THE SOCMON EXPERIENCE IN CENTRAL AMERICA AND THE CARIBBEAN

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1 INTRODUCTION

Coastal-marine zones are a source of life for a great variety of flora and fauna species, and for many cultures that live in the coastal areas that depend on those resources for their livelihoods. More than 116 million people live within 100 km of the Caribbean coast, and many forms of livelihoods greatly depend on these marine ecosystems (Burke and Maidens, 2005).

The Wider Caribbean is a vast marine territory that encloses the Caribbean Sea, the Gulf of Mexico and part of the northwest Atlantic Ocean, up to the small Bermuda islands. Richly endowed with biological treasures, it is also a region of great cultural and political diversity conformed by a rich history. The extensive coastal platforms and the warm tropical waters create ideal conditions for the development of a reef with an estimated area of 26.000 km2 (WWF, 2002).

Resources supplied by oceans and coastal zones contribute to the population's nutrition and provide labour opportunities. Reefs in the region are also an attraction for tourists because of their ecosystem diversity; however, biological diversity and resources owned by these areas are limited; therefore, it is necessary to undertake urgent actions for their conservation (WWF, 2009).

This is why the Global Socioeconomic Monitoring Initiative for Coastal Management (SocMon), lead by the National Oceanic and Atmospheric Administration (NOAA) designed the Socioeconomic Monitoring project in Central America and the Caribbean. Same as at the global level, the Project was implemented with the purpose of improving marine-coastal ecosystem management, through an integrated approach, which contemplates building local capacity and generating information to allow those that manage and regulate the use of marine-coastal resources to do it more effectively.

This publication presents the efforts accomplished by the Socioeconomic Monitoring Program in Central America and the Caribbean in terms of management and conservation of marine coastal resources in the region. Likewise, it discusses the contribution of the project generating information to be used as a base to analyse management strategies that will guarantee sustainability of marine ecosystems and communities that depend on them.

The importance analysing socioeconomic conditions at the coastal zones, the close link between the way in which a community uses coastal resources and its socioeconomic context, and the work accomplished by the managers, are part of the subjects that Zamorano, as SocMon's regional coordinator, wishes to share with you.

2 Project Approach and Methodology

The Socioeconomic Monitoring Program in Central America and the Caribbean executed an integrated plan with a sustainable management approach, seeking to build local capacities and to generate information, as to make it possible to perform management based on participation and involvement of the communities that depend on marine-coastal resources. The project aim is to generate tangible and measurable results, and therefore, to produce long lasting impact in terms of sustainable management, particularly on:

- Fostering socioeconomic monitoring capacities in the coastal areas of the region, by offering SocMon methodology workshops and online courses;
- Facilitating application of the SocMon methodology to generate information that will contribute to develop management strategies, adapted to the biophysical and socioeconomic conditions, and guarantee greater effectiveness in resource and community protection.
- Developing an online database with the SocMon survey results, as defined in the SocMon Caribbean Guide.

To achieve the objectives established, the program in Central America and the Caribbean promoted the SocMon methodology as a useful tool for marine-resource sustainable management, through workshops, an online course, and the conduction of socioeconomic monitoring in different sites in the area. The strategy applied by the Project to promote that methodology was to establish a SocMon network with local institutions or counterparts that work in different coastal zones of the region, coordinated by Zamorano (see table 1).

Table 1: List of counterparts and involvement in the SocMon Project

Counterpart	Site	Capacity building	Implementation
Uyo Oi Che	Punta Allen (Mexico)	No	No
URRACAN	Bluefields (Nicaragua)	Yes	No
Fundación Cayos Cochinos	Cayos Cochinos (Honduras)	Yes	Yes
PROLANSATE	Tela (Honduras)	Yes	Yes
Fundación Cuero y Salado	Cuero y Salado (Honduras)	Yes	Yes
FUNDARI	Punta Manabique (Guatemala)	Yes	Yes
WWF-CA	San Pedro, Placencia, Port Loyola (Belize)	Yes	Yes

3 CAPACITY BUILDING

The SocMon program in Central America and the Caribbean and its counterparts joined efforts in order to improve coastal zone management and conservation in the region. With a sustainable management approach, bearing in mind the importance of learning about the socioeconomic reality of populations that depend on coastal marine resources, this program has driven learning processes, in order to carry out follow up and assessments beyond the "traditional" approach, which only considers biological conditions and related topics, such as biodiversity, water quality, and measured habitat features, leaving socioeconomic monitoring aside; that is, economic, social and cultural conditions of the communities that depend on these ecosystems.

