resources, the purity of water and scenic beauty, or the conservation of biodiversity are energies invested in natural capital. Marine turtles are, for example, an important natural asset for the Miskito Indians in Nicaragua as a source of protein and revenue, and as a tourist attraction for the Tortuguero community in Costa Rica.

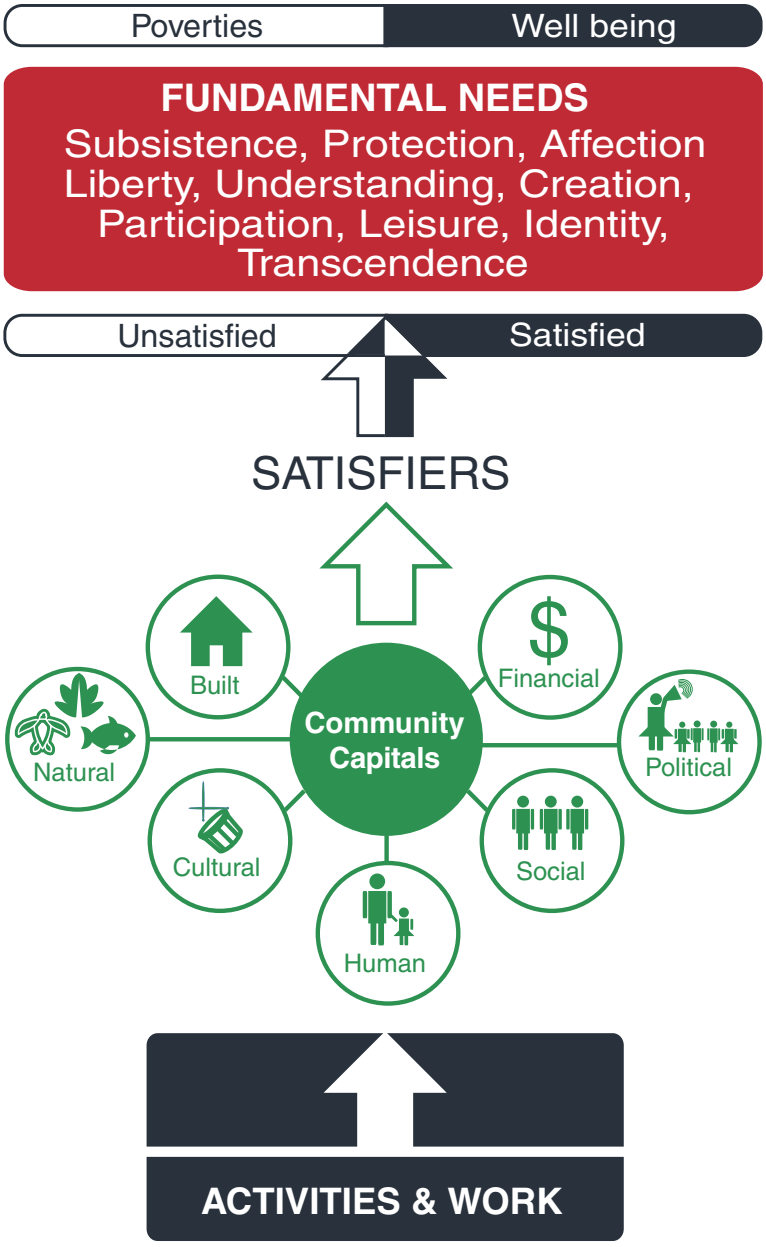


Fig. 3. Livelihood strategies invest in capitals to satisfy needs. Capitals are the accumulated wealth of communities, the products of invested energy, from which they create the ways and means to satisfy their fundamental needs. The extent to which needs are satisfied determines the well-being of communities. Members of communities work to satisfy needs. Work and activities may be directed simultaneously at investing in community capitals and at extracting goods and services (satisfiers) from community capitals to satisfy needs.

Cultural events often strengthen various community capitals by fostering social relationships within and outside the community, enhancing the value of its cultural heritage and motivating the improvement of various skills (Río Caña, Panama, top and center; Junquillal, Costa Rica, bottom).

1.6 Wealth and Well-Being

Distinction between community wealth and community well-being. Each community capital is a kind of savings account, from which satisfiers are extracted to satisfy needs and improve well-being. In other words, the wealth of communities is found in their diverse investment funds, or capitals: the product of their work and livelihood activities. On the other hand, these community capitals may also be liberated to produce pseudo or destructive satisfiers, such as alcohol and drug addiction, contributing negatively to community well-being. While some sort of community wealth is necessary for achieving well-being, wealth alone does not necessarily imply well-being. Community capitals must be properly harnessed and directed in order to bring about community well-being.

Ownership and access regimes of community capitals. Although we have been using the qualifier of "community" for the different capitals mentioned, it has been in the sense that they are the products of work by persons belonging to or with an impact in the community, but not necessarily that they are common property. Each community capital can have a wide array of ownership and access regimes, depending on how community efforts are directed. For example, financial capital in a community may be predominantly private income that is unevenly distributed, or on the contrary it may be predominantly in the form of tax revenue that nourishes a community fund, with a high degree of equity in its distribution and potential use. Similarly, cultural capital such as education, information and knowledge may be predominantly in the hands of an elite few, or may be evenly shared among all community members. Therefore, the monitoring of community well-being must also pay close attention to who contributes to which capitals, who owns them, and who has access to them to satisfy needs. There may be important assets in a community whose access may not necessarily be equitable. Moreover, there may be needs that no single individual can satisfy by accessing community capitals unilaterally. The satisfaction of some needs, therefore, may require a community effort, rather than individual action, to be efficient and deliver results. Ultimately, however, it is the equitable satisfaction of needs that underlies in community well-being.

"Additive" or "subtractive" nature of community assets. A subtractive capital implies that the use of its resources tends to reduce it, until the capital

Environmental education related to marine turtle conservation can result in long-lasting, enhanced awareness about the relationship between our daily lives and the environment. A healthier environment is a vital component of community well-being.

is replenished by further work or investment. For example, in the case of financial assets, money extracted from a savings account reduces the total amount in that account until further financial capital is created and reinvested. Natural assets often present a similar situation, where, for example, a resource is harvested for one purpose (such as marine turtles hunted for meat and shells), becomes unavailable for another purpose (such as a tourist attraction). On the other hand, with additive assets, the more the capital is used, the more there is of it to go around. This is typical of social and cultural capital, as well as human and political capital. The more social relations, information, and skills are made use of, the more they are strengthened. This quality is an important one to consider when making cost-benefit analyses of investments in the diverse community capitals.

With an additive asset, the more it is used, the more there is of it to go around.

Natural capital as the ultimate source of all wealth. The goods and services provided by nature are in great measure a "God-given wealth" independent of human invested energies. Communities use this natural wealth to satisfy many of their fundamental needs, organic, existential, and transcendental. However, this wealth is subject to degradation and depletion, unless it is properly managed. It is through such management that energies invested in natural assets can be used for community well-being.

1.7 Measures of Positive Change

As we have outlined above, livelihoods can be considered to include all the activities and efforts invested in an array of community capitals, from which a constellation of satisfiers are created to satisfy fundamental needs. Community livelihoods are affected by many factors that either facilitate or make more difficult the achievement, maintenance, and improvement of community well-being. Well-being differs from one community to another depending on the subjective perceptions of its members on how well their needs are satisfied, and these perceptions may change through time. Monitoring community well-being, then, implies not only measuring

fundamental needs' satisfaction at one point in time, but also taking into consideration how and to what extent these needs are being satisfied through time. Community well-being is the sum of the well-being of all its members, so monitoring well-being must also consider issues of equity. It is our contention that increasing control over one's own livelihood strategies and needs satisfaction is a fundamental aspect of community well-being, therefore issues of autonomy must be also considered. Finally, the ways in which communities reduce their vulnerability to social, economic, environmental and other threats is important in measuring well-being. In each of these general areas, there are specific processes that need to be monitored.

Sustainability

Sustainability can be monitored along different points of the livelihood continuum, beginning with the sustainability of stewardship of community capitals, and particularly of natural capital; the sustainability of satisfiers so that they are synergistic, rather than individual, destructive, or pseudo-satisfiers; and finally, the sustainability of the satisfaction of fundamental needs. Sustainability monitoring therefore has several components:

- **Stewardship:** This considers change from lack of concern over the condition of the natural environment, to active management of natural resources resulting in a sustained offer of goods and services provided by nature. Communities might measure this change in terms of healthy and sustainable ecosystems with multiple benefits for the community.

- **Synergy:** This focuses on the nature and the selection of satisfiers along a gradient. A gradient of positive change goes from pseudo-satisfiers and destructive satisfiers, to satisfiers that attend a single need, to satisfiers that attend multiple needs with a multiplying effect. Communities might monitor this change in terms of increased use of skills, knowledge and capacities of their members.

- **Sustainability of needs satisfaction:** This focuses on how fundamental needs are being increasingly satisfied through time. A gradient of positive change goes from temporary satisfaction of specific needs, to permanent satisfaction of some needs, to permanent satisfaction of most needs.

Equity

The issue of equity can also be looked at along the livelihood continuum, beginning with who is considered to form part of the "community", who carries out the diverse activities, who contributes to the different community capitals, who has access to these, and finally, whose needs are being satisfied. Monitoring equity needs to take into account:

- **Collaboration:** Charting the movement from individual, uncoordinated initiatives, to cooperation and the coordination of initiatives. Monitoring collaboration focuses on how the work invested in capitals is organized. The gradient of positive change goes from individual efforts within a community to sectoral collaboration within a community (and among external agents with impacts on the community), to collaboration among community members and external agents. Communities might measure this in terms of improved community relations and communication.

- **Additive potential:** Monitoring movement from investment in subtractive assets whose resources diminish when used, to investment in additive assets whose resources increase when used, such as social capital or human capital. Monitoring of additive potential focuses on the selection of community capitals that are invested in. The gradient of positive change goes from ONLY investment in subtractive assets, to investment in subtractive assets AND additive assets. Communities might monitor this change in terms of increased value placed on its social and cultural heritages, their protection and maintenance.

- **Equity of needs satisfaction:** Movement from private or personal satisfaction of needs, to common or collective satisfaction of needs. Monitoring the equity of needs satisfaction can focus on the final result, but also on the process of contributing to community assets, accessing these, and implementing ways and means to satisfy needs. The gradient of positive change goes from only a minority having access to the process and results of needs satisfaction, to a majority having access, to all members of the community having access.

Autonomy

The issue of autonomy refers to the capability those communities have to control their livelihoods and governance. With greater autonomy comes the need for greater local accountability. Monitoring autonomy needs to take these factors into account:

- **Decision-making:** Monitoring this focuses on control over community assets and livelihood processes and how these are mobilized by the community for its well-being. A gradient of positive change goes from the community having little or no control over decision making, to having control over most decisions, to having control over all decisions that affect community livelihoods and well-being. Communities might measure this in terms of having a greater voice and influence.

- **Accountability:** Measuring the movement from limited clarity in the assignment of responsibilities, to greater transparency in community governance. With greater autonomy, greater local accountability is also necessary. Communities might measure this in terms of improved community relations and responsibility.

- **Vulnerability reduction:** Movement from a situation of high vulnerability to environmental threats (such as pollution, species extinction, erosion, climate change, etc.) and socio-economic threats (such as growing economic inequities, land expropriation, globalized markets, etc.), to a situation where information, knowledge, skills and political influence are available to be used to reduce these threats.

- **Adaptability:** Movement from a limited capacity to change aspects of livelihood strategies, to a position where information and experience are employed to better adapt to changing circumstances. Communities might measure this in terms of local economies that are appropriately diverse and healthy.

Security

The issue of security has to do with the processes of reducing vulnerability, and the capacity to adapt to changing conditions in the natural environment, as well as in the socioeconomic context.

LIVELIHOOD STRATEGIES →	ACTIVITIES AND WORK →	COMMUNITY ASSETS / CAPITALS	SATISFIERS →	NEEDS
		Natural Financial Built Cultural Social Human Political		Subsistence Protection Affection Liberty Understanding Creation Participation Leisure Identity Transcendence

MEASURES OF POSITIVE CHANGE	
SUSTAINABILITY	Investment in and stewardship of the biophysical basis of community livelihoods; proper management of community assets; proper choice of synergistic satisfiers for continued satisfaction of needs.
EQUITY	Distribution of access to, and use of, community assets (with special attention to "additive" capitals), and satisfiers for fundamental needs.
AUTONOMY	Control over community livelihoods and governance affecting community well-being, with considerations of transparency and accountability.
SECURITY	Reduction of and adaptation to the vulnerability context, including shocks, seasonality, and trends in the biophysical and human arenas.

Fig. 4. Livelihood Strategies and Positive Change. Livelihoods include all activities whose energies are invested in community assets, from which satisfiers are created to satisfy the fundamental needs. Community livelihoods are conditioned by factors that facilitate or make more difficult the achievement, maintenance, and improvement of community well-being. These factors include issues of sustainability, equity, autonomy, and security.

1.8 Conceptual Framework – Conclusion

The conceptual framework presented in this section is the foundation on which a community livelihood improvement program (CLIP) may be based to provide positive and lasting change. Livelihoods are ways of living, and not only ways of "making a living". They include all the activities, assets, capabilities and strategies employed in satisfying fundamental needs. Our definition of "local community" is a "community of place" made up of people, whose livelihoods take place, at least to some extent, in the proximity of marine turtle nesting sites. But, in addition, we hope to foster a wider "community of interest" around marine turtle conservation and improved community well-being. Community well-being is the integral and increasing satisfaction of fundamental human needs. On the other hand, each unsatisfied need represents a specific poverty within a community. Community capitals, which include natural, cultural, social, human, political, built and financial assets are the accumulated wealth of communities, product of invested energy, from which they create the ways and means to satisfy their fundamental needs. While human needs are finite, including organic, existential and transcendental needs, the satisfiers of these needs are practically infinite and subject to change, and mark the diversity of human cultures, communities and individualities.

Chapter 2

Linking Marine Turtle Conservation with Community Livelihoods and Well-Being

Linking Marine Turtle Conservation with Community Livelihoods and Well-Being

Community well-being depends on the sustained and equitable satisfaction of fundamental needs, with increased levels of autonomy and security. The conceptual framework described above is intended to be a heuristic device for identifying the diverse components of community livelihoods. But beyond being simply a way of viewing the world and of labeling the different components of community livelihoods, it is intended to serve as a tool for positive change to improve community well-being. Once the diverse components of community livelihoods are identified; they can be evaluated, targeted for change, managed, monitored, and then re-evaluated to determine progress in efforts to improve community well-being.

Efforts of this type may come from the communities themselves, or they may come from external projects or programs whose primary intention is community development. They may also come from projects whose primary objective is other than community development, but have become aware that their own achievements complement, and may be complemented by, interaction with community livelihoods and well-being. People are an integral part of WWF´s mission and marine turtle vision. WWF´s Marine Turtle Program, like initiatives of other ECOs, has a significant investment in the natural assets of the community, which in turn may be mobilized to improve other aspects of community livelihoods. Investments in other community assets may be necessary, however, to catalyze processes toward sustainable conservation and development arrangements.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption

WWF´s vision for marine turtles is that these species worldwide are protected and restored to healthy levels reflecting their intrinsic values, role in ecosystem functioning and benefits to people.

2.1 Identifying the Links

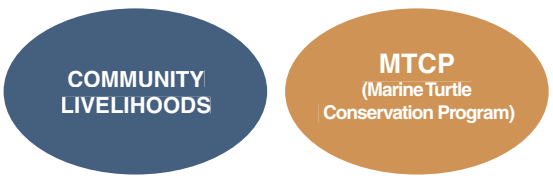
Our intention here is to identify, monitor and improve the links between an ECO with a Marine Turtle Conservation Program (MTCP) and the livelihoods and well-being of the communities in which this program operates. This perspective is complementary to community-based natural resource management (CBNRM) programs where the focus is on harnessing community energy to improve environmental conservation. The focus here is on cases where external conservation organizations enter communities and, besides their environmental goals, also aim to improve local community livelihoods.

In order to highlight the added value of having an established environmental conservation program that actively seeks to establish synergies with community livelihoods, we should compare three scenarios:

Scenario I

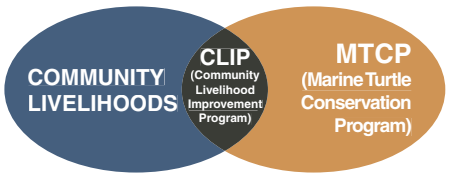
Scenario I: This first scenario is a coastal community without a MTCP (Marine Turtle Conservation Program). This scenario can serve as a control situation to compare with the other two scenarios.

Scenario II



Scenario II: The second scenario is a community with a MTCP, but an MCTP without an explicit and strategic goal of linking to community livelihoods, even though it may contribute to livelihood improvements. This scenario serves as a baseline for a community with a MTCP before the establishment of strategic links to community livelihoods and well-being.

Scenario III



Scenario III: The third scenario represents a community with a MTCP actively linked to community livelihoods, in which these links are the components of a Community Livelihood Improvement Program (CLIP). The CLIP involves identifying, monitoring and improving these links. The MTCP seeks to trigger and/or catalyze local development through the CLIP. This scenario demonstrates the benefits of actively seeking linkages between environmental conservation and community development efforts.

These three scenarios are idealized and may blur into one another over time. For example, scenario II and scenario III may represent "before" and "after" scenarios of establishing the CLIP in the same community. Moreover, scenario I without the MTCP does not take into consideration all the other possible forms of intervention to improve community livelihoods, such as the presence of development organizations.

A first identification of links, or their absences, requires a base-line assessment of marine turtle conservation efforts and community livelihoods. This can be undertaken with a set of simple questions that establish who the community of stakeholders is, what their livelihood strategies are, who benefits from community wealth, and how the community wants to improve its well-being.

2.2 Monitoring the Links

Once a base-line assessment is carried out that establishes the situation of the community and identifies existing or potential links between the MTCP and community livelihoods, what follows in a scenario III situation is to monitor the links in an effort to improve positive synergies, based on the goals of the CLIP.

The following table presents the base-line questions, possible answers and areas of concentration under each of the three scenarios. The additional elements that appear under scenario III are aspects that can be monitored and eventually improved.

A marine turtle conservation program can contribute to the satisfaction of the needs for creativity, freedom of expression and identity. Children's artwork in Junquillal, Costa Rica (top) and Galibi, Suriname (center and bottom) is one way to explore the role of marine turtles in their communities.

