CRISP

Coral Reef InitiativeS for the Pacific
Initiatives Corail pour le Pacifique

COMPONENT 3A
Institutional strengthening & technical support

PROJECT 3A3
Improvement of socio-economics of Coral reefs

February 2008

TECHNICAL REPORT

PRELIMINARY SOCIO-ECONOMIC MONITORING (SEM-PASIFIKA) ASSESSMENT OF SINALAILAI AREA (PAPUA-NEW-GUINEA)

SPREP/PROE

NOAA

With the support of:

UNEP

Caroline VIEUX

CRISP

Coral Reef InitiativeS for the Pacific
Initiatives Corail pour le Pacifique

The CRISP programme is implemented as part of the policy developped by the Secretariat of the Pacific Regional Environment Programme for a contribution to conservation and sustainable development of coral reefs in the Pacific

The Initiative for the Protection and Management of Coral Reefs in the Pacific (CRISP), sponsored by France and prepared by the French Development Agency (AFD) as part of an inter-ministerial project from 2002 onwards, aims to develop a vision for the future of these unique eco-systems and the communities that depend on them and to introduce strategies and projects to conserve their biodiversity, while developing the economic and environmental services that they provide both locally and globally. Also, it is designed as a factor for integration between developed countries (Australia, New Zealand, Japan, USA), French overseas territories and Pacific Island developing countries.

The CRISP Programme comprises three major components, which are:

Component 1A: Integrated Coastal Management and watershed management
- 1A1: Marine biodiversity conservation planning
- 1A2: Marine Protected Areas
- 1A3: Institutional strengthening and networking
- 1A4: Integrated coastal reef zone and watershed management

Component 2: Development of Coral Ecosystems
- 2A: Knowledge, monitoring and management of coral reef ecosytems
- 2B: Reef rehabilitation
- 2C: Bioprospection and marine active substances
- 2D: Development of regional data base (ReefBase Pacific)

Component 3: Programme Coordination and Development
- 3A: Institutional strengthening, technnical support and extension
- 3B: Coordination, promotion and development of CRISP Programme

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COMPONENT 3A

Institutional strengthening, technical support and extension

■ **PROJECT 3A1 :**
Institutional support and strengthening of links with member countries

■ **PROJECT 3A2:**
Support to governance through workshops and studies sites

■ **PROJECT 3A-3 :**
Improvement of socio-economics of coral reefs

■ **PROJECT 3A-4 :**
Technical and financial support to regional networks and database (GCRMN, SEM Pacifika, Reefbase)

■ **PROJECT 3A-5:**
Disseminaton of knowledge and lessons learned sensitization of stakeholders

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1. Background

1.1 Site description

Sunalailai is a small island on the Southeast of the Sariba Island group. Sunalailai was one of the three sites included in the field training of a training-of-trainer workshop for socioeconomic monitoring of the Pacific region (SEM-Pasifika) held in Galahi. The village is located on a short strand partly surrounded by mangroves. There are hills and forests right behind the village where vegetable gardens are being grown. Sea grass beds and coral reefs are common in the area.

In the past, there used to be much logging in Sunalailai as there was a saw mill company in the neighborhood that would buy the resulting forest products. The company was closed down over a decade ago and most people are now engaged in fishery and crop farming activities. Children of the village attended school in Sawasawaga and commute by small outrigger canoe.

The purposes of the assessment conducted as a part of the workshop were to 1) allow the participants of the SEM-Pasifika workshop to have field opportunities to use the first draft of SEM-Pasifika, or Socioeconomic Monitoring of the Pacific Guidelines, to conduct a preliminary socioeconomic assessment; and 2) to increase understanding of local marine resource use patterns of the Sunalailai community by providing some preliminary socioeconomic information. It is hoped that results of the brief assessment conducted in the workshop could serve as a basis for future socioeconomic monitoring.