Workshops and an on line course were established as the lines of action for the local capacity building Project component, to promote the SocMon methodology as a useful tool to collect and analyse information that will be used as a base to generate better management alternatives. The main objective of the workshops was to build local capacity and create awareness on the importance of studying socioeconomic conditions to guarantee sustainability of coastal-marine resources on the long term.

Four workshops on the application of the SocMon methodology were conducted in total. Approximately 54 technicians, who work with local communities and are members of the counterparts, participated at these workshops. Attendees also included representatives of the local government, NGOs, and national and international projects that perform management and conservation actions in the region.

Table 2: Workshops held during the project period

Workshop	Counterpart	Place	No. of Participants	Date
1	URRACAN	Bluefield, Nicaragua	16	13-16 March, 2007
2	PROLANSATE and FUCSA	Tela, Honduras	12	27 -30 March 2007
3	WWF-CA	Belize City, Belize	12	20-22 November 2007
4	WWF-CA	La Ceiba, Honduras	14	14-15 February 2008

A practical approach was used for the workshops, using participative methodologies to explain socioeconomic monitoring instruments and their importance. Material based on the GCMRN manual, and case studies adapted to the region of the Americas and the Caribbean, was provided at each of the workshops to improve and facilitate learning among participants. Students had to prepare individual research proposals to apply the SocMon methodology at their workplace.

To further promote the methodology, an online course was conducted during the first quarter of 2009. The course was offered to coastal zone managers (directors / coordinators), with limited experience in socioeconomic research. It includes 4 modules in total (see table below), and it is estimated that a participant needs about 8 hours a week to read all the material, participate, and complete the exercises assigned.

The course was developed through the Zamorano's e-platform, which makes it possible to conduct group discussions, communicate via e-mail, and provide easy access to all multimedia documents and files. Its four modules summarize the basic knowledge on the methodology as shown below:

Table 3: Description of the Online Course

Module	Description
1 Introduction	An introduction to the coastal livelihoods from a social perspective.
2 Social research	A general description on the importance of social research in the context of coastal areas.
3 Methods and techniques of social research	Analysis of qualitative and quantitative research methodologies. Explanations of the most common instruments used in the SocMon methodology.
4 Proposal	The last module gives emphasis to the development of a SocMon based monitoring system. Students had to develop a proposal for their own site.

The content of each module was developed as follows:

1. Presentation: An introduction to the topic was offered in this section through ppt slides and texts prepared by the SocMon team, presenting the basic concept of each module to the participants.

2. Reading: reading material for each of the modules was mainly taken from the Socioeconomic Monitoring Manual for Coral Reef Management (Bunce et al, 2000). The majority of texts were related to quantitative research tools.

3. Assignments: Each module had assignments that participants had to individually complete and submit to the SocMon team. During the last module, participants were asked to prepare a SocMon methodology implementation proposal for their own site.

The expected audience was 20 people; however, only 14 people from different organizations participated; most of them NGOs based in the north coast of Honduras.

4 SocMon Methodology Implementation

The second component of the SocMon Project was the application of the SocMon methodology at each of the counterpart sites, where research was carried out combining a quantitative and qualitative approach, and using different collection and data analysis tools. Some of the most used methodologies included workshops with the local communities and other local actors, and questionnaires applied to household members.