BASELINE ASSESSMENT QUESTIONS	SCENARIO I: WITHOUT MTCP	SCENARIO II: WITH MTCP	SCENARIO III: WITH CLIP
Who are we?	• Community stakeholders	• Community stakeholders • MTCP Staff	• Community stakeholders • MTCP Staff • *CLIP Incorporated collaborators*
What do we do?	• Livelihood activities	• Livelihood activities • Marine turtle conservation	• Livelihood activities • Marine turtle conservation • *CLIP Linked activities for mutual benefit*
What do we invest in?	• Community assets	• Community assets • Natural assets	• Community assets • Natural assets • *CLIP investment also in additive assets*
What satisfiers do we have access to?	• Community satisfiers	• Community satisfiers • ECO-MTCP satisfiers	• Community satisfiers • ECO-MTCP satisfiers • *CLIP synergistic satisfiers*
What needs do we satisfy	• Community stakeholder needs	• Community stakeholder needs • ECO needs	• Community stakeholder needs • ECO needs • *Satisfaction of previously deficient needs identified collectively in CLIP*
How well do we contribute to community well-being?	• Levels of: • Sustainability • Equity • Autonomy • Security	Levels of: • Sustainability • Equity • Autonomy • Security • Indicators of environmental conservation sustainability	Levels of: • Sustainability • Equity • Autonomy • Security • Indicators of environmental conservation sustainability • *Indicators of community well-being collectively agreed upon in CLIP*
Where do we want to go?	• Improved well-being	• Improved well-being • Linkage with MTCP established and strengthened • Improved natural resource asset	• Improved well-being • Linkage with MTCP strengthened • Improved natural resource asset • *Adaptation of CLIP to new improved conditions*

In scenario I, community livelihood improvement efforts are limited to initiatives generated and mobilized locally. In situations where needs satisfaction are deficient, it is often difficult to mobilize enough energy to provoke positive lasting change using only the assets of the community. In scenario II, external expertise and resources enter the realm of local community assets, and can be used to contribute to improving community well-being; however, these resources may also contribute to accentuating differences in well-being unless there are conscious efforts to direct energies at improving community livelihoods. In scenario III, where a MTCP explicitly embarks on establishing a CLIP, the ECO expertise, its social, cultural and financial capital, as well as its environmental conservation initiatives and other resources, become assets at the disposal of local communities to improve well-being. This is especially true where community livelihoods are highly dependent on the local natural resources that are also the subject of the ECO's conservation goals.

A baseline assessment is the starting point for monitoring improvements in community well-being, and assessing the role of the marine turtle program in achieving community goals. Choosing the right communication tools and language is critical for genuine and transparent participation. CoopeSolidar (top and bottom) and WWF staff (center) use creative means to ensure that young and old, women and men, are all engaged and well-informed during planning processes in Playa Chiriquí, Panama, and Playa Junquillal, Costa Rica.

2.3 Improving the Links

In many cases, marine turtle conservation programs primarily involve actors external to the local communities in which they take place, and their activities affect community livelihoods and assets. How these activities are invested, to which community assets they contribute, and who gains access to these enriched community assets should be analyzed as a base-line assessment to help design a CLIP.

It is generally true to state that the conservation of marine turtles is vitally linked to community well-being where these animals already form part of the community assets that are used to satisfy fundamental needs. Similarly, marine turtles may also have the potential to contribute to satisfying human needs in localities where they have not thus far been linked to community development, but could do so (for example, as a tourist attraction).

Environmental conservation in general, and marine turtle conservation in particular, may not necessarily be of central interest to communities. After all, conservation is about preserving something that is valued, and in some cases values may compete with each other. However, improving community well-being could well be their primary concern. In order to link the particular aim of ECOs with the general aim of improving community well-being, an ECO must mobilize community energy to promote the positive changes of increased needs satisfaction, greater equity, sustainability, autonomy and security. According to Taylor-Ide and Taylor (2002), there are three basic principles of successful social action that must be contemplated in order to achieve just and lasting change:

- **Establishing Partnerships:** Forming a three-way partnership including members of the community, outside experts, and public officials representative of national policies at the local level.
- **Creating a Community Plan:** Using a community plan based on a shared vision to change collective behaviour.
- **Implementing Adaptive Data-Based Management:** Basing management on objective local data that is collectively gathered, monitored, evaluated, and constantly updated for effective decision making. Collective gathering of data fosters acceptance of findings which become the property of all, and not just of the experts.

The application of this model to improve the links between the MTCP and community livelihoods and well-being for mutual benefit is at the core of the Community Livelihood Improvement Program (CLIP). Each of these three basic principles includes areas of action that may follow in different order, but all should form part of the CLIP action plan.

In some communities, participation, appropriation and bonding around marine turtle conservation creates a means to tackle local development issues collectively. Grupo Tortuguero in Baja California, Mexico is an active regional network of communities committed to marine turtle conservation (top). Youngsters in Junquillal, Costa Rica, enjoy joining the nightly beach patrols (center). Inhabitants of Galibi, Suriname, look into various ways to benefit from the yearly arrival of thousands of leatherbacks to their coast (bottom). These activities strengthen human, political and social capitals in these communities

2.4 Linking Marine Turtle Conservation with Community Livelihoods and Well-Being – Conclusion

Environmental conservation as a systematic and financed activity is often carried out by organizations external to local communities where these actions take place. Most environmental conservation activities occur in rural scenarios where human communities tend to be the poorest in assets and well-being. Moreover, there is often a vital link between these local rural communities and the local environment subject to conservation efforts. The entrance of ECOs into local communities represents a new resource that may contribute to improving community well-being and have synergistic effects on environmental conservation. ECOs that take on the challenge of contributing directly to community livelihood improvement must identify the links that may exist between their objectives and local livelihoods, design ways of improving these links, and establish mechanisms for monitoring changes promoted by a CLIP. This process is best carried out by promoting partnerships between diverse social actors and stakeholders in the community, promoting participatory mechanisms for creating a community plan of action, and by basing decisions and actions on objective local data collectively gathered and validated. This process contributes to the local appropriation of the CLIP, its greater relevance, effectiveness, and sustainability.

Chapter 3

Community Livelihood Improvement Program (CLIP) Action Plan

Community Livelihood Improvement Program (CLIP) Action Plan

3.1 Establishing a Partnership

On the establishment of a CLIP, it is necessary first to establish a partnership among major stakeholders, as well as other important actors such as the state or local authorities that establish the overall policy and governance frameworks. To do this, the ECO must make its intention known to potential stakeholders, and these stakeholders must be able to respond adequately as to whether they are interested in forming part of this partnership.

3.1.1 Prior Informed Consent

Prior Informed Consent is the means by which the members of the community where the ECO will carry out activities, being previously informed, consent to having the ECO work in the community and that it should contribute to, and partake of, community assets under conditions mutually agreed upon (CoopeSoliDar 2004). It is an essential first step in establishing a partnership. The ECO must first communicate the intention of working together with the community and government officials in order to improve environmental conservation and community well-being. The information must include the objective of the CLIP, its planned activities, duration, methodologies, personnel, expected results, ownership of benefits, and possible risks. Depending on the local context and circumstances, this information can be communicated in a number of ways; for example, by a community survey, a community meeting, or by word of mouth. The communication should include an invitation to learn more about the project and to participate in the partnership, as well as the option not to participate or deny consent.

3.1.2 Identifying the Actors and Stakeholders

It is necessary to achieve at least preliminary clarity as to whom the potential actors in the process are. First, the ECO must present its experts, its hierarchy, and its area of influence. Second, a participatory process must be put in place to determine who the potential stakeholders of the community are. Finally, it is necessary to identify government officials and other external actors that could have an impact on the relationship between marine turtle conservation and community well-being. Depending on the local context and circumstances, stakeholders can be identified in a number of ways, for example by consulting with community leaders, by house to house surveys, or by holding a town meeting. In this process, care should be taken to include the widest possible representation of the different sectors of the community.

The formal engagement of relevant actors and stakeholders is critical to the design and implementation of a CLIP. Amerindian community leaders in Awala-Yalimapo, French Guiana, meet NGO representatives regularly to discuss ways to improve collaboration (left). Government officials and hotel owners sign up to a scheme for joint funding of conservation work in Ostional, Costa Rica (center). Coastal communities collaborate with Argentinean scientists and NGOs to gather information about stranded turtles (right).



The cast of stakeholders will differ at each site. In general, at least three major groups may be identified; these being government officials, ECO external experts, and the local community - however, these categories will be site-specific. For example, in the case studies presented below, an important community stakeholder in Tortuguero is the Association of Tour Guides organized around the tourism attraction of marine turtles. In Junquillal, an important "community" stakeholder is the group of foreign hotel owners who have settled in and around the town. In Chiriquí, the indigenous Association for the Protection of Natural Resources of the Ngöbe-Buglé (APRORENANB) is among the most important stakeholders. The relevance of different stakeholders depends on their actual or potential power or their representation within the community. Stakeholders with little power such as women or children have a high representation in the community, and also need to be considered and incorporated.

3.2 Creating a Community Plan

Once a group of stakeholders have been identified who are willing to participate actively in the CLIP, it is necessary to carry out a participatory process of identifying the different elements of the community's livelihood strategies, as well as those of the ECO, that may be harnessed for mutual benefit. These elements must be understood from the community's point of view, in order to facilitate the adoption of the process by community stakeholders, and their willingness to enter into an agreement of mutual responsibilities and expected benefits.

3.2.1 Contextualizing marine turtle conservation and community livelihoods in the CLIP

The conceptual framework of community livelihoods and well-being should be presented in a simple and participatory fashion. The current and possible links between the MTCP, community livelihoods, and well-being should also be defined in a participatory and collective fashion, as should the activities and goals of the CLIP. One of the purposes of this step is to create a common terminology, share a common conceptual framework, and agree on the overall aim of working together to improve community well-being and the conservation of marine turtles.

3.2.2 Carrying out a Base-Line Assessment

With the conceptual framework understood, the purpose of this step is to agree on an accurate description of the historic and current relationship between marine turtle conservation and community livelihoods, and identify trends and detect significant deficiencies in community well-being that may be improved by the CLIP. To obtain a comprehensive picture of the current situation, the key questions outlined in the table of section 2.2 first need to be asked. These will define the community involved and other stakeholders, provide an overall conceptualization of the local livelihoods and their activities, determine what community assets exist and to what extent they are invested in, detect to what extent fundamental needs are satisfied and how, discover deficiencies in community well-being, and explore ways in which the community would like to improve their livelihoods. While the questions

A marine turtle conservation program can encourage visits to other coastal communities to broaden horizons and enrich the perspectives that guide the design of a CLIP. Junquillal representatives travel to Tortuguero to learn about the positive and negative aspects of tourism (left). Satellite tracking of a hawksbill turtle illustrates to the community of Playa Chiriquí, Panama, the shared international responsibility of conserving marine turtles and becomes a link to other communities and stakeholder groups (center, right).

are stated in the present tense, they are intended to obtain current, as well as past information, in order to establish trends, tendencies and important changes.

- **Who are we?** This establishes the actors, stakeholders or community involved. It identifies who is included and excluded. It indicates the historical and current basis of the collective identity and it establishes, at least preliminarily, who the CLIP will work with and whose participation will help define the CLIP.

- **What do we do?** This establishes the activities that stakeholders have been and currently are involved in, the activities' scope and reach, their contributions to community livelihoods, and their impacts on marine turtle conservation. This question is intended to define the spectrum of activities engaged in locally, and shed light on possible links with the objectives of the MTCP, the better to design a more effective CLIP.

- **What do we have?** This defines the community capitals (including financial, infrastructure and natural capital, as well as human, social, cultural, and political capital) that different actors and stakeholders have contributed to, and which are currently prioritized or deficient. This question emphasizes the importance of considering both material and intangible capitals as fundamental components of community wealth. Its intention is to create awareness of the existence of these assets, and how livelihood activities contribute to them. Highlighting their importance should also spark awareness of what community assets should be safeguarded, and how they might be used to improve community well-being.

- **How are we?** This question should first explore the subjective perception of what needs are being satisfied and expose where the gaps in needs satisfaction have been or still remain. Needs that are adequately satisfied should be safeguarded against marginalization or erosion under new community initiatives such as those of a CLIP. Second, this question explores who has ownership and access to community capitals and how they have been and are currently used to create the ways and means of satisfying fundamental needs, including both those satisfiers that are multiple or synergistic, and those that may be destructive or pseudo satisfiers. Third, this question analyses community well-being in terms of sustainability, equity, autonomy and security.

- **Where do we want to go?** This final question indicates goals of improving community livelihoods and well-being, for example by establishing links with environmental conservation programs and other partners, and opens the way to a scenario III stage. This question begins the process of collectively creating a CLIP.

3.2.3 Agreeing on a Vision

Having a common vision is an important step in creating a common identity and a commitment to working together. The key question here is "where do we want to go together from here?" This includes at least consideration of the various goals of the ECO experts, the government officials, and the local community, and specifically where they intersect. The vision may include goals for the improved satisfaction of diverse fundamental needs. These goals may be phrased in terms of elements of positive change such as greater sustainability, equity, autonomy and security that should move the stakeholders toward their vision.

3.2.4 Establishing a Contract

With the intention stated, the stakeholders identified, the project put into context, a baseline assessment carried out, and a collective vision agreed upon, it is necessary to come to an explicit agreement with those stakeholders who are willing to work together in the CLIP in order to integrate marine turtle conservation and community well-being for the benefit of both. It should be noted, however, that the establishment of such an agreement may occur at different times during the process. The agreement may be written or spoken, depending on the local context and circumstances. However, it should be relatively binding, in the sense that all the parties to the contract are committed to cooperating to integrate marine turtle conservation and community well-being for the benefit of both.

3.2.5 Agreeing on the Need for Monitoring

Because data collection, monitoring and evaluation are not necessarily part of the cultural practices of the local community (or of government officials), and because some locally important data are not necessarily included in the monitoring efforts of the MTCP, it is necessary to agree on the importance and the need for monitoring, as well as on what general aspects of marine turtle conservation and of community well-being will be monitored for positive change. Positive change can be negotiated collectively to include a move toward greater sustainability, equity, autonomy, and security.

3.2.6 Designing a Participatory Development and Conservation Plan

This plan should include provisions for participatory data gathering, participatory monitoring of selected indicators, a timetable for established goals and a list of resources needed. It should also include a budget, a clear assignment of responsibilities, a clear description and timetable of expected outcomes and benefit distribution plans, and identify opportunities for participatory evaluation and for adjustments to the plan (i.e. adaptive management). The plan should balance conservation and well-being objectives and activities, and explicitly acknowledge the links between both. The plan should include realistic time frames and commitments. Both the poorest and better off stakeholders should be included in the development of the plan. The tools used should be simple and cost-effective.

3.3 Implementing Adaptive Data-Based Management

With the stakeholders committed to working together in the CLIP, the actual and potential links between the MTCP and community livelihoods identified, and deficiencies in community well-being diagnosed, the implementation of the development and conservation plan should involve setting priorities for the improvement of specific deficiencies in community well-being in those areas where the MTCP and community livelihoods intersect or have the potential to do so favourably for both. The community may opt to seek alliances with other partners to address challenges that fall outside of the CLIP. Similarly, the MTCP may need to pursue on its own, or with other partners, conservation targets not included in the CLIP. Specific indicators of positive change should be chosen for monitoring and evaluation.

3.3.1 Agreeing on the Indicators to be Monitored

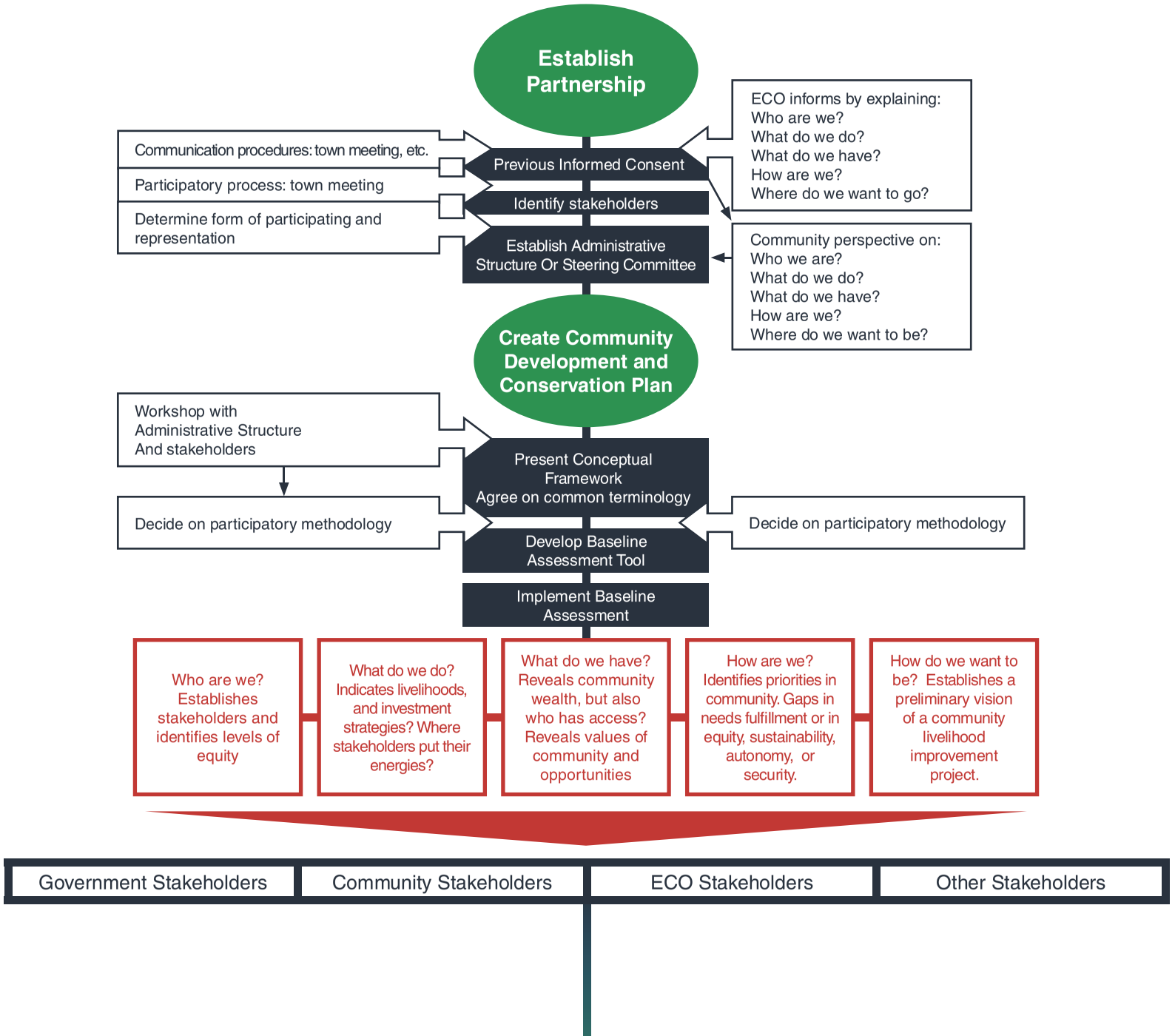
The process of designing indicators can help local users in clarifying the purposes of interventions, refining the design of interventions and their activities, and identifying the resources needed for the intervention (Reed and Tharakan 2004). All parties to the agreement should easily be able to understand the chosen indicators. The design process is hence a unique opportunity to strengthen local capacity and build social capital.