Box 1: Sustainable Livelihoods in Coastal Zones

The livelihoods approach (LH) started with the work of Robert Chambers, by the mid 80s, and continued developing with Conway and others in the 90s (DFID, 1999). Adopting this theory has represented a way to improve development programs for many institutions by better prioritizing the needs of poor populations. As other development theories, the points that the sustainable livelihoods theory puts forward are based on participative development, sector theories, and integrated rural development.

A livelihood begins at the household as a socioeconomic unit; it comprises possibilities, assets and activities that are necessary to earn one's living; and it becomes sustainable when it can bear tensions and shocks, and recover from them; maintaining and improving access of communities to assets, both in the present and the future, without damaging the existing natural resource base (Chambers et al 1992). Its context encloses the external environment within which people subsist, the vulnerability context, five asset categories, structures and transformation processes, strategies, and achievements in terms of livelihoods.

The main objective of the livelihoods approach is achieving sustainability. Being sustainable means that the environment in which communities develop has assets that allow them to be productive in spite of the changes and problems they face along time, assuring local development and availability of resources, both on the short and long terms, without compromising wellbeing of future generations. Therefore, knowing the livelihoods and the interaction of human beings and the environment in coastal zones is vital to develop strategies and alternatives to improve quality of life of the populations, particularly those living in areas where use and exploitation of natural assets is regulated by organizations that protect and preserve natural resources.

Adopting this approach makes it possible to propose actions or strategies that assure sustainability of livelihoods through access of inhabitants to services, resources and knowledge, creating a social surrounding and an environment with better resource management, and considering interactions of factors that can affect livelihoods; for example, cooperation relationships and conflicts among inhabitants, capacity of livelihoods to manage external features of a vulnerable context when they have a direct impact on the assets of populations, and opportunities they have to achieve sustainable development.

DFID suggests the following main assets (physical, social, natural, human and financial) for local development that make it possible to identify opportunities and threats of the populations and the potential of the zone they live in.

- Human Capital: which represents aptitudes, knowledge, labour capacities and good health that jointly allow populations to establish different strategies and reach their objectives in terms of livelihoods.
- Social Capital: refers to social resources that communities rely on, which can be networks, and links with institutions, participation in formalized groups, trust relationships, and exchanges.
- Natural Capital: refers to natural resources that result in flow of resources and services that are useful in terms of livelihoods (marine resources, biodiversity level, landscape beauty, etc. in the coastal zones).
- Physical Capital: comprises basic infrastructure and production assets that are necessary to support livelihoods.
- Financial Capital: refers to financial resources that populations use to achieve their objectives; they can contribute both to production and consumption purposes.

Five field studies were completed in total in seven different places (see table 4). Field work was carried out with the direct support of the Zamorano team. Our university graduates travelled to the sites to help the local counterpart during the field work stage, to collect all the socioeconomic data to be used as a base for decision making. By the end of the field survey, the Zamorano team analysed the data base and prepared the final report with the cooperation of the local counterparts.

Table 4: Studies elaborated by the SocMon team

#	Counterpart	Name of report	Authors	Sites	Language
1	FUNDARI	SocMon: Punta Manabique	Angelica Ramirez and Lilian Morazán	Punta Manabique	Spanish
2	FUCSA	SocMon: Cuero y Salado	Angelica Ramirez and Lilian Morazán	Cuero y Salado	Spanish
3	PROLANSATE	Coastal Livelihoods in Honduras: The Case of Tela	Sara Brune and Arie Sanders	Jeanette Kawas and Punta Izopo	Spanish
4	WWF-CA	Vulnerability and Perceptions in the Coastal Communities of Belize.	Sara Brune and Arie Sanders	San Pedro, Placencia and Port Loyola	English
5	HCRF	SocMon: Cayos Cochinos	Sara Bonilla and Arie Sanders	Cayos Cochinos	Spanish

In all cases, SocMon was used to integrate conservation of marine ecosystems and economic development of the communities, through the participation of the various stakeholders in the development of environmentally, economically and socially sustainable management strategies. By creating awareness on the consequences of development achieved through deterioration of ecosystems, SocMon has resulted into an interesting approach to stimulate and reinforce social institutions at the local level, and involve communities in decision making, allowing collective action.