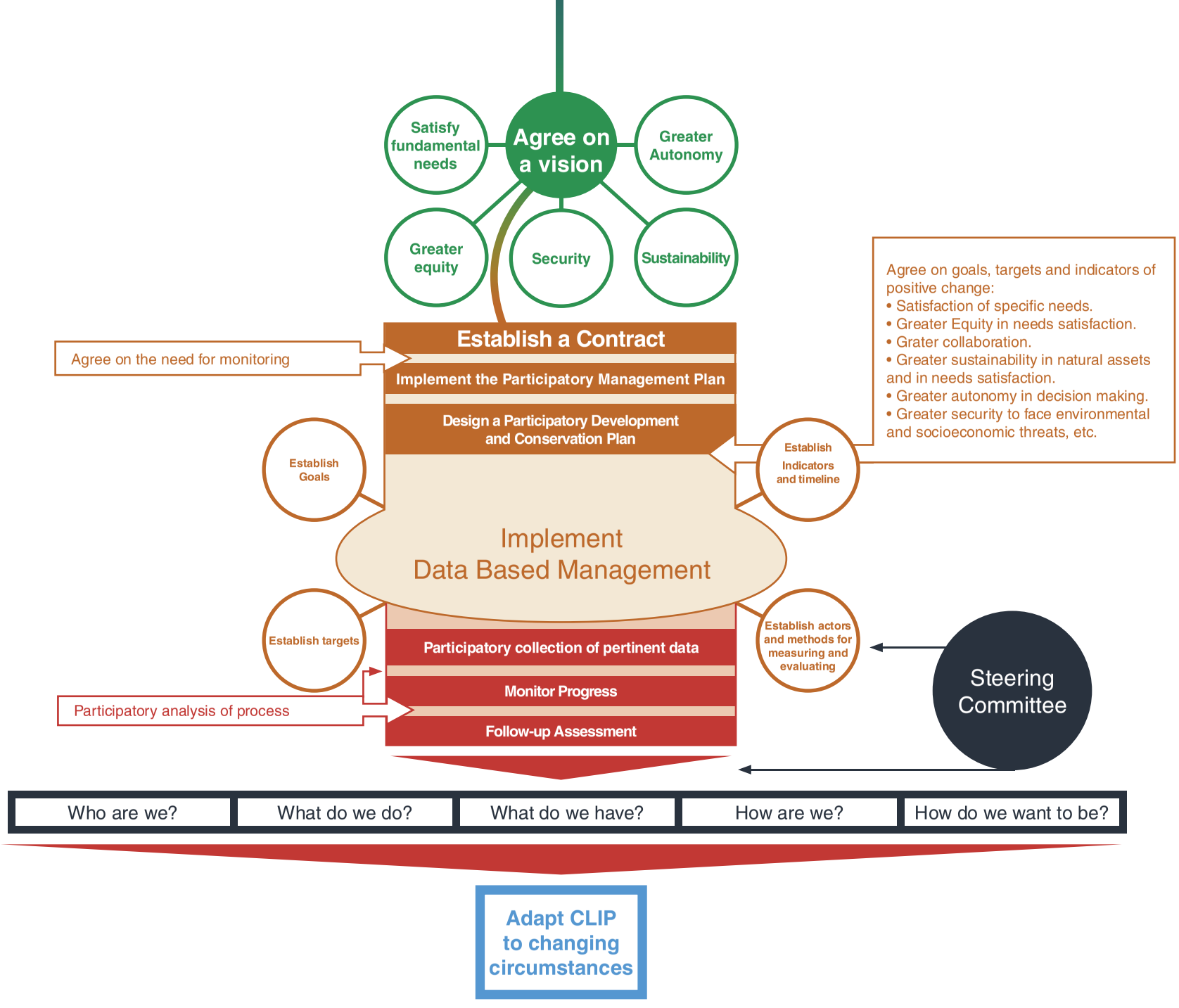
There are unlikely to be generic indicators common to all situations. Instead, indicators need to be developed with the stakeholders as part of the process of empowerment as they seek solutions to the poverty-environment dynamics in their community (Reed and Tharakan 2004). Indicators should be designed to address the needs of specific stakeholders and to measure the impacts of direct interventions on the various dimensions of local development and conservation under the particular circumstances of the community in question.

The selected indicators may refer to the extent of needs satisfaction (subsistence, protection of person and place, affection and communication, liberty of movement and speech, creation, leisure, participation, understanding, identity, and transcendence); the tendencies of positive change (sustainability, equity, autonomy, and security); and the status of community assets (natural, built, financial, cultural, social, human, and political assets). The links between marine turtle conservation and community livelihoods may occur at diverse points, and the selection of indicators may involve any number of these points, depending on the perspective and collective decision of stakeholders involved in the CLIP.

3.3.2 Agreeing on Monitoring and Evaluation Methodologies

The purpose of monitoring and evaluation is to provide objective information on which to base decisions of adaptation to new circumstances, and the establishment of new goals and methodologies to continue pursuing improved marine turtle conservation and community well-being. To carry out the baseline assessment, as well as to monitor changes through time of the indicators of positive change, it is necessary to decide upon viable methodologies, such as surveys, community meetings, and interviews, that will permit an objective and participatory means of gathering the data. Care must be taken to assure a representative sample, as well as monitoring and evaluation practices that will minimize possible biases. Participatory discussion of these methodologies before their application is necessary in order to assure an adequate understanding of the requirements of objectivity and representatively. It is also the way of transferring the capacity of monitoring to the community. A time scale for monitoring changes needs to be established, after which it is necessary to carry out the evaluation.


Establish Partnership
ECO informs by explaining:
Who are we?
What do we do?
What do we have?
How are we?
Where do we want to go?
Communication procedures: town meeting, etc.
Participatory process: town meeting
Determine form of participating and representation
Previous Informed Consent
Identify stakeholders
Establish Administrative Structure Or Steering Committee
Community perspective on:
Who we are?
What do we do?
What do we have?
How are we?
Where do we want to be?
Create Community Development and Conservation Plan
Workshop with Administrative Structure And stakeholders
Present Conceptual Framework
Agree on common terminology
Decide on participatory methodology
Develop Baseline Assessment Tool
Decide on participatory methodology
Implement Baseline Assessment
Who are we? Establishes stakeholders and identifies levels of equity
What do we do? Indicates livelihoods, and investment strategies? Where stakeholders put their energies?
What do we have? Reveals community wealth, but also who has access? Reveals values of community and opportunities
How are we? Identifies priorities in community. Gaps in needs fulfillment or in equity, sustainability, autonomy, or security.
How do we want to be? Establishes a preliminary vision of a community livelihood improvement project.
Government Stakeholders
Community Stakeholders
ECO Stakeholders
Other Stakeholders


Satisfy fundamental needs
Agree on a vision
Greater Autonomy
Greater equity
Security
Sustainability
Establish a Contract
Agree on the need for monitoring
Implement the Participatory Management Plan
Design a Participatory Development and Conservation Plan
Agree on goals, targets and indicators of positive change:
• Satisfaction of specific needs.
• Greater Equity in needs satisfaction.
• Grater collaboration.
• Greater sustainability in natural assets and in needs satisfaction.
• Greater autonomy in decision making.
• Greater security to face environmental and socioeconomic threats, etc.
Establish Goals
Establish Indicators and timeline
Implement Data Based Management
Establish targets
Establish actors and methods for measuring and evaluating
Participatory collection of pertinent data
Steering Committee
Monitor Progress
Participatory analysis of process
Follow-up Assessment
Who are we?
What do we do?
What do we have?
How are we?
How do we want to be?
Adapt CLIP to changing circumstances

Chapter 4

The Toolbox

The Toolbox

This section provides the tools needed for implementing a Community Livelihoods Improvement Program (CLIP) linked to the Marine Turtle Conservation Program (MTCP).

4.1 Preparatory activities within the MTCP

Within the MTCP it is first necessary to discuss the conceptual framework, understand the value of this approach, contextualize the MTCP within the community livelihoods, identify existing links between the two, clarify the goals of the MTCP for improving these links, and consider methodologies for beginning a participatory process along with the community. It is also necessary to visualize the responsibilities arising from such an engagement.

4.1.1 Reviewing the conceptual framework

The following charts can be discussed with the MTCP staff as heuristic devices to visualize the ways in which the MTCP might intersect with community livelihoods.

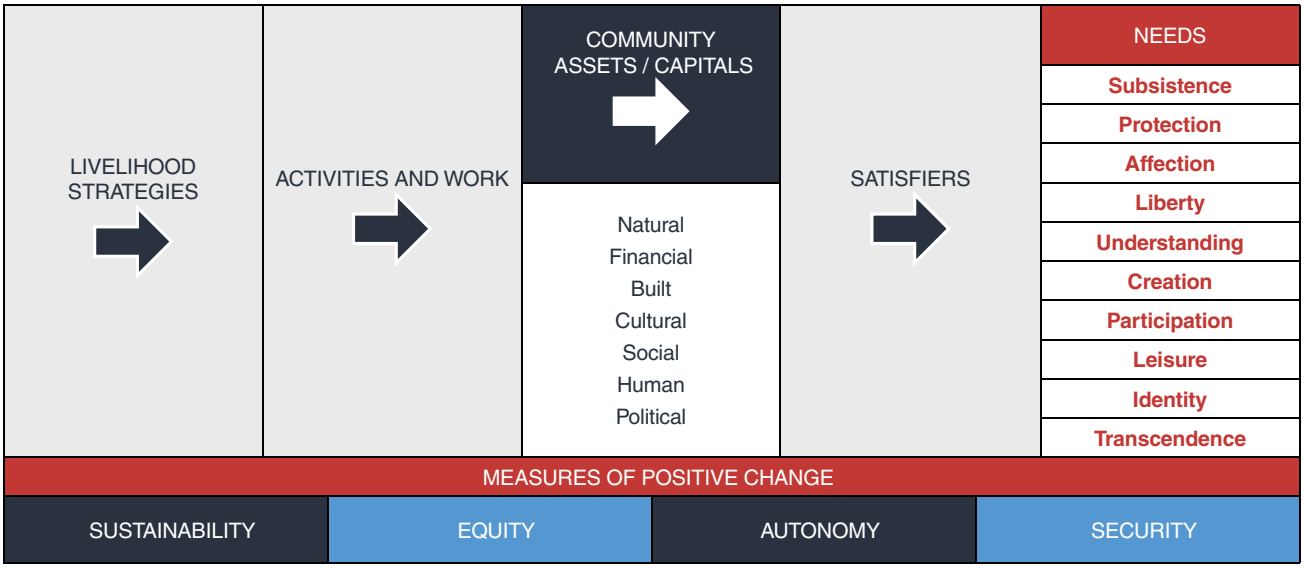


Fig. 5. Let's talk about livelihoods. Livelihoods include all community capitals and the activities whose energies are invested therein. Community capitals are used to create the satisfiers of fundamental needs. Community livelihoods and well being may improve with greater sustainability, equity, autonomy, and security.

4.1.2 Preliminary base-line assessment

Once the conceptual framework is understood, it may be applied to obtaining a general picture of the overall scenario to include stakeholders, community assets, livelihood strategies, levels of community well-being, and possible tendencies of positive change. The following set of questions offers a guide to this preliminary base-line assessment. Although the questions are stated in the present tense, they should serve to gather past and present information, in order to establish a historic basis for the current situation. The intention of this exercise is to paint a general picture of the community, its livelihoods, and well-being. These questions may be presented in a one-day workshop, where different set of stakeholders answer all the questions, and then collectively, a common picture is agreed upon.

Who are we?

This includes the environmental conservation organization (ECO) staff, along with all of the possible local stakeholders of such a project, including men, women and children, and especially, those people with the least access to community assets (the poor), and those who traditionally have satisfied various of their fundamental needs by extractive uses of marine turtles (such as hunting and collecting their eggs), as well as direct or indirect non-extractive uses (e.g. as a tourism attraction).

What do we do?

This includes the actions, not only of the ECO staff, but the daily activities of the community members, especially those activities with an impact on marine turtle conservation, but not only these activities. It should be clear what the daily activities are of women, children, the youth, the elderly, and the poor of the community, but also, those of the more powerful sectors.

What do we invest in?

This question provides greater detail and understanding of what it is the stakeholders do, in terms of where they invest their energies. This question refers to what community capitals are invested in and how wealthy they are. The ECO staff invests in natural capital (although not exclusively). The community invests in social relations with local people and with tourists (social capital); in passing on traditional knowledge, speaking the local language, dancing and singing the local music, reading the newspapers and watching TV (cultural capital); in their own housing, home appliances, and bicycles (built capital); in temporary employment, fishing, hunting, turtle egg collecting, and guiding tourists for income (financial capital); in forming and taking part in clubs, church groups and development associations (political capital); and in resting, eating, doing sports, and studying (human capital).

What resources do we have access to?

Not all the community capitals are equally invested in, nor is access to these assets equally distributed among the ECO staff and different sectors of the local community. This question begins to bring problems to the fore from the information gathered in the previous three assessment questions, problems such as the issue of equity. While the ECO staff has access to financial capital and invests in natural assets, the local community may have much less access to financial capital, and may well make unsustainable use of the natural resources protected by the MTCP. Some community assets may also be rather impoverished, such as built assets, political assets or human assets.

What needs do we satisfy?

This question sheds further light on contradictions, deficiencies, and poverties that may exist in the community. **Subsistence** needs among the community could well be dependent on the unsustainable use of marine turtles. **Protection** needs may well be limited to low quality housing, an over taxed public health system, or no police services, exposing important deficiencies in the satisfaction of these needs. **Affection** needs may well be satisfied in part through family life, but may be difficult to satisfy for lack of spaces for communal interaction and encounters. **Liberty** needs may be satisfied by access to boats and buses, but may be limited by transportation costs, inaccessible roads, gender discrimination, or the presence of illicit activities in the area. The existential needs of the local community may be further impoverished. **Understanding** needs may be poorly satisfied by an inadequate local school system, or no access to Internet or other sources of information. **Creation** needs may find no satisfiers, or very few. **Participation** needs may be satisfied in very reduced circles and at a very personal level, but may be of little consequence for the community at large. **Leisure** needs may be limited to destructive or pseudo satisfiers such as alcohol, or be limited to a single gender, but may also be satisfied to a great extent by natural assets such as the beach, the waves and the scenery, or by sports. **Identity** needs may be satisfied by a common language and common livelihoods, but may be poorly satisfied if the shared livelihoods are defined by deficiencies. Finally, **transcendence** needs may be satisfied by religious practices, or poorly satisfied by the burden placed on women of having large families.

Where do we want to go?

This final question leads us to envisioning ways of linking the MTCP with a Community Livelihood Improvement Program (CLIP). A scenario 'With Project' would lead us to pose a strategy for harmonizing the different actions and activities of the ECO staff and the local community in order to improve marine turtle conservation and community well-being. It is necessary to find overlaps or contradictions in investment strategies in order to propose concrete changes in behaviour to achieve greater sustainability, equity, autonomy and security.

4.1.3 Identifying community needs satisfaction

An initial diagnosis may want to focus on needs satisfaction levels in order to identify strengths and weaknesses, threats and opportunities for establishing synergistic links for the CLIP. The following questions focus on fundamental needs. These questions are intended to stimulate debate on the status of needs satisfaction, rather than representing an obligatory list of items to be recorded. In each context, the perceptions and values of the stakeholders is what matters most. Once "a way of thinking" about these issues is generated, the following questions may be used simply as a guide. An analysis of fundamental needs satisfaction should take no more than a couple of hours, at most.

SUBSISTENCE	STATUS	RECOMMENDATION
How do the majority of local people earn a living?		
Do the majority of local people own the means of their subsistence?		
Are there significant differences between locals and outsiders?		
Are there significant differences between men and women?		
What significant deficiencies exist in community subsistence?		
Do extractive uses of marine turtles form part of community livelihoods?		
Do non-extractive uses of marine turtles contribute to community livelihoods?		
How does the MTCP, if already ongoing, contribute to community livelihoods?		
Other questions…		

PROTECTION OF PERSON AND PLACE	STATUS	RECOMMENDATION
What examples are there of environmental degradation: water, soil, landscape, biodiversity?		
What does the community do to protect the environment?		
Are there local environmental organizations?		
What level of cooperation is there between the community and the MTCP?		
How does the community take care of health issues?		
What are the most common illnesses?		
What are the greatest threats to community health and security?		
How does the MTCP protect the environment?		
How does the MTCP contribute with improving community health and security?		
Other questions…		

AFFECTION AND COMMUNICATION	STATUS	RECOMMENDATION
What are typical family activities in the community?		
What are the popular places of friendly encounter locally?		
How are the relations between the MTCP and the community?		
What are the means of communication between the MTCP and the community?		
Other questions…		

LIBERTY OF MOVEMENT AND SPEECH	STATUS	RECOMMENDATION
What mobility do people have within and to and from the community?		
What access to the beaches do local people have?		
What liberty do women have to walk outside the home at night?		
What means do people have to express their community concerns?		
What means of communication exist between the MTCP and the community?		
What restrictions has the MTCP met to communicate its findings and goals?		
Other questions…		

UNDERSTANDING	STATUS	RECOMMENDATION
What level of education do the majority of the community have?		
How much does the community know about marine turtles and what threatens them?		
How much does the community know about the MTCP activities?		
Other questions…		

CREATION	STATUS	RECOMMENDATION
What opportunities for artistic, technical and scientific creation does the community have?		
How can the MTCP contribute to expand the opportunities of creation?		
Other questions…		

LEISURE	STATUS	RECOMMENDATION
What forms of leisure exist for the young and the elderly, women, men and children?		
What deficiencies exist regarding leisure opportunities?		
How can the MTCP contribute to improve leisure opportunities?		
Other questions…		

PARTICIPATION	STATUS	RECOMMENDATION
What type of organizations exists in the community?		
What participation do women and children have?		
What influence do they have in the local government or in community progress?		
What participation does the community have on MTCP activities?		
What role does the MTCP play in helping resolve community concerns?		
Other questions…		

IDENTITY	STATUS	RECOMMENDATION
How do the local people define themselves culturally, socially and economically?		
What traditions do the local people still keep?		
What problems of identity does the presence of outsiders pose locally?		
What role do marine turtles play in local identity?		
What role does the MTCP play in strengthening local identity?		
Other questions…		

TRANSCENDENCE	STATUS	RECOMMENDATION
What type of community do the local people want for the future generations?		
What fears do the local people have about the future?		
How can the MTCP contribute to improving local social, environmental and economic sustainability into the future?		
Other questions…		

The contribution of a Marine Turtle Conservation Program to a CLIP can go beyond immediate marine turtle related activities. With the right professional expertise or an alliance with a skilled partner, the MTCP can facilitate the dialogue between stakeholders, aid in conflict resolution, provide advice on natural resource management, link the community with other partners, facilitate capacity-building, and help maintain the momentum of the CLIP process. The MTCP should envision an exit strategy down the road as the CLIP attains full sustainability.

4.1.4 Visualizing the links between the MTCP and community livelihoods

The purpose of this exercise is to visualize the livelihoods of the staff in the context of the MTCP, and their links to community livelihoods, by means of a time allocation analysis. It can be undertaken by both MTCP staff and members of the community. Prepare seven small baskets with the following titles on them: 1) Financial Assets (money, credits, loans, grants, income, earnings, etc.); 2) Social Assets (family, friends, contacts, public relations, communication, etc.); 3) Cultural Assets (knowledge, information, language, traditions, etc.) 4) Built Assets (buildings, infrastructure, equipment, tools, etc.); 5) Human Assets (health, skills, education, self esteem, vigour, etc.); 6) Political Assets (organization, representation, voice, power, control, etc.); and 7) Natural Assets (water, air, biodiversity, soil, energy, landscape, etc.). Each participant should have a bunch of small papers on which to jot down what she dedicates her time to on a typical week day, using some broad categories. Each activity is written on a paper and placed into the corresponding basket. Some activities may correspond to more than one basket, and so copies may be placed in each. Finally, each basket is emptied and its contents discussed. How we spend our time reveals what community assets we invest in. Some discussion questions include: What is the relative wealth of each basket? How stable is the wealth of each? Do us all invest equally? Who has access to these assets? Does the local community participate in these assets? Are there ways to improve sustainability of these community assets? How are these assets used to satisfy community needs? Are there ways of improving equity and autonomy of community needs satisfaction?