5 Defining the Problem Statements

The Caribbean region owns great richness in natural resources, providing an appropriate habitat for the development of a wide variety of plants and animals that are unique to their environment. Marine ecosystems are vital for survival and economic development of millions of people, who have based their diets and economic activities for several decades on the utilization of resources these ecosystems provide.

The majority of countries in the region depend on the sea because of the goods and services it provides. More than 116 million people live within 100 km of the Caribbean coasts, and more than 25 million tourists a year visit this region; most of them spend a considerable part of their time in coastal areas. Tourism income itself reports more than $25 thousand million U.S. dollars a year to the region (Burke and Maidens, 2005).

In spite of the biological and economic importance, marine and coastal ecosystems in the Caribbean are endangered. The increase of coastal population and the number of tourists exert a growing pressure on natural resources. Land based activities, including construction of houses and hotels, deforestation, poor agricultural practices, and introduction of exotic species, are deteriorating environment sustainability of the ecosystems (*ibid*).

Dependence and pressure that communities exert on natural resources has generated changes on their management. Marine coastal resource management has currently expanded its approach, given that

these resources are under a growing pressure caused by human activities. This is the case of coastal ecosystems in the region, where conservation, sustainable development and ecological tourism matters represent both opportunities and great challenges for their inhabitants.

Because of the above mentioned issues, the surveys made by the SocMon Program for Central America and the Caribbean were designed to show the socioeconomic situation of the population of the costal zones in the region. Information collected and analysed through the implementation of the SocMon methodology has been useful both for research purposes and for contributing to the creation of strategies that encourage participation of communities to manage the areas of study.

The topics for research were chosen by the counterparts, which encourage involvement of communities in participative management strategies to guarantee meeting their conservation goals. In the case of Belize, the SocMon methodology was applied to collect and analyse socioeconomic information to be used as a base to develop the project on Climate Change executed by the WWF. Surveys were also conducted to measure effectiveness of protected area management.

In all cases, the SocMon methodology was used to integrate conservation and economic development aspects into management strategies, through the participation of the different stakeholder groups in decision making processes. SocMon has been an important tool to stimulate and strengthen social institutions, making collective action possible at the local level.

Table 5: Use of SocMon

Study	Management Capacity of stakeholders	Evaluation Management Plan	Resource Perception Use/Condition	Determine Problems & awareness	Impacts of MPA on livelihoods & resources	Perceptions of MPA	Baseline study
Punta Manabique			X	X		X	
Cuero y Salado			X	X		X	
Cayos Cochinos			X	X	X	X	
Tela			X	X		X	
San Pedro Placencia, Port Loyola		X	X	X	X	X	X

6 Survey Results

Survey results show that the majority of coastal communities are under a transition process between fisheries and tourism. The main occupation of households has significantly changed since the 80´s, a decade in which natural resource conservation and management was performed through the creation of protected areas under a shared-responsibility management model, which involves government and non-government organizations, as well as local communities, in management activities.

Creation of protected areas led to the application of restrictions on the utilization of natural resources, causing significant changes in the activities of local populations. Currently, 30 to 40% of inhabitants of coastal zones are devoted to fisheries, while the remaining 60 to 70% get their income from tourism and services derived from this activity. Traditional fishermen are migrating to zones where tourism activity is more developed, with the purpose of improving their income by supplying the demand of marine products, and offering tourism services.