4.1.5 Defining possible goals of the CLIP

Besides the overarching objective of creating positive synergies between marine turtle conservation and community livelihoods, it is necessary to visualize specific objectives that the CLIP may want to reach. Within the

livelihood framework presented above, the CLIP may want to target the satisfaction of community needs, or it may want to target different measures of positive change, such as sustainability, equity, autonomy or security. Or the program may want to focus on a combination of these goals, thus reflecting a blend of desirable states and processes. While sustainability and security are arguably universally desirable attributes, equity and autonomy take different forms and relative values in different cultures. The text below is for illustrative purposes only, and should not be read as culture-specific.

Targeting the satisfaction of community needs

A first approach may be to target the satisfaction of community needs. The following chart may help to stimulate discussion in this regard.

NEEDS	TARGETS
Subsistence	Create small tourist businesses based on the conservation of marine turtles and run by women organizations
Protection of Person	Install potable water and build septic tanks for all the families
Protection of Place	Conserve 100% of turtle nests
Affection and Communication	Install telephone lines in the community
Liberty of Movement	Improve the access road
Liberty of Expression	Establish a local newspaper
Understanding	Establish a study program for English and computer skills
Creation	Organize a competition in environmental art, music & poetry
Participation	Carry out a workshop for the strengthening of local organization and local groups
Leisure	Fix the sidewalk along the ocean front for pedestrian and cyclists
Identity	Achieve an environmental certification for the local beach
Transcendence	Establish a credit fund for grants and community projects

Aiming for Sustainability

The specific goal of the CLIP may be focused on achieving diverse levels of sustainability. For this the following chart may be used for discussion.

SUSTAINABILITY	GOAL	INDICATORS (+)	INDICATORS (-)
	Improved stewardship of natural capital (healthy and sustainable ecosystems with multiple benefits for the community).	-Achievement of an environmental certification -Adequate conditions for safe nesting or foraging ensured	-No. of poached marine turtle nests -No. of turtles hunted
	Increased synergies in satisfying needs (increased use of skills, knowledge and capacities).	-No. of family businesses -No. of professionals -No. of skilled workers	-No. drug abuse incidents
	Greater local capacity for the satisfaction of human needs (long term satisfaction).	-Average number of years in school	-No. of school deserters

Aiming for greater Equity

The goal of the CLIP may want to focus on achieving greater equity in the community as a means of improving community well-being.

EQUITY	GOAL	INDICATORS (+)	INDICATORS (-)
	Wider collaboration among stakeholders (improved community relations and communication).	-No. of community organizations -No. of participants -Percentage of women participants	-No. of incidents of crimes against property and people -No. of desertions at community meetings -No. of "private" beaches
	Greater investment in additive capitals whose resources increase when used (social, cultural, political, and human capital).	-No. of community events (social, cultural, sport, political) -No. of community members trained in additional skills	-Proportion of services hired outside of the community
	Greater equity in access to the processes and results of adequate needs satisfaction.	-No. of women business owners -No. of women in organizations -No. of youth organizations -No. of mature adult organizations	-Infant mortality rates -Rates of child dysentery

Aiming for greater Autonomy

Greater autonomy is often the desire of many communities. The CLIP may want to focus on achieving this.

	GOAL	INDICATORS (+)	INDICATORS (-)
AUTONOMY	***Greater independence*** of external forces for the satisfaction of needs (having a greater voice and influence).	-Percentage of families with land titles -Percentage of homes with water, telephone, electricity -No. of State health centers -No. of representatives or supporters in local and central government	-Percentage of homes whose main income is from "remittances"
	Greater accountability and transparency in community governance (improved community initiatives and responsibility).	-Percentage of people who approve of local government performance	-No. of cases operating illicitly in the protected coastal areas.

Aiming for greater Security

Reducing community vulnerability is another worthwhile goal that the CLIP may want to aim for.

	GOAL	INDICATORS (+)	INDICATORS (-)
SECURITY	***Decreased vulnerability*** to environmental and socioeconomic threats (information and knowledge are managed to reduce vulnerability).	-No. of community social projects -Percentage of citizens informed and aware of threats	-Percentage of families without telephones -No. of projects approved by government against the will of the community
	Greater adaptability to changing circumstances (local economies that are appropriately diverse and healthy).	-No. of different productive activities -No. of small and medium sized businesses	-No. of under- or unemployed adults
	Decreased vulnerability to environmental threats	-No. of community environmental projects -Adaptation strategy to climate change in place	-Economic and human losses from climate driven events

4.1.6 Preliminary Identification of Stakeholders

The MTCP may have possibly already detected significant stakeholders to consider in the CLIP. After discussing the breadth and depth of the goals of the CLIP, it may be easier to determine who the principal stakeholders may be. It is however necessary to consider that a partnership to develop and implement a community management plan should include not only the ECO staff and the community, but the public sector as well, with the inclusion of relevant State officials. It is also necessary, when including the community, to consider carefully all the sectors of the community, especially those most prone to invisibility, such as women, children, the elderly and the poor.

4.1.7 Defining the means of communication

Depending on the experience of the MTCP in the community, it may choose to inform it about the intention to develop a closer link by means of a community meeting, or informative bulletin, or less formally by word of mouth or at a community event such as a football match. Whatever methodology is used, it should start with an introduction of the MTCP with some background about its activities here or elsewhere. Then there should be an explanation of the general concept and objective of the CLIP. Finally, there should be an invitation to work together on defining the stakeholders, and specific objectives of the CLIP. A general idea of products and timeframe should also be included.

4.1.8 Social Responsibility

Intervention strategies to promote change in communities have been widely analyzed. Such interventions imply a social responsibility, especially in avoiding a relationship of dependence or paternalism. In this regard, the two major guidelines for social responsibility are firstly, establishing clear and consistent communication between the agent of change and the local stakeholders, and secondly, to put in place mechanisms for open and effective participation of local stakeholders. The relationship of the intervention with the community should be ideally that of neighbours working together for a common goal. However, there should also be a balance between long term commitments and effective exit strategies of external agents of change.

4.2 Participatory planning of the CLIP

The process of involving the community in planning the CLIP is, in and of itself, a fundamental part of the Program. It is a way of advancing the goals of equity and autonomy.

4.2.1 Communicating the intention of establishing a CLIP

The fundamental principles behind the CLIP need to be explained:

- Environmental conservation and community well-being are inextricably linked and can be mutually beneficial.

- Only through the active involvement of communities can environmental conservation and community well-being be sustained in the long term.

These two principles can open the discussion to explore within the local context, the meaning of:

- Environmental conservation, particularly the conservation of marine turtles and their habitats, as well as its relevance to livelihoods.

- Community well being, first in the sense of who composes the community, and second, in the sense of well-being taking into account the satisfaction of fundamental needs.

- Community participation, and how it is visualized within the CLIP.

4.2.2 Discovering Community Assets

A way of delving deeper into the meaning of community well-being is by attempting to discover community assets. The method of Appreciative Inquiry (Elliott 1999) turns on its head the conventional diagnostic technique of having the community express the principal problems it faces. Instead, the question to generate discussion may be phrased in the following way: *What are the most valuable aspects of your community that you would like to maintain and improve?* If the response is limited, facilitators may nudge the conversation in the direction of considering the diverse forms of community capitals discussed above, to include social capital (family, friends, and good relations between neighbours); cultural capital (scientific and local knowledge, traditions); human capital (skills and qualities of the local people); political capital (organization, voice, representation, power); built capital (infrastructure, tools, etc.); financial capital (employment, incomes); and natural capital (biodiversity, scenic beauty, water, etc).

The following questionnaire may also be used as a guide for examining the state of community livelihood assets.

Community Livelihood Assets Diagnostic
Natural Capital
1. Drinking water: Where does it come from? How does it arrive? How many have it?
2. Sewage and served water treatment: septic tank, open air, to river/sea? How many?
3. Land: Distribution? Titles? Conflicts? Communal lands? Protected areas?
4. Solid waste treatment: Garbage collection, Buried, Burned, to river/sea?
5. Energy sources? Public service, fire wood, gas, diesel, electricity from non-fuel based sources, other?
6. Consumptive use of coastal resources: Fish, molluscs, turtles, eggs, mangrove trees, other?
7. Non-consumptive uses of coastal resources: Tourism, education, research, arts and crafts, stories, and celebrations?
8. Number of turtle nests per year, per species?
9. Changes in effort to obtain fish over time?
10. Evidence of loss of coastal resources from erosion due to sea-level rise or to increased frequency of extreme weather events?
11. Levels of silence and darkness?
12. Activities for taking care of nature: water, biodiversity, landscape, energy, air, soils, contamination, wastes, other?
Built Capital
1. Condition of the roads: to the location, within the location?
2. Clinics and health centres: How many? How many days per week do they attend? Quality of service?
3. Telephone service: In the homes? Public? Cellular phone coverage?
4. Aqueducts and sewage: For drinking water? For used waters?
5. Housing: Type of material? Owners or rent? Costs? Squatting? Slums?
6. Hotels: Quantity and quality? Who are the owners?
7. Markets: Sales of local goods? Consumption of external goods?
8. Means of transportation: Own? Public? Rented?
9. Education centres? How many? Quality? Capacity? Level?
10. Fishing technologies?
Cultural Capital
1. Ethnic identities of the population?
2. Languages that are spoken locally?
3. Levels of education? Men? Women?
4. Local celebrations?
6. Cultural events: Theatre, Dance, Music, Sports, Conferences, Film?
7. Internet Cafés: How many? Costs? Quality?
8. Iconography and important local symbols?
9. Sources of information: About marine turtles? Conservation? Sustainable development?
10. Traditional knowledge: About marine turtles, flora and fauna, conservation?
11. Religions represented?

Social Capital
1. Family relations: United or disintegrated? Adolescent mothers?
2. Security: In the streets, on the beach, at night?
3. Traditional help networks: children, women, elders, handicapped?
4. Organizations: youth, women, communal, sport?
5. Significant kinship structures?
6. Social events: sport, celebrations?
7. Places of meeting and social interaction?
8. Community relations with the ECO and the MTCP?
9. Conflict resolution: persistence and relevance of internal community conflicts?
Political Capital
1. Development associations: How many? Levels of participation? Effectiveness?
2. Environmental organizations: Local? External?, Levels of participation?
3. Participation in local government: Levels of representation? Effectiveness?
4. Communal movements and mobilizations: Achievements?
5. Political partners and contacts: Access? Type of help? Paternalism?
6. Community interests around the MTCP?
7. Popularity of leaders?
Human Capital
1. Health: What are the main health problems of men, women, children?
2. Enthusiasm for taking on new activities: Is there motivation for new projects?
3. Traditional local capacities and skills: What are they? Who practices them?
4. Administrative and business capacities: Opportunities and access to learning?
5. Capacity for project management: In local hands?
6. Self esteem: men, women, youth? Is there a spirit of optimism?
7. Technical knowledge: Access? Opportunities for learning?
8. Services provided: By men? Women? Organizations?
Financial Capital
1. Businesses: In local hands? In the hands of non-residents? Large? Small?
2. Sources of employment: How many are there? For women?
3. Incomes: Do they cover basic needs? How many incomes are needed per family?
4. Sources of credit: Do people access opportunities? Do women?
5. Investments in the locality: Is there local participation?

4.2.3 Identifying links between the MTCP and community livelihoods

A first important question may consist of clarifying that community livelihoods are what people in a community DO to satisfy their various fundamental needs, these being a short list of about ten, including subsistence, protection of person and place, affection and communication, liberty of movement and speech, creation, understanding, participation, leisure, identity and transcendence. Often, one activity may satisfy more than one need. Also, some needs may take precedence over others. A livelihood exploration exercise may reveal important patterns of how the community invests its energy in satisfying its needs and seeking its well-being. In this exercise, various stations can be arranged around the room, each with a large sheet of paper labeled with a fundamental need. Participants are asked to write down or draw on each paper the most common way they satisfy that particular need. When all are through, each need can be discussed with the whole group to determine degrees of community well-being.

A second exercise may consist of having the MTCP staff carry out, in the presence of the community, a **time allocation study** of their common activities during a typical day, and place these activities within one or more baskets representing community assets, according to which of these assets the activity is contributing to. Likewise, when finished, each community asset may be discussed with the whole group, considering questions like: Can these "funds" be used better to help communities improve their well being? Initial ideas of how to make use of these links may appear at this stage.

4.2.4 Identification of Stakeholders

Once the concept of community well-being has been assimilated, it is time to redefine who the community is. It is especially important to consider those members whose voice is traditionally muted, such as women, children, the poor, ethnic minorities, and the future generations, as well as any marginalized peoples. On the other hand, it is also necessary to consider stakeholders at the other end of the spectrum, those with relatively more power, such as the business sector, and the state. These, too may be invited to form part of the participatory planning processes.

4.2.5 Dreaming the Ideal Community

With a full representation of the community present, with community assets recognized, and possibly with gaps identified both in terms of community assets and the satisfaction of needs, it is appropriate to consult the stakeholders on how they would like their community to be in the future. Once the stakeholders have recognized existing valuable qualities and elements of their community, the option to envision an ideal community will be grounded on what needs to be preserved of what already exists. An ideal community may be expressed as an unattainable utopia, but it may also be expressed as a community where simply one or more needs are better

satisfied. It is in the direction of concrete improvements that this discussion should be guided, if possible. A way of facilitating this is by asking two linked questions:

- How would you like your community to be in the future?

- How can this be achieved?

The second question will begin to suggest possibilities of where the CLIP can contribute to improve community well-being. The setting of these questions may be the town meeting or the community survey.

4.2.6 Agreeing on the goals and products of the CLIP

Once the stakeholders have engaged in envisioning an ideal community, and once they have identified possible links between the MTCP and community livelihoods, it is possible to begin a discussion about the goals and possible products of the CLIP. This represents an initial process of negotiation between community stakeholders and the MTCP staff, where alternatives are prioritized and general time-frames are agreed upon. Existing conflicts between stakeholders may stand in the way of agreements toward a common vision and should be dealt with explicitly at this stage. Even if conflicts are not resolved, having aired them as part of the deliberations to build a CLIP helps set the scene and narrow down the scope of the goals under consensus. It should be made very clear at this point what the real possibilities and resources of the community and the MTCP are, in order to avoid false expectations. The products and time-frame should start out being modest and easily realizable. Simple achievements can serve to establish trust and commitment to more ambitious goals.

4.2.6 Choosing a Steering Committee

Once the general goals and specific objectives and products of the CLIP have been agreed upon by the community, it is time to construct the mechanisms that will allow the CLIP to "deliver the dream" (Elliot 2005). This construction demands a steering committee whose membership should also be a participatory community decision. Obligations and compensation – if any – of community members of the steering committee should be made clear at this point. The committee's size should allow work to get done, but it should also be composed of people who have knowledge of the community, are committed to represent the community and consult stakeholders as necessary, and who have the desire to work alongside the ECO members of the team. It should be noted that an initial committee of volunteers might be reconstituted in phases as people rotate off and others fill their places.

Following prior informed consent for the engagement of the MTCP in the community, participatory planning of the CLIP includes: the identification and engagement of stakeholders and their responsibilities; a collective assessment of community assets and needs, poverties and wealth; envisioning the ideal community, and; establishing a steering committee. The process must include the voice of minorities or otherwise marginalized actors.

4.3 Implementing Participatory Data-Based Management

Participatory and adaptive data-based management may not be as foreign to local communities as the high sounding terminology makes it out to be. Management of resources, time and energy are founded on available data in most household decisions. These decisions may not be stated in terms of work-plans, and time-frames may be based on household or community calendars, such as seasonal cycles or school years, but experience in data-based management exists in diverse forms within communities. To begin the implementation of participatory data-based management of the CLIP, it is advisable to draw on existing experience, so that new endeavours may grow out of past successes.

4.3.1 Designing the strategy to deliver the dream

Based on the goals and products of the CLIP agreed upon previously with the community, the actual process of HOW to reach these goals becomes the principal challenge of the steering committee. For this reason, a few concrete, realizable and short term products should be chosen as initial objectives to be delivered with the work plan, as some quick results are important to maintain credibility in the process. The first step should be to choose those products, set delivery dates, and assign persons responsible for monitoring their development and delivery. Understanding how each goal and product will be achieved depends specifically on the nature of each goal and product. Collective discussion on these issues will require agreement on the details of how to achieve each: what resources are available, what activities will be required, what persons will be involved, what obstacles will have to be surmounted and how, and the time required to get each one of the jobs done. Although failures will likely be frequent, they should be taken as opportunities for learning. "Getting the action right the first time is not as important as getting the action going, discovering any flaws, and then keeping action going while the reasons for failure are worked through" (Taylor-Ide and Taylor 2002, page 46).

4.3.2 Agreeing on goals, targets and indicators

As mentioned above in the section of identifying possible goals of the CLIP, improvement in community well-being might take the form of improved satisfaction of particular fundamental needs, or it might take the form of greater sustainability, equity, autonomy or security, as necessary steps towards the satisfaction of fundamental needs. Or it might take the form of achieving specific synergistic satisfiers that attend various fundamental needs simultaneously. Goals are desired objectives in the long term. Targets are short term challenges that help in reaching the goals. Targets should be SMART, i.e. Specific, Measurable, Achievable in the short term, Realistic, and Time-bound with dead-lines. Indicators are parameters used to assess whether a given target is met or not, and the degree of progress towards it. Verifiers are the specific sources of the information required by each indicator, such as direct measurements, reports, publications, surveys, periodic statistics, etc. All of these, and the person responsible of presenting progress on each indicator, should be listed in a monitoring and evaluation plan. These are examples of targets for positive change under various topics covered by the goals of the development and conservation plan:

GOALS	TARGETS
Improved NEEDS Satisfaction	
Subsistence	By the end of year two, three small tourist businesses based on the conservation of marine turtles are run by women's organizations.
Protection of Person	Within 8 months, install potable water and build septic tanks for all the families.
Protection of Place	By the end of year one, protect 100% of turtle nests on the beach.
Affection and Communication	By the end of year two, install telephone lines in 80% of households in the community.
Liberty of Movement	Within six months, mend the bridge that connects the village with the next town.
Liberty of Expression	By the end of year one, establish a local, bi-monthly newspaper and distribute the 1st issue to at least 90% of households in the community.
Understanding	By the end of year one, establish a study program for English and computer skills in the community and complete the 1st course.
Creation	Within six months, hold a competition in environmental art, music & poetry and present the winners in a village festival.
Participation	Within one year, carry out a workshop for the strengthening of local development organization and at least two local groups in business & administration skills.
Leisure	Within six months, mend the sidewalk along the ocean front for pedestrian and cyclists.
Identity	By the end of year one, 10 signposts for the village designed and built by the parents association of the local school.
Transcendence	By the end of year three, establish a credit fund for grants and community projects that covers at least 50% of project costs.

Improved SUSTAINABILITY	
Stewardship of Nature	By the end of year two, achieve the national environmental certification for the local beach.
Synergies of satisfiers	By the end of year two, at least 20 households participate in sustainable productive practices that incorporate traditional knowledge.
Permanence of well-being	Each year, at least ten teenagers register to the technical training program for the youth established by the community.
Improved EQUITY	
Wider collaboration	By the end of year one, women occupy at least 50% of the seats on the steering committee of the development and conservation plan.
Additive capitals	Each year, organize a regional arts & crafts festival in the village to raise funds for training workshops.
Greater access	By the end of year two, the local women's association receives at least half of the funds available for projects from a community fund based on marine turtle tourism.
Improved AUTONOMY	
Greater Independence	By the end of year three, at least five new small tourist businesses are run by community members, based on the conservation of marine turtles.
Greater Accountability	At least two assemblies are carried out each year for communicating advances of the CLIP to the community and to receive feedback.
Improved SECURITY	
Decreased Vulnerability	By the end of year two, the adaptation plan for threats related to climate change and extreme weather events is in place and its implementation has begun.
Greater Adaptability	By the end of year one, a credit line for local environmental, social and economic projects is established and administered by a community organization.