In five of the eight monitoring efforts accomplished, traditional, small scale, and subsistence fishing is basically considered the main occupation of populations. For many years, fishing activities in combination with some agricultural activities have been the fundamental livelihoods of coastal populations; however, tourism activity in the region is currently driving economic development of local communities in seven of the eight sites surveyed (the exception is Punta Manabique in Guatemala). However, the transition phenomenon does not necessarily lead to sustainable economic growth or improved socio-economic outcomes for all local populations. According to the literature, if community members had equal access to fishery resources and played a general and specialized role in their extraction, egalitarian structures would predominate. The economic development efforts during the last decade gave rise to a process of social stratification. The appearance of the tourism industry in the nineties set in motion a process of change that accelerated until the present. There is an increasing concentration of ownership of assets (land) in the hands of tourist operators, – who are often outsiders – at the expense of traditional fishing families. Furthermore, in San Pedro and Tela, were the process of transition has advanced most, we observed that the economic growth is associated predominantly with the creation of new jobs in lower paid occupational categories within the retail, restaurants, tourism and care-giving sectors. According to our results, in both communities more than 50% of the households have members working as tour guides, security guards, waiters and cleaners.

As in the case of the most rural and coastal communities in Central America, the sites included in the survey are strongly linked with the economy of the United States. While in Honduras and Guatemala we found an average of 15-20% of the households having family members in the United States, in Belize we

found an average of 72%. Having family abroad, does not mean always that the household receives remittances, most people denied information about the amounts they receive. Normally households who receive remittances mainly use them to cover basic necessities, such as food. Consumption spending is particularly high in poor households. The impact of remittances on indigence in receiving households is high (ECLAC, 2006). Households who are receiving remittances have a high probability to be lifted out of extreme poverty.

In Central America we observe a same tendency as in other sites; population will grow along coastlines and in already densely populated areas. Worldwide, the number of people living within the 100 km of coastlines will increase about 35% during the next decade. In San Pedro, Placencia, Punta Manabique and Tela we found a high index of in-migration, the development of the tourism sector and harbor activities (Punta Manabique) has attracted many people from the rural areas to take advantage of the employment opportunities.

In all the communities, the development of infrastructure has been very intense lately and generally it has contributed to the destruction of coastal natural resources. This development rarely has a social or environmental counterpart. Generally it is geared towards large constructions with little respect for environmental norms and requirements, and little interest in community development. The most extreme cases are the building of a mega tourism complex in Tela, called los “Micos Beach & Resort Centre” that will occupy some 500 hectares of land and a three kilometre stretch of beach (including 256 villas, malls, theme parks, and a golf course) and the construction of a new area for harbor activities in Port Loyola, destroying a huge amount of mangrove along the shorelines of Belize City.

Even though tourism and fishing generate important income for the economy of the region, they are considered a threat for the sustainability of marine ecosystems. Local communities perceive that threats on marine resources are based on poor management, and on non-sustainable economic activities, such as poor fishing practices, accelerated increase of tourism activity, population growth, and development of industries and infrastructure that generate unbalance in ecosystems. Infrastructure development has been very intense in the past few years, and, in general, it has not considered the social nor environmental costs; that is to say, without respecting the local culture, with scant interest in the development of the local communities and at the cost of destroying the natural resources.

In the SocMon questionnaire, attitudes and perceptions are principally oriented to the activities of management of natural resources and the present situation of the natural resources as well as the changes observed in the surrounding environment. In all sites, the most negative and marked perceptions are often towards government authorities, which is considered as the major threat to the natural resources. The level of preoccupation in terms of the destruction of the marine resources varies widely among communities. More than 84% of the persons interviewed in Punta Manabique y 76% in Placencia feel that their life is endangered by the lost of the natural resources in the region. This contrasts with only33% in San Pedro, and 62% in Port Loyola.

Table 6: Perceived threats to marine resources

Threat	# of places monitored (n=8)	Average % of respondents
Overfishing	7	32
tourism (boat traffic)	6	10
illegal/awful practices	6	16
Pollution	4	11
other (including agriculture)	4	14
weather change	3	9
over population	2	8

The perceptions in terms of the management organizations, including governmental (Belize) and no governmental (Guatemala and Honduras) are not very positive. The general tendency found is that the coastal management organizations are not contributing to improve the condition of the communities. Especially in Punta Manabique, Cuero and Salado and Placencia community's members had a negative opinion about the implementation of the management plan. According to them, rules to protect the coastal resources mainly benefit the tourism industry, while the fishing (Placencia) and agricultural activities (Punta Manibique y Cuero and Salado) are restricted, affecting their livelihoods.