Whatever the long term goals and shorter term targets, it is necessary to come up with measurable indicators of progress toward that target, with the achievement of the target representing 100% progress. While not numerically exact, the possibility of breaking down progress indicators into percentile blocks may be helpful for monitoring purposes. The following example is for illustrative purposes:

CLIP Goal	TARGET	Progress Indicators			
	By the end of year two, develop two locally viable, income generating initiatives based on non-extractive uses of marine turtles.	25% Months 1-6	50% Months 7-12	75% Months 13-18	100% Months 19-24
Improved benefits from stewardship of natural resources	Indicators				
	1. Plan for three family business based on non-extractive uses of marine turtles developed.	X			
	2. Feasibility analysis for three businesses from plan completed.		X		
	3. Credits for initial investment to launch two businesses secured.			X	
	4. Two family businesses based on non-extractive uses of marine turtles launched.				X

This type of chart with a breakdown in time segments and percentile achievement indicators needs to be done for every CLIP goal, target and its indicators. The selection of progress indicators involves a process of negotiation and visualization into what may be reasonable expectations.

Indicators may be set for different levels of the project. Indicators of achievement generally refer to the degree of accomplishment of tasks set out in the work plan, such as for example workshops, meetings, trips, publications, and budget execution, among others. Indicators of performance relate to progress toward mitigation of root causes of problems, or toward generating the conditions for success. In the case of a CLIP, there may be indicators for progress toward reducing threats to ecosystem health and toward establishing or reaching satisfiers. Indicators of impact are set at the highest programmatic level of the project, generally reflecting progress towards the goal, mission and vision. The recovery of a marine turtle population, or of ecosystem health, may be indicators of the impact of our conservation efforts. The satisfaction of fundamental needs is an indicator of the impact of a community livelihood improvement plan.

4.3.3 Agreeing on a time-frame for monitoring and evaluation

It is necessary to establish a reasonable time-frame in which to measure expected results. It may be appropriate to begin with a one-year cycle that will take into consideration all the seasonal activities of the community that may affect the achievement of selected goals. Each of the partial achievements should be placed within the monitoring schedule, in order to detect appropriate progress or stagnation in the process. The possibility of breaking down activities into monthly or weekly segments may allow for a more detailed follow up on required tasks and their timely completion. The following table is an example of this:

TARGET												
Achieve environmental certificate (EC) status for local beach to promote non-extractive income generating activities												
Tasks of EC Commission	**Months**											
	1	2	3	4	5	6	7	8	9	10	11	12
Research EC criteria	X											
Community workshop		X										
Field work with schools			X									
Community workshop II				X	X							
EC official review						X	X					
Community meeting								X				

4.3.4 Agreeing on monitoring and evaluation methodologies

Depending on the goals selected for the CLIP, the monitoring and evaluation methodologies will have to be adapted accordingly. If the goals focus on achieving single satisfiers, the monitoring methodology may be limited to a check list of quantitative results. If, on the other hand, the goals selected focus on advancing with processes of sustainability, equity, autonomy or security, monitoring may require the application of qualitative methodologies, such as interviews to measure stakeholder perceptions. If the goals focus on an integral improvement of community well-being, a community wide survey may be the most appropriate methodology. If a baseline community survey is carried out at the start of the CLIP, a subsequent survey with related questions may provide an integral picture of the changes that have taken place within the community during a particular time period.

4.3.5 Carrying out a base-line assessment

The importance of a baseline assessment is that it allows the CLIP and the stakeholders to initiate a management plan based on objective data that will later serve as a point of comparison for achievements along the way. Information for a baseline assessment may come from diverse sources, including the National Census Bureau, National Household Surveys, or the locally applied livelihood assets exploration exercise. Another option is to undertake a community-wide survey to document in detail community livelihoods and expectations. In designing this survey, the questions should elicit basic

The CLIP of a coastal community will include participatory monitoring of socio-economic and ecological variables through indicators selected by the community and other stakeholders. The design process itself is a unique opportunity to strengthen local capacity and build social capital. The choice of indicators will be specific to the goals set out collectively in the CLIP, and will usually be related to (1) measuring the satisfaction of needs, (2) measuring progress toward equity, sustainability, autonomy, and security, and (3) measuring the status of community assets.

demographic information, information on community assets, livelihood strategies, the level of satisfaction of organic and existential needs, perceptions and expectations. This basic information should be able to provide a clear picture not only of community livelihoods and well-being, but also of levels of sustainability, equity, autonomy and security. The baseline assessment serves as a model for future community inquiries in order to monitor progress and evaluate achievements.

4.3.6 Communicating results and community feedback procedures

Communicating results of the CLIP to the community should be an integral part of the program. It is a way of investing in the diverse community capitals, particularly additive assets such as cultural, social, political, and human capital. It is a way of satisfying the existential needs of understanding, participation, and identity. It also contributes to improving community equity and autonomy. Starting with the results of the baseline assessment of community livelihoods, this information should be processed and presented to the community for all the above reasons as well as for obtaining important feedback form the stakeholders that can be incorporated into the study. The timing and the methodologies for communicating results to the community should take into consideration limitations that could affect equitable participation. Assuring that community feedback comes from all stakeholders and that their inputs are seriously considered is a fundamental part of insuring the success of the CLIP. Progress reports should be easily available to stakeholders for consultation. Dynamic posters with graphics indicative of progress could be displayed in public areas for ease of reference and appropriation.

4.3.7 Implementing CLIP activities

It is only with the approval and trust of the community, and their full collaboration, that the CLIP activities can be carried out successfully. All the activities, including those of the preparatory phase, the participatory planning phase, and the participatory implementation phase, should be included in a work plan detailing objectives, tasks, products, time frame, resources, and person responsible. The work may be distributed to specific commissions or individuals, and a clear "chain of command" should also be included as a means of assuring accountability and transparency. The work plan should include periodic Steering Committee meetings, times for monitoring and evaluation, and times for community feedback.

Objective	Expected Products	Tasks or Activities	Start and End Dates		Responsible

4.3.8 Adapting the CLIP to new circumstances

The purpose of including continual monitoring, evaluation and community feedback in the work plan is to provide an opportunity to adjust the plan to new circumstances when appropriate. Flexibility in the work plan should fall within the selected goals, and timeframes should be kept as strict as possible. However, required tasks may be modified when needed to better achieve the stated goals. The person responsible may also be subject to change, depending on circumstances. Although this may be a delicate issue, it is a good strategy to clarify from the start, the need for a wide participation of stakeholders in the process.

Example Protocol for a Clip

		OBJECTIVE	ACTIVITY	PRODUCT	RESPONSIBLE	DATE
Establish a CLIP Partnership	1.1	Prepare ECO Staff for CLIP Implementation	Meetings with ECO Staff	Common understanding of conceptual framework, methodology and goals	CLIP Promoter	Week 1
				Develop Communication Plan	CLIP Promoter and ECO Director	
	1.2	Communicate CLIP proposal to community	Implement Communication Plan	Convoke representative number of community members	ECO Director	Week 2
			Town meeting	Present CLIP proposal (Who we are, what we do, what we have, how we are, what we want)	CLIP Promoter and ECO Director	Week 3
				Previous Informed Consent	Community	
	1.3	Determine participation methodology	Town meeting	Agree on form of participating and representation	Facilitator, CLIP Promoter, ECO Director, Community	
	1.4	Identify Stakeholders	Town meeting	Community Answers "Who we are"	Facilitator, CLIP Promoter, ECO Director, Community	
				Identify leaders	Facilitator, Community	
	1.5	Establish Steering Committee (SC)	Decision-making mechanism (DMM)	Agree on rights, responsibilities, and work schedule	Facilitator, CLIP Promoter, ECO Director, Community	
Create Community Plan	2.1	Train Steering Committee in Conceptual Framework	Conceptual Framework Workshop	Agree on common terminology	Facilitator, Steering Committee (SC)	Week 5
	2.2	Develop Community Baseline Assessment Tool (BAT)	Steering Committee Baseline Assessment exercise	SC in representation of the community answers: who we are, what we do, what we have, how are we, what do we want	Facilitator, Steering Committee	
				Understand importance: gathering information, monitoring, and indicators.	Facilitator, Steering Committee	
			Workshop to develop Baseline Assessment tool	Identify indicators, Develop BAT, assign team, tasks and times	Facilitator, Steering Committee	
	2.3	Carry out Community Baseline Assessment (CBA)	Implement BAT	Statistically valid set of data on Community Assets, Perceptions on Needs Satisfaction, and Priorities	BAT Team	Week 6, Week 7
	2.4	Carry out Data Analysis of CBA	Data analysis	Summary of results	CLIP Promoter	Week 7
			Presentation of results to Steering Committee	Validate Community Baseline Assessment	Facilitator and Steering Committee	Week 9
	2.5	Design Community Plan	Steering Committee Workshop	Establish Priorities, Agree on Goals and Targets (Community Assets, Satisfiers, Needs)	Steering Committee, CLIP Promoter, ECO Director	Week 11
			Workshop	Establish Activities, Responsibilities, Times	Steering Committee, CLIP Promoter, ECO Director	
			Workshop	Establish Community Indicators of Positive Change and Monitoring tool	Steering Committee, CLIP Promoter, ECO Director	
			Analysis of Community Plan Workshop results	Develop Community Plan Protocol (Logical Framework)	CLIP Promoter	Week 12
			Presentation of Protocol to Steering Committee	Validation of Community Plan Protocol	Steering Committee, CLIP Promoter, ECO Director	Week 13
Implement Community Plan	3.1	Implement First Trimester of Community Plan	Follow Community Plan Protocol	Achieve trimester targets	Steering Committee, Community	Week 16
	3.2	Monitor First Trimester Advances	Measure Indicators	Gather data of first trimester indicators	Steering Committee, Monitors	Week 28
			Analysis of First Trimester Results	Report of Results	CLIP Promoter, ECO Director	Week 30
			Presentation of Results to Steering Committee	Steering Committee Validation of First Trimester Report	Steering Committee, CLIP Promoter, ECO Director	Week 31
			Presentation of revised report to community	Community validation of report	Steering Committee	Week 32
	3.3	Adapt Community Plan Protocol to Changes	Steering Committee Workshop	Revised Community Plan Protocol	Steering Committee, CLIP Promoter, ECO Director	Week 33
	3.4	Implement Second Trimester of Plan, Monitor Advances and Adapt Protocol	Multiple activities	Achieve Second Trimester Targets	Steering Committee, CLIP Promoter, Eco Director, Community	Week 33
	3.5	Implement Third Trimester of Plan, Monitor Advances and Adapt Protocol	Multiple activities	Achieve Third Trimester Targets	Steering Committee, CLIP Promoter, Eco Director, Community	Week 45
	4	First Year Assessment	Community Workshop	Participatory Evaluation of Community Plan and Proposal for Year 2.	Steering Committee, CLIP Promoter, Eco Director, Community	Week 57

Chapter 5

Case Studies

Case Studies

In this section we analyze three case studies from the perspective of community livelihood strategies, links to marine turtle conservation programs, and community livelihood improvement. The cases include the communities of Tortuguero, Junquillal and Chiriquí. Tortuguero is on the Caribbean coast of Costa Rica. It has been the site of marine turtle conservation efforts since the late 1950s. While there was no CLIP associated with these efforts, community livelihoods have improved as a by- product of the MTCP. Junquillal is on the Pacific coast of Costa Rica and Chiriquí is on the Caribbean coast of Panama. In 2005, both became sites with marine turtle conservation programs which aimed to include a CLIP from the outset. These three cases illustrate different options of linking marine turtle conservation efforts with community livelihood improvement.

5.1 Tortuguero – Costa Rica

5.1.1 Baseline Study

Who are we?

Tortuguero is a village on the Caribbean coast in north eastern Costa Rica. In 1985 its population was approximately 150 people, many of whom were Creole speakers of Afro-Caribbean origin. By the year 2000, Tortuguero had 526 residents. Today, 40 percent of the population were locally born, 27 percent were born in other Costa Rican cantons, 32 percent are of Nicaraguan origin, and 1 percent are of other nationalities. Another important stakeholder is the Caribbean Conservation Corporation (CCC), which has been conducting research and marine turtle conservation efforts in Tortuguero since 1959. CCC operates a field station in Tortuguero and has a country office in San José, in addition to its international headquarters in Florida. The Ministry of Environment and Energy (MINAE) is the one government agency with a permanent presence in Tortuguero. Finally, the other significant sector of stakeholders in Tortuguero are the tourists whose numbers have soared from 226 in 1980 to 80,319 in 2004.

What do we do?

Historically, the main economic activity in Tortuguero was the exploitation of meat and eggs from the area's nesting green turtles. Later, in the 1940s-1960s, the lumber industry became the most important employment sector. Sea turtle research and conservation efforts began in the 1950s with the arrival of the CCC. As a result of conservation efforts, legislation protecting sea turtles was passed in 1963 limiting the taking of turtles and eggs from the beach, and the Tortuguero National Park was created in the 1970s. Green turtle nesting increased over 400% between 1971 and 2003. Nature tourism began in the mid-1980s, becoming the source of employment and income for most residents. In addition to its efforts in marine turtle research and monitoring, the CCC also organized the first tour guide training course in 1990.

Tourist spending in Tortuguero increased from an average of $154 per person in 1990 to $255 in 2002. Gross revenues from marine turtle tourism in Tortuguero for 2002 were estimated at $6,714,483 from room and board and transportation services, as well as from souvenir sales and national park and guided tour fees. Education and health services improved, as well as employment opportunities.

What do we have?

Tortuguero is surrounded by two protected areas: the Barra del Colorado Wildlife Refuge (81,211 ha), and the Tortuguero National Park (31,187 ha on land and 50,100 ha in marine areas) which hosts nesting sites for four sea turtle species (green, leatherback, hawksbill, and loggerhead) classified as endangered or critically endangered.

Legislation for marine turtle protection originally allowed some consumptive uses, but concerns that illegal hunting was vastly exceeding the legal quotas prompted environmental groups to bring a lawsuit that resulted in legislation being passed in 2002 banning all consumptive uses of green turtles. The presence of park rangers, CCC scientists, tour guides and tourists on the nesting beach deter illegal removal of turtles and eggs.

The increase in visitor numbers has contributed to an increase in the hotel and hostel (cabinas) infrastructure. In 1985, only one hotel with 12 rooms and two rustic cabinas operated in Tortuguero. Today, there are 11 hotels and 18 cabinas, with an estimated capacity of 600 rooms. Although local residents do not own the hotels, the majority of the cabinas have local owners.

How are we?

In 1990, sixth grade was the highest level of education available in Tortuguero. In 1999, a secondary school opened. The availability of health and other services has also improved. In 1990, the village health centre was open two days a month. Today, the health centre is open two days a week. In 1990, there was no garbage collection, public water or sewage system available. Today, there is a public water system, and a solid waste treatment plant has been built, although it continues to be inadequate. Septic tanks continue to be the predominant method for sewage disposal.

Many of these improvements are due to the growth of tourism, but tourism has also brought an increase in solid waste and sewage production, prostitution, and a rise in drug and alcohol abuse. Also, between 1960 and 1997 there was an increase in the deforestation rate in a 10 km. buffer zone outside the Tortuguero National Park, possibly due to the needs of a growing population. Access to the village is limited to boats and small airplanes.

There are 235 tour guides with licenses to conduct marine turtle tours, of which only 31 percent are local guides. In 2000 women represented 19.5 percent of the tour guides. Over 95 percent of the local tour guides believe the economic benefits from tourism activities are not evenly distributed, although the same percentage agrees that international tourism is improving their quality of life. There is, however, variation in terms of how residents have been able to access new economic opportunities brought by tourism. Those with access to financial capital and who have been able to adapt to a monetary economy have received more benefits, while those without financial capital and with little education have had to make do with the more menial jobs in hotels and other tourism businesses.

While the Tortuguero National Park was created without consultation with the local communities, today regulations and decisions affecting the local community such as changes in the turtle observation system, solid waste treatment, and transportation, are often revised by committees with representatives from the Tour Guide Association, the Development Association, the Women's Association and small business and hotel owners.

Since 1994, most tour guides make a donation to a communal fund for each tourist they have guided. Each year, at the end of the green turtle nesting season, the guides use these funds for a community project such as supporting the construction of a playground, housing for teachers, a police station, a sports court, a kindergarten, and a day care centre, as well as pipes for the public water system, and maintenance of the school buildings.

5.1.2 Livelihood Links

Community assets

Among the lessons learned in Tortuguero are that long term conservation efforts can reverse trends of declining turtle numbers, while improving life quality of local human communities. Among the livelihood assets to which marine turtle conservation efforts have contributed are most obviously the natural resources. Not only has turtle nesting increased significantly in the last 30 years, but the Barra del Colorado Wildlife Refuge and the Tortuguero National Park have become local community assets as well. In turn, the investment in natural resources has contributed to generating greater financial assets in Tortuguero, mostly in the form of greater income to tour guides, owners of boarding and lodging businesses, boat owners, and employees in the hotel and transport business among others. Nesting marine turtles and the national protected areas in and around Tortuguero have attracted an increasingly growing number of tourists whose spending has also been on the rise. The influx of tourists also created the conditions for improving human capacities and skills. The training of tour guides established an important sector of Tortuguero society interested in improving marine turtle conservation as the main attraction to tourists and the source of their livelihood. While the Tour Guide Association may not be the only local organization, it is one whose creation can be directly linked to marine turtle conservation. In turn, the tour guides have invested in the built assets of the community through their annual donations as described above.

Marine turtles generate close to US$ 7 million yearly to the community of Tortuguero in revenue from tourism. Board and lodging, transportation and guiding are the main sources of cash income. A third of all certified tour guides are local and about one fifth are women. Most tour guides make a donation to a communal fund for each tourist they have guided, which has resulted in improved community infrastructure.

The number and diversity of the human population in Tortuguero has grown in direct response to marine turtle conservation efforts, generating greater social interaction, as well as increasing the collective human capacities, skills and investments present in the community. A greater population has forced the State to pay greater attention to the needs of the community, improving the local health and education services. But the political power of Tortuguero has improved not only due to population growth, but also because of greater organization and involvement of the residents, such as the hotel owners and representatives of the Tour Guide Association who participate in committees to discuss decisions affecting the local community. Tourism and population growth in Tortuguero have also transformed the cultural assets of the community, at times contributing to the richness of cultural diversity, world views and forms of knowledge, but at times, too, contributing to new problems, such as an increase in prostitution and alcohol and drug abuse. For the most part, however, it can be affirmed that investments in recovering the natural resource base, and in this case beginning with marine turtles, have lead to the overall enrichment of other community assets.

Satisfiers

The constellation of satisfiers of fundamental needs in Tortuguero has experienced significant transformations through time. Historically, turtle meat and eggs were the source of subsistence. Most likely, turtle hunting and egg gathering activities also represented the main satisfiers for participation and leisure, among others. The choice of satisfiers changed in the 1940s-1960s when subsistence needs were mediated by the lumber industry. During both periods, the choice of satisfiers had destructive elements, satisfying the needs of subsistence, but at the same time affecting negatively the needs of protection of place. With the appearance of nature tourism in the 1980s tourism became a synergistic satisfier of multiple needs. Subsistence became mediated by income earned with tourism, protection of person was improved by investing in health care with earnings from tourism, and protection of place became a central aspect of local livelihoods. Nature tourism also generated the need for nature guides, becoming a satisfier of the needs of identity, participation, understanding, and leisure. Other satisfiers entered the new constellation, including pseudo satisfiers such as alcohol and drug abuse and prostitution, but these are minor compared to the gravitational centre occupied by nature tourism as a synergistic satisfier of fundamental needs.