In general, the management organizations do not include broad based community participation. Community members are not directly involved and the management structures on all sites have not been designed primarily as community-based systems with the attendant participatory decision-making structures and processes. In all cases, community participation seems to involve appointing some representatives from the community, regardless of whether those individuals in fact represent the interests of the community.

Table 7: Perceptions y Attitudes

	Honduras	Guatemala	Belice
Your quality of life is endangered by the loss of natural resources.	72%	85%	65%
Fishing should be restricted in certain areas, although no one ever fishes in these areas.	65%	75%	70%
The temporary restrictions of fishing help fish reproduction.	72%	74%	78%
All the people of the community participate in the management activities.	45%	40%	35%
The availability of natural resources has diminished in the recent years.	78%	86%	75%

% de personas que están de acuerdo con el enunciado

All this information, obtained through socioeconomic monitoring accomplished in coastal zones, has been used as a base to improve interaction of communities on management and conservation actions for the resources they depend on. In some of the sites monitored, managing organizations that used to traditionally focus on ecosystem conservation from a biological perspective, have tried to expand their

strategies, taking community needs into consideration. In spite of the fact that studies accomplished are relatively recent, and implementation of participative actions have been used for a short period, it is expected that collected socioeconomic information will be useful to focus management efforts on alternatives that will guarantee livelihood sustainability for the populations, and availability of natural resources on the long term.

7 POLICY IMPLICATIONS AND SITE RECOMENDATIONS

At all the sites were we applied the SocMon methodology we found a decentralised management in marine resources by local NGOs. Their management style is normally influenced by the he literature on common property resources, and the proposition that individuals or groups sharing common interests can create effective community-based natural resource management regimes for such resources. At the same time we saw a strong sectoral approach, most of the management efforts were focused on conservation, often to the neglect of local development. Taking in account the close linkages between poverty and environmental degradation, this discrepancy could compromises both the ability of sustainable management to improving the livelihoods, as well as its ability, to achieve the objective of conservation. Because all of the administrators are external donors (Belize) or NGOs (Guatemala and Honduras) managing short term projects, when the management interventions themselves required long-term inputs to achieve and sustain change, the management results in all of the sites included in the SocMon project are in general poor.

As can be observed in the survey results, livelihood conditions are very different for the sites. This means that specific actions need to be elaborated for each intervention area. Coastal management need to consider those differences in order to make a meaningful and sustainable impact. It recognizes the best planning and the use of different information is based on the people and in the recognition that the future will be different from the past and that populations should be prepared for these changes.

Strengthening the social organizational structure to improve the social capital in the communities is critical for helping the communities develop local solutions to manage their natural resources. It is necessary to include directly with the communities living in or near the protected areas so that they involve, to a greater degree, in the management of the local resources. The transparency and inclusion are key factors in gaining the confidence and support of the communities. This action will facilitate the implementation of the management plans and the protection of the resources.

One of the very first things that a livelihoods approach uncovers is that coastal households pursue diversified livelihood strategies. Something that has tended to be ignored by the administrators which policies are sector based. This makes it important to combine this approach with the SocMon methodology of participative research to identify not only coastal related problems but also issues related to other kind of problems which affects the household and at the end effectiveness of the management results. It is recommended to identify solutions together so that they are not only oriented to the themes of marine resources, but also to themes of specific interest for the community like socioeconomic problems. In all cases, work should be done specifically with the community to allow development of capacities that permit the population to generate solutions that are local initiatives and

made through consensus. In the next paragraphs we present more specific site recommendations based on the reports developed for each of the sites.

PUNTA MANABIQUE:

- Many alternatives, policies or regulations could be put forward; however, if community members are not fully convinced about the risk on resources, it will be almost impossible to involve them in coastal management. Thus, it is fundamental to develop programs to create awareness and promote participation of the stakeholders before carrying out any effort in the communities.

- Being aware of the high vulnerability of communities is important to organize and train the population on disaster prevention programs, since most of the houses are located a few meters away from the sea. It is important to emphasize that a single physical asset can generate multiple benefits. If access to land (natural capital) is assured for an individual, he/she will also seek to obtain financial capital, since he/she will be able to use this land not only for activities devoted to direct production, but as collateral to obtain loans.

- Strategies to overcome pressure exerted by the population on resources are clearly expressed in the expansion of new productive systems that promote employment generation, trade, and stability in marine-coastal resource management. The role of microfinance or rural community banks in the area would represent an important source of work capital, investment and consumption, because people in these areas have traditionally lacked access to formal finance sources.

CUERO Y SALADO

- Looking for projects that benefit communities in terms of physical and human capital, such as: housing, education or health, give communities a motivation to support and believe once more in the institution that manages the sanctuary, which can be the best alternative to achieve a protected area co-management process.

- It is highly important to create a system with control, using methodologies applicable to the communities, where inhabitants at the sanctuary are aware of the fact that their participation in management activities can improve resource conditions, and therefore, their living situation.

- Participation of communities in management is the base in which management plans should be developed, because the responsibility of conservation cannot be solely left in the hands of the organizations that take care of the sanctuary. The population in the area and the neighbouring zones that receive the benefits of the existing resources are also the entities that are responsible for their preservation and sustainable use.

- An important part of the co-management process is socialization or adaptative communication, where both communities and organizations in the sanctuary are aware of the findings or activities being accomplished. This is a way to create a certain level of trust among the population, which is something that has been so far lost as a result of various promises that

have not been met, and many activities that have been left unfinished. It is decisive for communities to learn rules or regulations from the authorities, for resource sustainable use, focusing them on creating awareness of the fact that it is them who can improve the conditions of resources, and their living situation.

TELA:

- In order to contribute to meet management objectives, the Foundation should be an entity supporting the community in search of alternatives that contribute to its local economic development; providing technical assistance; and taking steps to develop projects aimed to strengthen competencies of the population in the communities located inside and outside the archipelago.

- With the purpose of controlling and minimizing pressure on natural resources, the Foundation should carry out management actions, to involve other external organizations that show interest in the preservation of marine-coastal resources of the sanctuary and that are willing to contribute with sustainable development of the communities located in the zone of influence, developing programs that contribute to improve living conditions of their population, generating new sources of employment, in order to reduce temporary or total migration of people towards the archipelago, and protecting coastal-marine resources of the sanctuary, assuring their availability on the long term.

- Communities are suggested to join the chamber of tourism (integrated by representatives of the communities in the mainland), for them to be able to participate in decision making, increase their negotiation power, and manage actions and projects that will contribute to their economic development. They should also get involved in management activities, since this will allow them to guarantee long term availability of resources, and will not hinder the capability of future generations to satisfy their needs.

- The proposed strategic guidelines should be implemented to contribute to sustainability of livelihoods of communities, and to minimize the current pressure that exists on coastal-marine resources. To implement guidelines, it is important to carry out previous studies, proving the feasibility of each one.

- Protected area managers are recommended to use the SocMon methodology to carry out their socioeconomic monitoring in the areas where they have influence. Since SocMon allows a holistic analysis and constant monitoring of the coastal zones in the country.

SAN PEDRO, PLACENCIA AND PORT LOYOLA

- As seen in the three case studies, livelihood conditions are very different for the three sites. Thus, specific action approaches have to be prepared for each area of intervention. Adaptative management involves addressing the topic of vulnerability from the perspective of increasing resilience of the systems in general, which are present at a given territory.

- Adaptation is not new; it is rather about better planning and using different information, based on people, and recognizing that the future will be different to the past, and that populations must be prepared for those changes.

- Strengthening organizational social structure to improve social capital in the three communities is one of the critical factors to help them develop local solutions to reduce their vulnerability before climate change and other adverse situations, through the development of adaptative management. Because coastal resource management is clearly one of the risk sectors; it is a priority.