Basic Needs Not Satisfied Index for some Coastal Costa Rican Communities (adapted from Troëng & Drews 2004, and O'Gorman 2006).

Community	Sea Turtle Use in 2000	Proportion of Population with Basic Needs Not Satisfied*
Barra del Colorado	None	41%
Ostional	Egg sales	39%
Tortuguero	Tourism	28%

*The index combines access to decent living quarters, knowledge, health, goods and services. Higher value indicates less social and economic development. Data from INEC, Costa Rica.

Fundamental needs

The investments in community assets that marine turtle conservation sparked in Tortuguero have resulted in improved community well-being. Subsistence opportunities have diversified, and levels of income have increased. The protection of the local environment, while limiting short term extractive activities, has guaranteed a long term source of ways and means of satisfying the needs of subsistence, including nature tourism as a growing source of employment. Protection of person has improved with greater local access to the State health services. Despite the abundance of tourists, liberty of movement to and from Tortuguero is still limited to boats and small planes. These means of transportation may be all that is needed in order to protect the natural resource base that in Tortuguero is the satisfier of many diverse needs. Tortuguero's natural assets satisfy the needs for leisure not only of tourists but of the local community as well. The sports centre to which the Association of Tour Guides contributed also serves to satisfy local needs for leisure. The local community has found ways to participate in local decision making processes, as well as in activities and organizations whose members share a common interest, such as the Women's Association, and playing football. Marine turtle conservation has made Tortuguero an internationally valued location. Marine turtles now form part of the identity of Tortuguero, an identity that has moved members of the community to an increased understanding by learning more about them and using this knowledge to improve their livelihoods.

5.1.3 Monitoring Changes

Where do we want to be?

How the residents of Tortuguero evaluate their well-being is not evident in the literature. This suggests the need for carrying out a systematic gathering of community perceptions and concerns. It is clear that marine turtle conservation has had an overall positive impact on the well-being of the human community in Tortuguero, although this may not have been considered originally as an objective. The current interest of linking marine turtle conservation with community well-being requires an active collaboration in this direction. The leading question of where the community wants to be should be answered in a participatory manner; however there are some indications of where the community might want to improve its well-being.

Sustainability, Equity, Autonomy, and Security

Since marine turtle conservation efforts began in Tortuguero in the late 1950s, the impact on the natural resources there has been dramatic. Legislation protecting the environment was passed and over 100,000 ha. of land and 50,000 ha. of marine territory have been declared protected areas in and around the village. The number of marine turtles nesting at Tortuguero has increased by over 400% in the last three decades. Impacts on the environment were not immediate, nor were the benefits for the human community derived from marine turtle conservation. Nature tourism to Tortuguero did not begin until the mid 1980s, eventually becoming the main source of employment and generator of income. Some outcomes of marine turtle conservation efforts that have had a negative impact on community well-being are mentioned above.

The possibility of monitoring changes in sustainability in Tortuguero is suggested in the following chart as an example, keeping in mind that the specific indicators should be the product of a participatory process of construction.

	GOAL	INDICATORS (+)	INDICATORS (-)
SUSTAINABILITY	***Improved stewardship*** of natural capital (healthy and sustainable ecosystems with multiple benefits for the community).	-No. of marine turtle nests -Improved sewage system -Reduction in solid waste	-No. of poached marine turtle nests -Tons of solid waste/yr.
	Increased synergies in satisfying needs (increased use of skills, knowledge and capacities).	-No. of family owned hotels, cabinas, businesses -No. of professionals -No. of skilled workers	-No. drug and alcohol abuse incidents -Levels of prostitution
	Greater local capacity for the satisfaction of human needs (long term satisfaction).	-Percentage of youth in school -Average number of years in school -No. of youth recruited as professionals into Tortuguero´s labour force and businesses	-No. of school deserters

Benefits for the community coming from marine turtle conservation are not evenly distributed among individuals. Clearly, tour guides have benefited, as well as other stakeholders with financial capital to invest: the influx of tourists and their money in 2003 reached an investment in Tortuguero of over $6 million. Other sectors of Tortuguero society, possibly those with limited human and financial capital, have not fared as well from the opportunities brought by tourism. The fact that marine turtle conservation efforts in Tortuguero have not been programmatically linked to community well-being has delayed improving levels of equity. To monitor changes in equity, the following chart suggests goals and indicators that would need to be approved or modified by the community in a participatory process.

	GOAL	INDICATORS (+)	INDICATORS (-)
EQUITY	***Wider collaboration*** among stakeholders (improved community relations and communication).	-No. of community organizations -Percentage of participants in community organizations from all inhabitants -Percentage of women participants	-No. of incidents of crimes against property and people
	Greater investment in additive capitals whose resources increase when used (social, cultural, political, and human capital).	-No. of community events (social, cultural, sport, political) with the participation of locals, CCC, hotel owners, etc. -No. of adult education opportunities -No. of community training events	-Infant mortality rates -Rates of child dysentery
	Greater equity in access to the processes and results of adequate needs satisfaction.	-No. of women business owners -Percentage of women in organizations -Percentage of youth participating in youth organizations -No. of mature adult organizations	-No. of tourist businesses owned by non-residents

Tortuguero's privileged position in the world with regard to marine turtle nesting sites has provoked a growth in population and tourism that has permitted the local community to improve its well-being by its own means. There is, however, still much to do in order to achieve desired levels of autonomy. The process of achieving greater autonomy can be monitored through the use of indicators chosen by the community. The following chart offers a sample of what these could be.

	GOAL	INDICATORS (+)	INDICATORS (-)
AUTONOMY	***Greater independence*** of external forces for the satisfaction of needs (having a greater voice and influence).	-Percentage of families with land titles -Percentage of community decisions respected by the State -No. of locally controlled projects	-Percentage of homes whose income comes from "remittances" -No. of externally controlled projects in Tortuguero
	Greater accountability and transparency in community governance (improved community initiatives and responsibility).	-Percentage of people who approve of local government performance	-No. of cases operating illicitly in the protected coastal areas.

Tourism, however, can be a notoriously fickle business and undergo sudden changes due, for example, to high air fares or safety issues. A reliance on tourism alone is thus not ideal either for sustainability nor autonomy.

Two important elements that contribute to confronting successfully the vulnerability context are the use of information to foresee threats and opportunities, and the diversification of livelihood activities in response to these. In Tortuguero there are already indications that the achievements in improved well-being may be subject to erosion. The best way to secure community well-being is to reduce and adapt to the vulnerability context, which in Tortuguero includes trends of continued tourism and population growth, and some of the problems these bring. Possible goals and indicators of change could be:

	GOAL	INDICATORS (+)	INDICATORS (-)
SECURITY	***Decreased vulnerability*** to environmental and socioeconomic threats (information and knowledge are managed to reduce vulnerability).	-No. of participatory monitoring activities -No. of information sources available to the community	-Levels of illiteracy
	Greater adaptability to changing circumstances (local economies that are appropriately diverse and healthy).	-No. of community environmental and social projects -No. of different productive activities -No. of small and medium sized businesses	-No. of under or unemployed adults

The Tortuguero case is one in which a community livelihood improvement program (CLIP) did not exist from the start of marine turtle conservation efforts.

The economic benefits of marine turtle conservation are evident, while education and health services have improved only marginally. The suggestion above show how the implementation of a CLIP linked to marine turtle conservation could improve community-perceived deficiencies in well-being. Among the opportunities for action in a CLIP are initiatives to improve organizational and decision-making capacities among the Development Association, the Tour Guide Association, the Women's Association, as well as among small business and hotel owners, in favor of marine turtle conservation and improved community well-being. Efforts to improve human capital by facilitating education and training opportunities would consolidate trends for greater equity in the distribution of benefits and for greater autonomy in the community's control over its destiny.

5.1.4 Sources

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5.2 Junquillal – Costa Rica

5.2.1 Baseline Study

Who are we?

Junquillal Beach is a 5.3 km stretch of sand located between Playa Tamarindo and Ostional on the Pacific coast of Costa Rica. In pre-Columbian times, the area was inhabited by communities dedicated to farming, hunting and gathering of coastal resources. Today, Junquillal is a community of about 130 households and a population of approximately 220 persons, of which 60 percent are Costa Rican residents, 18 percent are residents of other nations who spend at least nine months of the year in Junquillal, and 22 percent are construction workers based temporarily in town at construction sites.

Junquillal is in the province of Guanacaste where tourism is growing at an accelerated pace. The newly opened international airport in Liberia, the capital city of Guanacaste, is just over two hours away. Junquillal is quickly joining the tourism circuit of other more developed beaches on the Pacific coast of Guanacaste, such as Samara and Tamarindo. Junquillal used to be the beach where local residents of Santa Cruz, the county capital, went for leisure. More recently, however, Santa Cruz residents seem to have opted for other more secluded beaches, which seem safer for swimming and/or make for better fishing. The half dozen hotels that have sprouted up in Junquillal are mostly in the hands of non-residents. In 1995, Junquillal Beach won the Blue Ecological Banner of the Institute of Tourism of Costa Rica (ICT) in recognition of its environmental quality.

Between 2001 and 2004, Gabriel Francia, a graduate student of the Wildlife Management Master's Program of the National University of Costa Rica, undertook an extensive study of the marine turtles in Junquillal. He discovered that this beach was one of the most important nesting sites for leatherback turtles (*Dermochelys coriacea*), after the Grande-Langosta beaches in Baulas National Park and the Ostional wildlife refuge. Junquillal is second only to Naranjo beach in Santa Rosa National Park in importance as a nesting site for black turtles (*Chelonia mydas agassizi*) in Costa Rica. Junquillal Beach, however, is not part of the Costa Rican protected areas system.

In January 2005 WWF launched the Pacific Leatherback Conservation Project, a community based marine turtle conservation project in Junquillal headed by Francia. The project is aimed at creating awareness about the importance of protecting marine turtles and at generating income sources that offer alternatives to the extractive uses of marine turtles. For this, the project has received support from different funding sources, including the WWF Species Action Fund, the Sea World Busch Gardens Foundation, and the private company Sustainable Forestry Management. It has also coordinated efforts with several State institutions and community organizations, including the Ministry of the Environment and Energy (MINAE), the Municipal government of Santa Cruz, the schools of Junquillal, Paraiso and Pargos, the Junquillal Community Development Association, the Junquillal Blue Ecological Banner Committee, the School Patronage of Junquillal, as well as with community members of the towns of Junquillal and neighboring Avellanas, Lagartillo, Pargos, Paraiso, Venado, Lagarto and Marbella.

What do we do?

When Francia began his research in Junquillal in 2001, he found that illegal harvesting of marine turtle eggs affected 100 percent of the olive ridley (*Lepidochelys olivacea*) and black turtle nests, and as much as 75 percent of leatherback nests. In addition, beachside electric illumination reduced the arrival rates of female turtles coming to nest, adding to the threats of extinction of these species. He also began to study the seemingly aggregating effect on nesting turtles of dark looking constructions along the beach.

By 2004, some residents still considered nest poaching as the main threat to the survival of turtles in Junquillal. Turtle eggs formed part of the local diet, and local residents considered turtle eggs to be high in nutrients and even to have aphrodisiac properties. Two of the four bars in the area regularly offered turtle eggs as an appetizer. The sale of eggs was an easy source of income to poachers, earning about $1.00 per dozen. A nest could represent egg sales of about $15, equivalent to the earnings of a laborer working two days in the field.

The marine turtle conservation project (MTCP) in Junquillal has involved the construction and operation of a marine turtle hatchery, where eggs are brought in to be protected from erosion, predators and overheating, until the release of the baby turtles. The program is also training several young members of the community in monitoring and patrolling the nest sites at night. Of the nests marked with conspicuous labels by the beach monitors, practically all remain untouched, contributing significantly to survival rates of the turtle hatchlings. Poaching, however, does occasionally continue to occur, mostly by community members of a neighboring town where there are problems of drug abuse, and turtle eggs are harvested illegally to sell on the black market. But even among these poachers there seems to be a tacit agreement not to disturb nests marked by the local monitors. The rule seems to be one of "finders-keepers".

Employment opportunities in Junquillal are scarce, as in the rest of Guanacaste. Local men earn a living by working in construction outside of Junquillal, or as guards, or gardeners, or working in hotels throughout Guanacaste. Single, divorced or widowed women may work as cooks or as maids in hotels. There is also limited commerce in Junquillal with only a small supermarket and a grocery store, although some Italian restaurants have also opened on the beach. But like most beaches in Costa Rica, Junquillal, is increasingly becoming a tourist attraction. There are hotels with single bedroom prices ranging from $25 to $70 a night, and just 45 minutes away from Junquillal there is an 18 hole golf course.

A few of the local hotels have only recently begun to advertise watching the olive ridley and leatherback turtles lay their eggs on the beach. Some concerned residents and hotel owners in Junquillal have suggested placing donation boxes in the bar and local supermarket to collect donations from tourists to support marine turtle conservation efforts, although this initiative has not yet been effective.

The link between marine turtle conservation and possibilities for improving local livelihoods is one of the priorities of the WWF Project in Junquillal. One of the possibilities it has begun exploring is community based ecotourism. As part of its environmental education activities, WWF has organized visits by the Junquillal monitors and other local residents to other community-based tourism efforts, including Monteverde and Tortuguero, which has sparked an interest in community tourism among the Junquillal participants. The intervention strategy of WWF includes these key elements: (1) raise local self-esteem; (2) provide new opportunities for individual and community growth; (3) live in town as a community member, and; (4) treat villagers as equal, avoiding a patronizing stance.

What do we have?

Within a year of the WWF MTCP entering Junquillal, poaching of marine turtle nests has been brought down to practically zero. From the start, the project encouraged participation of the local community. Adults have participated in the transfer of nests, construction and maintenance of the turtle egg hatchery, releases of hatchlings and social activities related to marine turtle conservation (soccer match, school festival). Some local persons, including the youth, have been trained as beach monitors. The program is also training parents and teachers in methodologies for environmental education of children to understand the impact of human actions on the environment.

As a result of a suggestion by a local woman of the community, a semester bulletin is produced with the aim of informing Junquillal and neighbouring communities about the activities and advances of the WWF Pacific Leatherback Conservation Project. The bulletin is produced for local distribution in an economic black and white version, as well as a full-color version to place on local bulletin boards, and a digital version for distribution outside of Junquillal and for WWF's project internet site. The first edition of Baula News was published in June 2005 with 1,000 copies printed and distributed locally, regionally, and internationally. A second edition of 1,500 copies was published in December 2005.

The MTCP has established additional rapport with the local community by organizing a football tournament. Insertion into the community this way contributes to the project's ability to promote its message of environmental conservation. In addition, it adds to the scant options for leisure and social interaction available in Junquillal. The Leatherback Football Championship 2005 was organized in August to attract the people of Junquillal, and the male and female youth in particular, to the project. Five teams

including residents from Junquillal and eight other neighbouring communities where leatherbacks nest participated in the event, which was used to promote participation in the activities of the MTCP in Junquillal and to create awareness regarding the threats to marine turtles.

Two common causes of declines of marine turtle populations in Junquillal are the illegal harvest of eggs and habitat alteration due to coastal development. A growing demand for tourism services and the associated infrastructure on Costa Rica's Pacific coast has meant an increase in artificial lighting and changes in the physical structure of the beaches. The lighting has a negative effect on the turtles' nesting behaviour and on hatchlings' sense of direction. As a result of formal presentations in Junquillal by the MTCP and some building owners about the negative effects of artificial illumination along the beach (illustrated by releasing hatchlings under the disorienting effect of white and monochromatic light), several residents agreed to reduce the amount of illumination they use and to switch to turtle friendly types of lighting. Through conversations with the local electricity provider, Coopeguanacaste, the MCTP has stimulated ideas on how to reduce the intensity of public lighting that continues to be the most important source of light contamination.

Despite the precipitous growth of tourism in Guanacaste and the growing demand for public services, the nearest health centre to Junquillal is at least an hour away in Santa Cruz. In the rainy season, overflowing rivers often cuts off access to Junquillal. There are only two buses a day in and out of Junquillal, even though there are some half dozen hotels there. Other basic services, such as garbage collection, piped water, public telephones, and electricity are found in Junquillal. The tourist market in Junquillal is still relatively modest, with free camping catering mostly to surfers, and with the two largest hotels closing down during the off-season. This, however, is quickly changing. There is currently an avalanche of construction, including condominiums and homes. Real estate prices have soared and a real estate office has been set up in the town. In general, development of the province of Guanacaste has also brought with it new problems, such as a growing number of robberies against tourists and residents, greater economic disparities in the population, and problems of alcohol and drug abuse.

In an attempt to make use of an otherwise threatening situation for turtle conservation, the MTCP has taken the first steps towards putting tourism linked to marine turtles in the hands of native Junquillal residents. The project has resulted in new initiatives with foreign student volunteers staying at local homes for a minimum of two months, paying for room and board. Women who have worked in hotels in Guanacaste have learned about tourism and are able to offer adequate lodging services in their own homes.

Livelihood options for the new generations in Junquillal are changing and an academic education is considered essential by many parents. In order to get a primary school in Junquillal, the community had to organize and fight for it. Today all the children in Junquillal go to the local primary school. High school students, however, still have to go to the neighbouring towns of Santa Cruz and 27 de Abril to study, often abandoning their studies before they finish. Some of these youths have found opportunities as monitors with the MTCP.

How are we?

In March of 2006, an informal exploratory study was carried out by a volunteer to gather perceptions of the Costa Rican men and women in Junquillal about their community, their needs, and the marine turtle conservation project (Cotterlaz-Rannard, 2006). While this study is not conclusive, it suggests that a large portion of the local population view the MTCP as positive. This perception is confirmed by the respect and admiration the local monitors have for the project's director, Gabriel Francia. Moreover, the effect the MTCP has had in the community by a diversity of means, including trips to other communities, meetings with state authorities (Ministry of the Environment, municipality, etc.), environmental education, monitor training, football championships, the dissemination of information, and the promotion of locally managed ecotourism, has contributed to the positive standing of the project in the community.

Over two thirds of the local residents report witnessing a decline of at least 90 percent in turtle populations at Junquillal during the last three decades. In 2004, some residents still considered nest poaching as the main threat to the survival of turtles. Among the Costa Rican residents surveyed, however, about one fifth had never seen an adult turtle or the birth of hatchlings. On the other hand, more than 30 percent had done so through the MTCP. This rough approximation nonetheless sheds light on the impact the project has had on the perceptions of the community toward marine turtle conservation, but also the important amount of work that still needs to be done in this regard.

The study also explored other aspects of community livelihoods less directly related to marine turtle conservation. The survey showed that recreational activities for both men and women are limited mostly to walking along the beach and playing football, as well as fishing. However,

well over half of the population consider they have no recreational options. Besides opportunities for leisure, the community is also interested in participating in other activities. Almost two thirds of the people interviewed would like to participate in organizations, over 80 percent would be interested in participating in monthly meetings, and almost 90 percent would be interested in participating in community decisions. Among the main concerns the people have about their community are issues regarding the state of the roads, the lack of recreational areas, and the lack of communication and unity in the community.

5.2.2. Livelihood Links

Community assets

Concern for the environment in Junquillal was not born with the arrival of the WWF Pacific Leatherback Conservation Project. Ten years earlier the community had already obtained the Blue Ecological Banner from the Costa Rican Institute of Tourism (ICT) in recognition of the environmental quality of its beaches. More recently, members of the community stepped forward to protect the mangrove forest from illegal land conversion. The MTCP, on the other hand, has contributed to affirm the importance of the marine turtles that nest in Junquillal as a significant community asset. The location of Junquillal in the province of Guanacaste makes it a candidate for economic growth, along with many other beaches that are experiencing rampant tourist development. This growth, however, has already altered other community assets, such as their culture and community social relations. Already one third of the Costa Rican population in the community does not consider that the relationship with foreign residents in Junquillal is a good one.

Since the start of the WWF project in 2005 it has contributed to the knowledge base of the community regarding marine turtles. In addition, it has invested efforts in creating human skills and capacities among adults (educational trips, workshops, handicraft training) and the youth, which takes part in its entirety in the beach monitoring program. The MTCP provides direct employment to a small number of Junquillal residents. More importantly, however, the project is creating the foundation for a community-controlled and turtle-based form of tourism that will give the local community access to this market, in such a way that they may control the onslaught of development present in Guanacaste and continue to protect marine turtles as a central attraction for a more sustainable form of tourism in Junquillal.

Junquillal may soon find a surge in economic investment and construction in the community. These community assets, however, may not be equitably distributed, and in addition, may be detrimental to their natural resources, and to the sustainability of their well-being. The MTCP and the community of Junquillal still have time to confront these threats appropriately. The preliminary exploration that the project carried out suggests that there exist the necessary elements to strengthen the political capacities of the community to control decisions that will affect their well-being.

Satisfiers

Until very recently illegal poaching of turtle eggs remained an additional means of obtaining income to satisfy diverse needs. With the arrival of the MTCP, however, new options have appeared that have significantly reduced poaching to a fringe activity. Monitoring the beaches and caring for the survival of turtle hatchlings has become a new satisfier for the needs of participation, understanding, leisure and even identity.

In the context of a burgeoning tourism industry in the region, locally controlled ecotourism is becoming a probable satisfier of multiple needs. It also represents an alternative to conventional mass tourism that could engulf Junquillal and become a pseudo satisfier of the needs of participation, identity, and protection of place. The people of Junquillal are currently faced with choices of satisfiers that may determine in great measure the destiny of the community.

Fundamental needs

The community considers that the principal problems in Junquillal have to do with a lack of communication and unity among the residents. These problems may already be a symptom of the uncontrolled development that threatens the community. Some of the community assets are disproportionately in hands of newly arrived residents and outsiders. While the natural resources are being increasingly protected, the safety of tourists and residents is deteriorating as they increasingly become victims of robbery.

The beach itself, however, is still safe during day and night and it is a place of leisure, especially for the tourists. For the local community, on the other hand, the recreational options in Junquillal are insufficient. The WWF project did well in organizing a trip to Tortuguero, a renowned turtle conservation site, and in organizing the Leatherback Football Championship linking leisure activities with opportunities to learn more about, and become identified with marine turtles and their conservation. The great challenge in Junquillal for linking

marine turtle conservation with community well-being, is to be able to compete against the "glitter" of development, with an understanding of how the community's efforts in conserving marine turtles goes way beyond only benefiting themselves, and has an impact on global ecosystems that transcend the community of Junquillal. By creating this understanding, identifying with it, and valuing its transcendence, other needs may be satisfied more modestly, and overall well-being improved and sustained.

5.2.3. Monitoring Changes

Where do we want to be?

The MTCP is clear on where it wants to be. According to WWF, the aim is that the community values the turtles more alive than dead and that it benefits from its own conservation measures. The community should have governance over their natural resources, taking informed decisions and benefiting directly and sustainably from them. Where the community wants to be, on the other hand, still needs greater discussion. Nevertheless, the diagnostic in 2006 sheds light on some of the directions the community wants to head in. One priority is to improve the communication and unity within the community. Another aim is to participate more in decisions that affect the community. There is also interest in improving the condition of the roads and in having greater recreational options.

Rather than bringing in the state's authority to enforce the law and suppress nest poaching, the MTCP´s approach has been to develop a situation where the community manages its own resources responsibly. Possibly influenced by the MTCP, some residents are interested in forming part of a community-controlled and turtle-based tourism project, where the protection of marine turtles is community managed and forms a central part of the attraction to tourists. Linked to this type of tourism, there is an interest in increasing other income-generating activities, such as the production and marketing of handicrafts, offering the service of nature tour guides, traditional Guanacaste catering and lodging in local families, among others. The private tourism sector may translate their stake in marine turtles as a local attraction into an investment in their conservation.

Sustainability, Equity, Autonomy, and Security

The sustainability of the natural resources in Junquillal has already been threatened with the decline since the 1980s in numbers of marine turtles nesting there. In 2006, the threats may even be greater with the rampant advance of economic growth and construction common to the province of Guanacaste, which could contribute to a deterioration of nesting habitat. Clearly, one of the central interests of the MTCP is to monitor changes in the numbers of marine turtles nesting and hatching in Junquillal, and to work to improve them. The long-term sustainability of community well-being may lie in its ability to successfully manage this precious natural resource, and find ways of making marine turtle conservation a means of satisfying multiple needs. For this, it is necessary to improve human capacities, initiative and creativity to take advantage of these assets for improving and sustaining community well-being.

A method of monitoring changes in sustainability in Junquillal is suggested in the following chart, keeping in mind that the selection of specific indicators should be the product of a participatory process.

	GOAL	INDICATORS (+)	INDICATORS (-)
SUSTAINABILITY	***Improved stewardship*** of natural capital (healthy and sustainable ecosystems with multiple benefits for the community).	-No. of marine turtle nests -No. of hatchlings -Extent of dark beaches -Proportion of nights patrolled by local monitors	-No. of poached marine turtle nests -Area of illuminated beach front -No. of constructions
	Increased synergies in satisfying needs (increased use of skills, knowledge and capacities).	-No. of native Junquillal owned hotels, cabins, businesses -No. of local monitors -No. of local skilled workers & professionals	-No. of drug and alcohol abuse incidents
	Greater local capacity for the satisfaction of human needs (long term satisfaction).	-Percentage of youth in school -Average number of years in school -No. of youth recruited as professionals into Junquillal labour force and businesses -No. of workshops and other capacity building opportunities -Proportion of local landowners	-No. of school deserters -Area of properties sold from locals to non-residents

One of the most evident problems in Junquillal is the lack of equity in access to community assets. Most hotels, new restaurants and shops are in the hands of newcomers. This has an impact on community well-being provoking a lack of unity among the residents of Junquillal. An initial resistance among the locals against the MTCP may have been a symptom of this. Fortunately, the project has been able to overcome this by investing energy in making the project accessible to the community for them to appropriate. To monitor changes in equity, the following chart suggests goals and indicators that would need to be approved or modified by the community in a participatory process.

The young people of Junquillal participate in monitoring patrols and are trained as tour guides. High risk nests are relocated by the team to a hatchery which serves as a place for education of locals and tourists in marine turtle biology and conservation. The arrival of the first leatherback of the season is celebrated with great joy by the local team. A television celebrity, Marilín Gamboa, broadcasted the message that eggs are not aphrodisiacs! Meanwhile, the marine turtle project is strengthening local organization, political voice, capacity and governance.

	GOAL	INDICATORS (+)	INDICATORS (-)
EQUITY	***Wider collaboration*** among stakeholders (improved community relations and communication).	-No. of issues resolved by community organizations -No. of local and new resident participants in community organizations -No. of community events (social, cultural, sport, political) with local and new resident participation - Project donations from hotels	-No. of community meetings cancelled for lack of quorum
	Greater investment in additive capitals whose resources increase when used (social, cultural, political, and human capital).	-No. of adult education opportunities -No. of community training events -No. of meetings for community decisions	-No. of community members who did not take part in training opportunities because of prohibitive language or costs constraints
	Greater equity in access to the processes and results of adequate needs satisfaction.	-No. of local women business owners -Proportion of youth participating in mixed local and foreign youth organization/s -No. of mature adult organizations	-Proportion of non-resident vs. locally owned tourist businesses.

A major challenge to local autonomy is the arrival of powerful outside business interests. In this setting, Junquillal has natural resources of global importance that need to be managed by the community to provide long-lasting local benefits. The following chart offers a sample of how some key issues of autonomy might be monitored.

	GOAL	INDICATORS (+)	INDICATORS (-)
AUTONOMY	***Greater independence*** of external forces for the satisfaction of needs (having a greater voice and influence).	-No. of locally controlled projects -No. of community decisions respected by the State -Percentage of homes with main income from local activities	-Percentage of homes with main income coming from "remittances" -Percentage of non-resident owned properties -Percentage of non-resident owned businesses
	Greater accountability and transparency in community governance (improved community initiatives and responsibility).	-Percentage of people who approve of local community decisions and enforcement	-No. of cases operating illicitly in the protected coastal areas.

The MTCP has provided important information to the community of Junquillal about the threats to successful marine turtle nesting, including the effects of beachfront lighting. Other important information re-

garding the effect of sand temperatures on successful hatching of marine turtle eggs has also been shared with the community. Such information is important for the community to have in order to be able to reduce their vulnerability to environmental and socioeconomic threats, and develop ways and means of adapting to changing circumstances. In Junquillal, the major threats to marine turtle conservation and to sustainable local livelihoods come from having too few options to confront rampant economic growth and foreign investment. Information regarding threats and about viable alternatives are necessary to increase community security.

	GOAL	INDICATORS (+)	INDICATORS (-)
SECURITY	***Decreased vulnerability*** to environmental and socioeconomic threats (information and knowledge are managed to reduce vulnerability).	-No. of participatory monitoring activities -No. of information sources available to the community	-Levels of illiteracy -Abstention rates to community meetings -No. of crimes against people and property
	Greater adaptability to changing circumstances (local economies that are appropriately diverse and healthy).	-No. of community environmental and social projects -No. of different productive activities -No. of small and medium sized businesses	-No. of under or unemployed adults

Among the suppositions that the MTCP is making in Junquillal is that non-extractive uses of marine turtles such ecotourism will improve community livelihoods to a greater extent than extractive uses, and this in turn will promote a greater concern by the community to conserve these endangered species. Having incorporated a Community Livelihood Improvement Program (CLIP) approach into project from the start is one of the advantages the WWF Pacific Leatherback Conservation Project. On the other hand, the imminent socioeconomic threats both to marine turtle conservation and to local livelihoods in Junquillal suggest that the CLIP should be strengthened. The case of Junquillal offers an opportunity to validate the importance of incorporating a CLIP into marine turtle conservation projects early on. The case study is also illustrative of the fact that threats to community livelihoods come not from a lack of opportunities, but rather from an excess of external investment in built capital that is neither equitably distributed, nor does it adequately satisfy community livelihood needs, or generate well-being.

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5.3 Chiriquí – Panama

5.3.1. Baseline Study

Who are we?

Chiriqui Beach is located on the western Caribbean coast of Panama, in the district of Kusapin, within the Province of Bocas del Toro. It is within the Ño Kribö region of the Ngöbe-Buglé Indigenous Territory, or Comarca (created in 1997), and forms part of the Damani - Isla Escudo de Veraguas Wetlands Reserve, a wetland of international importance under the Ramsar Convention and protected area of approximately 24,000 ha., which includes coral reef, tropical rainforest and mangroves. Chiriquí Beach extends 24 km with the communities of Rio Caña and Rio Chiriquí on either end. This beach is considered historically as the Caribbean's most important nesting site of the hawksbill turtle (Eretmochelys imbricata), and the second most important nesting site in the Caribbean after Trinidad of the leatherback turtle (Dermochelys coriacea). Both species are considered critically endangered by IUCN. In the case of hawksbill turtles, their numbers fell by 98 percent between 1950 and the late 1990s provoked mainly by turtle shell markets.

The communities of Rio Caña and Rio Chiriquí both have populations of approximately 1000 persons, of which between 80 percent and 95 percent are indigenous Ngöbe-Buglé, and more than half are under 18 years old. Within the entire Comarca, the population in 2004 was of 128,978 persons in a territory of 6,968 km2. Of the two communities bordering Chiriquí Beach, Río Caña is the smaller, and it is in this community where this case study is mostly focused.

Concerned with the deterioration of their natural resources, the community of Rio Caña created the Association for the Protection of Natural Resources of the Ngöbe –Buglé (APRORENANB). In 2003, the Caribbean Conservation Corporation (CCC), along with APRORENANB and a large group of local, national and international project partners, started a marine turtle conservation project (MTCP), the "Hawksbill Turtle Research and Population Recovery Project at Chiriqui Beach, Escudo de Veraguas Island, Nö Kribo region, Ngöbe-Buglé Comarca and Isla Bastimentos Marine National Park," to carry out regular and intensive monitoring of hawksbill and leatherback nesting activity, protection of nesting females and their nests, and environmental education in the region. In 2004, APRORENANB and the CCC invited the WWF to join the Project with the aim of establishing a Community Livelihood Improvement Program (CLIP) linked to the MTCP.

Other organizations with environmental conservation objectives that have worked in Rio Caña include the Panamanian Centre for Social Studies and Action (CEASPA), and the Authorities of the Ngöbe-Buglé Comarca. The Smithsonian Tropical Research Institute, the National Environmental Authority (ANAM) and the Panamanian Institute of Tourism (IPAT) have also visited the site.

Influential local actors in Chiriquí Beach include the director of the MTCP, marine biologist Cristina Ordóñez of CCC, who lives in Bocas del Toro, the president of APRORENANB and community leader Ausencio Palacios, who lives in Santiago de Veraguas. The MTCP has hired ten beach monitors, most of whom belong to the only two or three local Ngöbe families who are literate. In Rio Caña there is also a group of women artisans called Meri Eco Kika. The neighbouring indigenous communities of Rio Chiriquí and Rio Diablo also form part of the stakeholders of the resources in Chiriquí Beach.

What do we do?

Almost 75 percent of the adults in Rio Caña engage in subsistence activities such as fishing, farming and some hunting. There are also some artisans. A large part of the community, 65 percent, complement their livelihoods with

paid work, including some commerce in the community, or finding work elsewhere in banana plantations or in construction. About 18 percent of the community obtains part of its income from doing work related to the MTCP, as beach monitors, cooks, and other tasks.

All the children of Rio Caña attend a primary school in the community. For secondary school, students used to go to Rio Chiriquí or travel to other towns further away, but very recently the community succeeded to bring secondary schooling to Rio Caña. Other activities in the community are limited by a lack of community assets. Entertainment is limited to playing football or listening to the radio. There is no electricity. Most women become mothers while they are still adolescents. Despite the economic needs in Rio Caña, there is practically no poaching of turtle nests in Chiriquí Beach. In neighbouring communities, people continue to hunt turtles and consume turtle eggs.

The main activities of the CCC since it set up the MTCP in Chiriquí Beach include regular and intensive monitoring of hawksbill and leatherback nesting activity, protection of nesting females and their nests, and environmental education. At first, foreign volunteers came to monitor the beaches. Today, however, the MTCP hires local Ngöbe monitors. Research activities of the MTCP include fitting satellite transmitters to leatherback turtles to enable researchers to record turtle migration routes in the central and southern Atlantic, where their movements are by-and-large unknown.

The MTCP has also incorporated a community livelihood improvement program (CLIP), though which the project seeks to recover the region's nesting and hatching of tur-

The Río Caña community recognizes the potential of its natural resources as tourist attractions and drivers of local development. The MTCP is facilitating a participatory process to define the kind of tourism that the community wants, its viability and the rules that will govern visitors. Some families are staff of the marine turtle monitoring scheme. Others await opportunities to learn and benefit from the presence of turtles and other wildlife in Playa Chiriquí.

tles through permanent community participation, linking conservation efforts with improvements in the livelihoods of local people. The CLIP engages in environmental education, as well as investigation into community perceptions, needs and concerns. In Rio Caña, the community is interested in improving their well-being with income generating options such as ecotourism, but in such a way that their way of life is not threatened.

What do we have?

Although Chiriquí Beach is considered an area characterized by poverty, as are most of the indigenous territories in Panama, there are significant livelihood assets in the local communities. Chiriquí Beach remains one of the most important sites for leatherback nesting in the Atlantic, with as many as 7,170 to 14,005 nests constructed yearly. This contrasts sharply with the situation in the eastern Pacific, where leatherbacks have decreased from more than 90,000 adults in 1980 to fewer than 2,000 adult females in the year 2000, and where only some hundreds of nests are recorded yearly at the main nesting sites in Costa Rica and Mexico. Despite seemingly abundant nesting in Junquillal and other Atlantic sites, leatherbacks are considered worldwide as critically endangered.

The natural wealth of Chiriquí Beach has attracted the investment of other resources to the locality. In the community of Rio Caña, the National Environment Authority (ANAM), through the Mesoamerican Biological Corridor project of the Panamanian Atlantic (CBMAP) has made significant investments directed at constructing an environmental conservation vigilance centre, developing a program of communal vigilance, and constructing a marine turtle nursery.

As for the community, the people of Rio Caña value their natural environment, the river, the sea, and the beach. They value their tranquillity, peace and freedom, and they value the people of their community. For information and entertainment, people listen to the radio. The community has a football field and volley-ball court for the local youth. No alcohol is sold in the community, and this is considered as something positive. The community is also governed by Ngöbe-Buglé Comarca legislation that grants it important levels of autonomy.

On the other hand, living conditions in Chiriquí Beach are still quite limited. There is one public phone, a water main under construction and no electricity in Rio Caña. Drinking water comes from wells or from the river. Garbage is also thrown directly into the river. The only health centre receives visits from the doctor once every six months. Diarrhoea and malnutrition are common ailments among the children. The local school does not offer bilingual education, so that the youth practically no longer speak their indigenous language Ngöbere. Over half of the population does not have any formal education. Communication to Rio Caña is on boat by river or by sea, so that travel to Almirante, the closest large town, may take up to ten hours.

In response to many of these deficiencies in the community, APRORENANB has been able to generate conditions to improve them. The Association's president, Ausencio Palacios, was recently able to obtain approval for piped water, soon be installed, as well as a satellite telephone and solar panels for the school's computers. In addition, the WWF joined the CCC on APRORENANB's request to establish a community livelihood improvement program (CLIP) linked to the MTCP.

Currently there is no tourism at Chiriquí Beach, but the Ngöbe community sees in their natural resources, including the marine turtles, an attraction for a tourist market that could benefit them. At the same time, however, they are concerned about the negative impacts that uncontrolled tourism could have on their communities. To address this, the CLIP has been helping the community to draw up and implement a sustainable development and conservation plan. It includes an informed conceptualization of the kind of the tourism that the community wishes to receive. The CLIP hired the Costa Rican organization CoopeSoliDar to carry out a community baseline diagnostic which served as the basis for a Community Development and Marine Turtle Conservation Plan for Rio Caña that was presented and approved by the community in December 2005 and by the Ngöbe-Buglé Comarca in May 2006.

How are we?

Among the main concerns of the people of Rio Caña are the erosion of their natural resources, the threat of drugs and alcohol, the lack of health services and food security, unemployment and population growth. In Rio Diablo the people consider there is a lack of community organization. In Rio Chiriquí, which is more developed than Rio Caña, the concerns expressed are about alcohol consumption, water contamination, diseases, malnourishment, and the need for potable water. Many of these deficiencies

are symptoms of the low level of development of the area. On the other hand, Chiriquí Beach is threatened by uncontrolled tourism that is advancing from Bocas del Toro, where the indiscriminate sale of land and construction of condominiums along the beaches has been occurring, and where there is no control over the disposal of wastes generated by the growing tourist population.