- Working with organizations in charge of co-management is necessary for them to further involve communities in managing local resources in general. Transparency and inclusion are key factors to achieve trust and support from the communities. This action would facilitate implementation of management and protection plans for resources.

- It is necessary to intensify work at Port Loyola, and propose carrying out efforts of improvement not involving aid from the Government or from institutions that give resources away. Main factors of vulnerability before climate effects at Port Loyola are inappropriate sewage system, and bad management of garbage. These two situations, though not directly related to climate change, reduce resilience of this place. Likewise, it is advisable to work on joint solutions not only oriented to climate change subjects, but also to specific topics of interest for this community, such as socioeconomic problems.

- Work should also be specifically carried out with the community at San Pedro and Placencia, trying to develop capacities to allow inhabitants to generate solutions that should be local initiatives achieved through consensus. Working with the people is mandatory because they are the only ones that know the situation of their community in depth, and know about changes in their territory that allow formulating change scenarios and propose solutions.

- After deciding on the need of an adaptative measure, each adaptation action needs to consider the relationship between adaptation and mitigation; and whether adaptation will make mitigation easy or difficult to be addressed. We should be acquainted with the conditions of the place in order to be aware of whether interventions are suitable, and whether they will not actually make the problem worse.

- Mapping possible future changes in weather, and vulnerability mapping, made jointly with the community, would help planning where to begin in order to achieve adaptation options, and make the population part of the process.

- This and other considerations have to be taken into account, in order to achieve a significant planning and feedback level, before making any implementation plan for any adaptation decision. Feedback can be the evaluation of the current success of the various adaptative management actions, and these evaluations can be continued a long time.

- It is important to achieve win-win negotiations through the actions taken: there has to be a balance among all stakeholder groups, under mutual agreement. Likewise, not only current, but future benefits should be taken into consideration.

8 LESSONS LEARNED

The Central American and Caribbean SocMon program has contributed with the completion of its management objectives through the development of knowledge and capabilities of the actors involved in the decision-making and responsibilities for the management of the natural resources of the region. The priority of this phase involved the inclusion of coastal administrators in the workshops that were presented. Never-the-less, it is primordial to involve all local actors. The conservation of coastal and marine resources requires the creation of management capacity; the strengthening of the abilities of the coastal administrators to integrate the management of natural resources and the monitoring of socioeconomic and environmental factors. Good management requires the continued access to information. Therefore, the results obtained by SocMon can be utilized as a guide so that coastal administrators can create policies that imply focusing on collaboration and cooperation that incentivizes the participation of all local actors.

Another fundamental aspect is that the SocMon methodology, in addition to socioeconomic monitoring, develops educational campaigns directed to all users and local actors with the aim of elevating the consciousness of the importance, value and fragility of the coastal ecosystems. Due to the lack of inclusion and participation of the communities, many management efforts taken by the administrators have had limited impact.

A third determining factor for effective management is creating administrative systems that serve as a platform for establishing synergies between all local actors. To guarantee the availability of natural resources in the long term, it is important to consider the level of involvement and execution of the institutions responsible for the co-management of the coastal resources. If there is a relation of conflicts and individual interests between the communities and the administrators, the efficiency and effectiveness of the management will be diminished. Therefore, implementation of the SocMon methodology should provide knowledge and improve the work and the interaction of the administrators with the communities of the coastal area.

In some of the cases studied, the activities of the different groups or communities (including international entities) work in different directions and for this reason fail in their intent to protect the marine ecosystems. To counteract this, SocMon can serve as a link in the activities of the coastal administrators, in that during the monitoring other organizations or local groups can be involved who show interest in conserving the natural resources and are disposed to contribute to the sustainable development of the local communities. One of the benefits of a shift in emphasis from top down to a

bottom up approach by using the SocMon instruments is that those involved in management and policy are learning more about the communities. While livelihoods approach extends the scope for making management plans more supportive of poor communities in the coastal areas.

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