Many of the details of linking marine turtle conservation with community livelihood improvement still need to be worked out more with the local stakeholders in order to achieve greater participation and appropriation of the MTCP objectives by the community. The MTCP can only employ a limited number of people and requires reading and writing skills for the monitoring work. Nonetheless, some community members complain that benefits from the MTCP are not accessible to all. This illustrates the importance of planning beyond the MTCP per se, towards jointly crafting a plan for community development and conservation in which responsibilities are shared among various stakeholders with the goal to include a larger number of beneficiaries.

While the main threats to marine turtles are the significant numbers that are unintentionally caught every year by commercial long-line fisheries, the destruction of the beaches where they lay their eggs is another key threat. The importance of Chiriquí Beach as a nesting site for hawksbill and leatherback turtles cannot be overstated. The needs of the local community for development and the demands for protecting marine turtle nesting beaches, such as Chiriquí, pose an important challenge and opportunity to show that this can be done by means of the conscientious initiatives of a CLIP as part of a MTCP.

5.3.2. Livelihood Links

Community assets

Community members on Chiriquí Beach, like APRORENANB, recognize the value of having the custody over one of the most important nesting sites of endangered marine turtle species. They consider that they could capitalize on this community asset in order to attract financial capital by way of tourism. Already, this natural capital has attracted investments in the community in terms of projects such as the MTCP of the CCC, and others. The research carried out by the MTCP is also an important asset that is generated locally and contributes to the continuity of such projects.

Chiriquí Beach and its communities have another important asset, namely the Comarca political structure that gives them certain degrees of power over the decisions that affect them. Other political assets include organizations such as APRORENANB. This organization contributed strongly to the establishment of the CLIP as part of the MTCP. The CLIP in Chiriquí Beach is an important resource that invests in human capital to improve the well-being of the community. Already it has helped produce a Community Development Plan that gathers many of the concerns and wishes shared by the local people.

Other community assets, however, seem to be waning, such as the use of their native Ngöbere language, at the same time that formal academic education opportunities are also scarce. Financial assets are also limited. And many recognize that without education, income generating opportunities are even more limited. While the MTCP has provided employment for almost 20 percent of the working population in Rio Caña, the expectations of the community are placed on the CLIP and its ability to help them establish sustainable tourism that will generate development, but within the limits they draw. At present, there is little infrastructure, and although some urgent needs such as piped water and a functioning health centre need to be built, uncontrolled construction on Chiriquí Beach may well destroy the capacity for this beach to host nesting marine turtles, this being among the greatest assets of these communities.

One of the most important challenges of the CLIP is to invest in environmental education in such a way that marine turtle conservation is understood to be the most important potential source of the community's sustained well-being. Although 70 percent of the community still does not recognize that they benefit from the MTCP, fortunately they are clear about the threats that an uncontrolled from of tourism would have on their livelihoods.

Satisfiers

Being relatively undeveloped, the number and choice of satisfiers of fundamental needs among the communities of Chiriquí Beach is also relatively restricted. This, however, does not imply that the needs themselves are not satisfied, only that the ways and means of satisfying them are limited. Subsistence needs continue to be satisfied directly by fishing, farming and hunting, and indirectly by employment in commerce, construction and work on banana plantations outside of the communities. The needs for protection of person are granted partially by the local condition of peace

and tranquillity, as well as the prohibition against the sale of alcoholic beverages. On the other hand, a deficient health service could be improved in this regard. The protection of place is satisfied by an absence of turtle hunting, and as yet by an absence of uncontrolled development.

The existential needs of identity and participation are satisfied in great measure by the community's ethnic affiliation as Ngöbe-Buglé, along with the Comarca status that governs their territory, and the local organization of APRORENANB. However, the non-bilingual educational infrastructure present in the community, while partially serving the needs for understanding, may be a destructive satisfier for the needs of identity as it reinforces an attitude of irrelevance of the native language.

The desire for a greater array of choices among satisfiers may have sparked an interest pursuing locally controlled ecotourism as a source of new options. Nonetheless, the local community is wary that uncontrolled conventional tourism would negatively affect their current levels of satisfaction of such needs as the protection of place, identity, liberty and affection.

Fundamental needs

To a certain degree, the needs of subsistence of the communities in Chiriquí Beach are satisfied. Most of the population engage in subsistence activities of self sufficiency, such as farming and fishing. But many of them also engage in remunerated employment in and outside of Chiriquí Beach. Employment opportunities within Chiriquí Beach, however, are very limited and do not satisfy the expectations of the local communities.

The health of the environment is being maintained and improved to a certain degree. However, while marine turtle conservation is advancing, the disposal of garbage and the contamination of rivers are increasing. Human health and safety in Chiriquí Beach is limited by an inadequate health centre, and the lack of a potable water and sewage systems. On the other hand, there is still very little crime, and the absence of alcohol sales may help to avoid other health and safety problems.

The lack of educational opportunities is perceived as a fundamental problem in Rio Caña. Although there is an ample body of local knowledge about marine turtles and other local natural resources, the community wishes to have access to the knowledge produced by the MTCP and other projects in Chiriquí Beach. Illiteracy has limited the access to opportunities of employment with the MTCP, and this is viewed as a problem that needs to be addressed.

5.3.3. Monitoring Changes

Where do we want to be?

In Rio Caña the people have expressed their interest in transforming their community, but also in preserving their community. Some of these issues were expressed in the diagnostic carried out by the CLIP. They want better education and health services, as well as an aqueduct with potable water. They also want electricity, public telephones, and adequate garbage disposal. And the community wants tourism, but under specific guidelines that safeguard their traditions, peace, culture and land tenure. They want small scale tourism, tourism that helps the community, tourism that will not disturb the community's tranquillity, tourists that will request permission from the Comarca authorities, transparent management of resources, no bikinis, liquor or tobacco. Nor do they want construction for tourism.

The MTCP wants to continue protecting marine turtles and especially to recover hawksbill populations. The CLIP wants a local community with the capacity to make informed decisions about how they want to benefit from marine turtle conservation. In particular, the CLIP wants to prevent the onslaught of uncontrolled tourism and investment in construction that will jeopardize marine turtle conservation efforts and sustained community well-being.

Sustainability, Equity, Autonomy, and Security

The research carried out by the MTCP has increased the possibilities of the improved stewardship of marine turtles. Satellite tracking of the leatherback turtles by means of radio-transmitters fitted onto the animals in Chiriquí Beach permits the tracking of trans-oceanic movements of the leatherbacks, which will help design measures to reduce by-catch mortality in Atlantic fisheries. The MTCP has also incorporated the CLIP in order to consolidate the conservation and recovery of sea turtles at Chiriqui Beach by linking conservation efforts with improvements in the livelihoods of their custodians. The social initiative includes conservation, research and natural resource management tasks. It involves strengthening community organization and

the preparation and implementation of a participatory plan for the conservation and development of the natural heritage associated with the marine turtles of Chiriqui Beach. The improved sustainability of community well-being linked to improved marine turtle conservation at Chiriquí Beach may be monitored as suggested in the examples presented below, keeping in mind that the selection of specific indicators should be the product of a participatory process.

	GOAL	INDICATORS (+)	INDICATORS (-)
SUSTAINABILITY	***Improved stewardship*** of natural capital (healthy and sustainable ecosystems with multiple benefits for the community).	-No. of marine turtle nests -No. of hatchlings -No. of radio transmitters attached -Proportion of night patrols carried out by local personnel	- No. of marine turtle nests poached - No. of carcasses of marine turtles from beach slaughter - Meters of beach front with removed vegetation cover
	Increased synergies in satisfying needs (increased use of skills, knowledge and capacities).	-Proportion of pupils in local secondary school -Proportion of night patrols carried out by local personnel - Timely release of a community bulletin in Ngöbe and Spanish every 3 months	-No. of alcohol abuse incidents -No. of visitors not conforming to local expectations
	Greater local capacity for the satisfaction of human needs (long term satisfaction).	-Proportion of eligible youth in school - Per capita no. of years in school -Proportion of female students in school -Establishment of bilingual education (Ngöbe and Spanish) -No. of youth recruited as professionals into Chiriquí´s labour force and businesses -Proportion of households with access to the new aqueduct -Improved health centre	

	GOAL	INDICATORS (+)	INDICATORS (-)
EQUITY	***Wider collaboration*** among stakeholders (improved community relations and communication).	-No. of community members participating in collective projects present in Chiriquí Beach - No. of families investing in targets of the development and conservation plan - At least two yearly meetings with local and general congress of the Comarca to share progress of development and conservation plan	- No. of complaints from local authorities of the Comarca about the development and conservation plan -No. of projects in Chiriquí Beach with no local participation -No. of illegal land sales or attempts to sale
	Greater investment in additive capitals whose resources increase when used (social, cultural, political, and human capital).	-Percentage of persons with satisfactory information about the MTCP and other community projects - Strengthened capacity in at least two businesses run by community members -No. of community training events -No. of meetings for community decisions	-No. of projects in the community without a CLIP outlook
	Greater equity in access to the processes and results of adequate needs satisfaction.	- No. of illiterate community members participating in the development and conservation plan -Percentage of women belonging to local groups of women -Percentage of mature adults in local organizations - No. of families benefiting from the development and conservation plan - Majority of families satisfied with results of annual audit of benefits from development and conservation plan	- No. of cases of corruption which affect the equitable access to the results of the conservation and development plan

One of the guiding principles of the CLIP is to aim for an equitable distribution of the benefits derived from the non-extractive use of marine turtles by promoting wide participation of the community members to create a conservation and development plan that reflects everyone's roles, knowledge, visions, interests, values, and commitments. Among the indicators that might be monitored in order to measure positive changes in favour of marine turtle conservation and community well-being are presented in the following chart, as an example to be discussed and decided upon by all the stakeholders.

Chiriquí Beach is covered by legislation that gives the indigenous territories important rights and levels of autonomy. Nonetheless, the desire of local stakeholders for some type of economic growth and the uncontrolled advance of tourism from Bocas del Toro toward Chiriquí Beach threaten the autonomy of the local communities. Fortunately, by way of the CLIP, some steps have been taken to gather elements that represent community desires, whose achievement may be considered as indicators of increased autonomy.

	GOAL	INDICATORS (+)	INDICATORS (-)
AUTONOMY	***Greater independence*** of external forces for the satisfaction of needs (having a greater voice and influence).	-Percentage of homes with main income from local activities -Proportion of locally controlled projects -Percentage of community decisions respected by the State authorities, the Comarca and the private sector	-Percentage of homes with main income from outside "remittances" -No. of decisions imposed without consent of the community by the State or other local authorities
	Greater accountability and transparency in community governance (improved community initiatives and responsibility).	-Percentage of community members who approve of decisions taken by committees representing Rio Caña and their enforcement	-No. of cases where corruption is suspected or verified. -No. of cases where tourism disrupts community norms

In Chiriquí Beach, some of the trends that threaten marine turtle conservation and community well-being are the advance of uncontrolled economic investments. Among the most important means of decreasing vulnerability is to have access to information and to be able to convert this information into knowledge and understanding. Fortunately, the CLIP has the means to help in this regard. How efforts in this direction advance might be monitored with the following goals and indicators.

	GOAL	INDICATORS (+)	INDICATORS (-)
SECURITY	***Decreased vulnerability*** to environmental and socioeconomic threats (information and knowledge are managed to reduce vulnerability).	-No. of participatory CLIP monitoring activities -No. of information sources available to the community -Percentage of tourists conforming to local expectations -No. of different participants in community information events, including trips to learn about other tourism experiences	-Levels of illiteracy -Abstention rates to community meetings - No. of cases of visitors breaching the code of conduct of the Rio Caña community
	Greater adaptability to changing circumstances (local economies that are appropriately diverse and healthy).	-No. of community environmental and social projects -No. of different productive activities -No. of small and medium sized businesses	-No. of under or unemployed adults

In Chiriquí Beach the CLIP was incorporated into the MTCP at the request of the local community. This places the CLIP in an ideal position to be able to create synergies between marine turtle conservation and improving community well-being. The present conditions at Chiriquí Beach pose an important challenge to the CLIP. On the one hand, marine turtle conservation is still being implemented at this nesting site, and represents one of the most important ways of countering the reduction of their numbers through by-catch by commercial fisheries during their migrations at sea. On the other hand, there are evident needs for socioeconomic development in the communities on Chiriquí Beach, and tourism would seem to offer opportunities in this regard. However, the uncontrolled way that tourism seems to be advancing towards Chiriquí Beach may well do away with the community assets and well-being they already have, along with the capacity of this location to continue replenishing the marine turtle populations. The close collaboration between the MTCP, the CLIP and the local stakeholders has arrived none too soon to take on this challenge successfully, and will hopefully generate pertinent lessons for other cases where community well-being and environmental conservation encounter significant threats.

5.3.4. Sources

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Conclusion

As with most theoretical and methodological proposals, this is a work in progress. It is intended to be tested and adapted to each particular case from a wide range of situations where environmental conservation projects form part of community assets that might be harnessed for the improvement of community well-being through local community livelihoods, and in turn, improve environmental conservation efforts in an upward spiral of integrated sustainable development.

The bare bones of this proposal are to highlight the importance of community assets, such as social capital, cultural capital, human capital, and others that are rarely considered in equations of community development, and to recognize that community well-being does not depend exclusively on community wealth, but rather on how fundamental needs are satisfied.

Natural, social and cultural capitals, as well as built, human, political and financial capital represent the objective possibilities available for communities to develop ways and means of satisfying their fundamental needs. Ultimately, however, it is the subjective perception of how well needs are satisfied that determines well-being. When environmental conservation projects are recognized as forming part of the community assets where they operate, they become an instrument that can be used to satisfy diverse needs and improve community well-being.

Finally, our perspective proposes that the expansion of well-being comes from greater equity, greater sustainability, greater autonomy and greater security. Positive change in this direction is best accomplished by local communities capitalizing on opportunities to work together, when appropriate, with external experts, such as those that come with environmental conservation projects, and with local state authorities, all of which form the greater community of stakeholders who share the interest of improving environmental conservation and community well-being.

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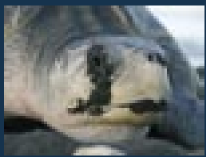

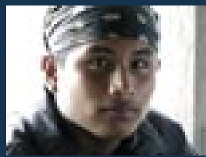
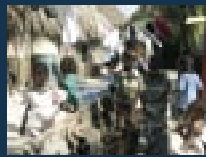
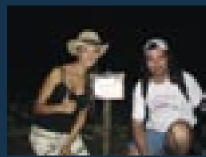
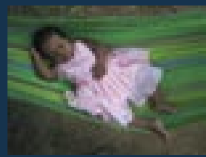
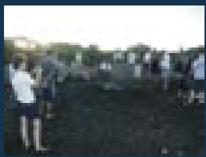


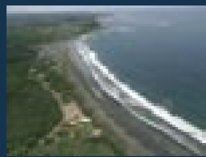
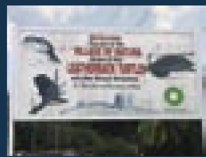

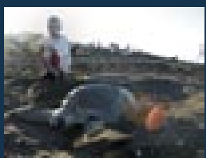


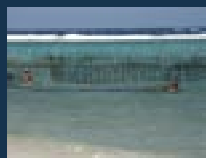
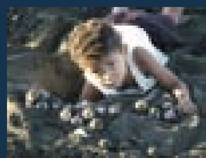


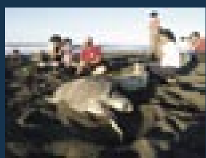

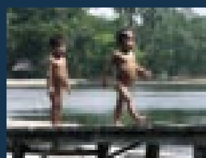


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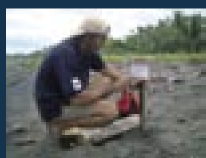
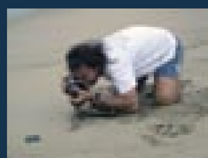
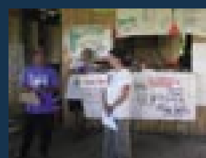
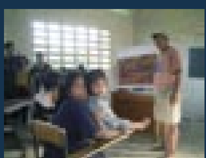
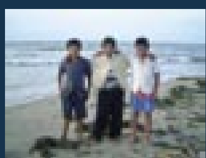
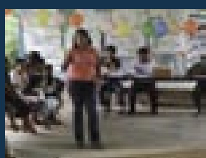
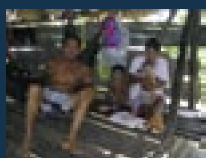
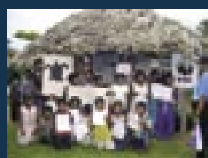
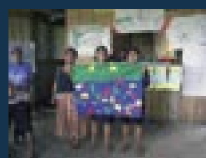
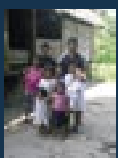
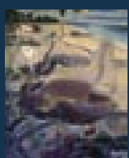

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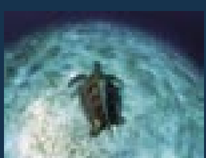

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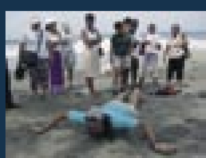

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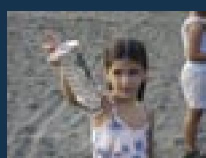

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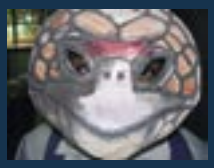








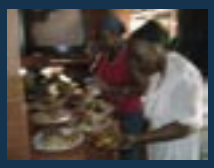


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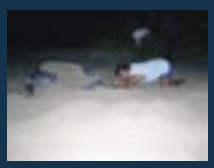



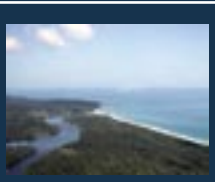



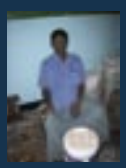
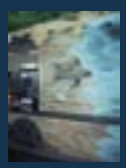

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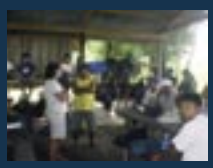

Carlos Drews is WWF´s Marine Program and Species Coordinator for Latin America and the Caribbean. A native of Colombia, Carlos has a Ph.D. in Zoology from Cambridge University and has carried out research into wildlife behavioral ecology in Africa and Latin America. Before joining WWF, he was on the academic staff at the International Institute for Wildlife Conservation and Management, based at the National University of Costa Rica. His recent publications address the link between biodiversity and society, including attitudes and practices toward nature in Central America, as well as the economics of marine turtle consumption and conservation. Since 2003, Carlos has headed up WWF´s action plan for the conservation of marine turtles in Latin America. His work includes meanwhile cetaceans, fisheries, and marine habitats. An avid runner, Carlos lives with his wife and two kids on a hill in the outskirts of San Jose, drinks lots of tea and is fond of Asian cuisine.

Felipe Montoya is an environmental anthropologist who has worked in Costa Rica for over a decade in the areas of terrestrial ecosystem restoration and community sustainable development. Felipe has a Ph.D. in Cultural Anthropology from the University of New Mexico and a Master's degree in Tropical Plant Ecology from the University of Costa Rica. His interest in the relationship between people and the natural environment has lead him to explore ways in which environmental conservation projects can be directly linked to improvements in the livelihoods of local communities. He currently coordinates the Advisory Commission on Degraded Lands (CADETI) and oversees research projects on degraded lands restoration in rural watersheds. His other hats are those of a father of two and a flamenco guitarist.

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