1.2 Objectives of socioeconomic assessment

1. Provide preliminary socioeconomic baseline on local fisheries
2. Identify perceived threats to main local resources
3. Explore existing management approaches

2. Methodology

2.1 Data collecting methods

The brief data collection process took place in the afternoon of October 31, 2007. The data collecting methods included household[1] surveys and key informant interviews. Eleven households participated in the survey and five key informants were interviewed. There were 6 interviewers, 3 of whom were local residents. All of them were participants of the SEM-Pasifika workshop.

2.2 Sampling design

Due to the small size of the village, a census was planned for the household survey. However, one household was not included as the household leader was ill during the time

[1] A household is defined as a group of people who sleep and eat under the same roof.

of the survey. Key informants were selected during the reconnaissance visit and by using convenience and snowball samplings on the day of the data collection. The exception to this was the magistrate who was interviewed during the initial reconnaissance visit, but away during the survey day. Key informants included a former village church minister, the magistrate, a male village leader who owned boat building business in the village, a female village leader (wife of the previously mentioned boat business), an elderly couple (the male seen as a village elder, related to the magistrate), and a female village elder. During the interview with the female elder, a few other women joined the discussion. All key informant interviews focused on indicators related to coastal and marine resources and activities.

2.3 Indicators used in study

Household survey

1. Population
2. Sources of household income
3. Supplementary livelihoods
4. Perceived resource condition
5. Perceived problems with coastal and marine resources

Key informant interviews

1. Coastal and marine activities
2. Coastal and marine goods and services
3. Location of coastal and marine activities
4. Means of production of coastal and marine goods and services
5. Purposes of harvesting
6. Gender roles in coastal and marine activities
7. Local coastal and marine management practices

3. Results

3.1 Key findings of household survey

Population

From observation, there were 12 households in the village. There were 72 people in the 11 surveyed households, 45 of whom are male and 27 female. Among them there were 41 adults and 31 children. On average there were 7 people per household. According to the local residents, there were approximately 10 people in the one household that was not included in the survey.

Table 1: Number of male and females in Sunalailai

Sex	Number of people	%
Male	45	62.5
Female	27	37.5
Total	72	100.0

Sources of household income
Eighty percent of the adults in the interviewed households were engaged in farming activities and 78% in fishery. Among the interviewed households, 64% reported betel nuts as being the most important primary source of income; 55% mentioned copra as the most important secondary source. According to the key informants, marine and coastal products included fish, shellfish (such as crabs, mangrove snails, trochus and clams), and beche de mer. It was pointed out that these marine products generated much lower income than betel nuts or copra.

Table 2: Main income generating activities in Sunalailai

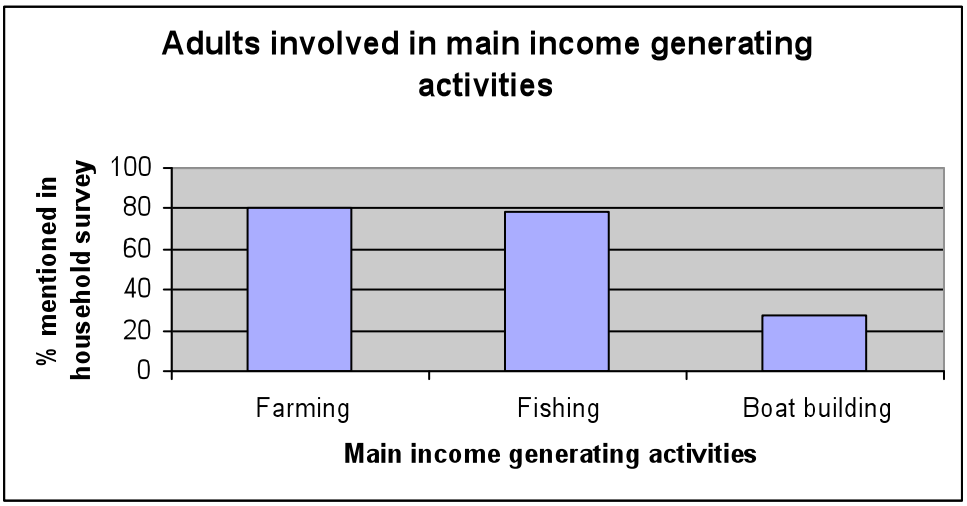
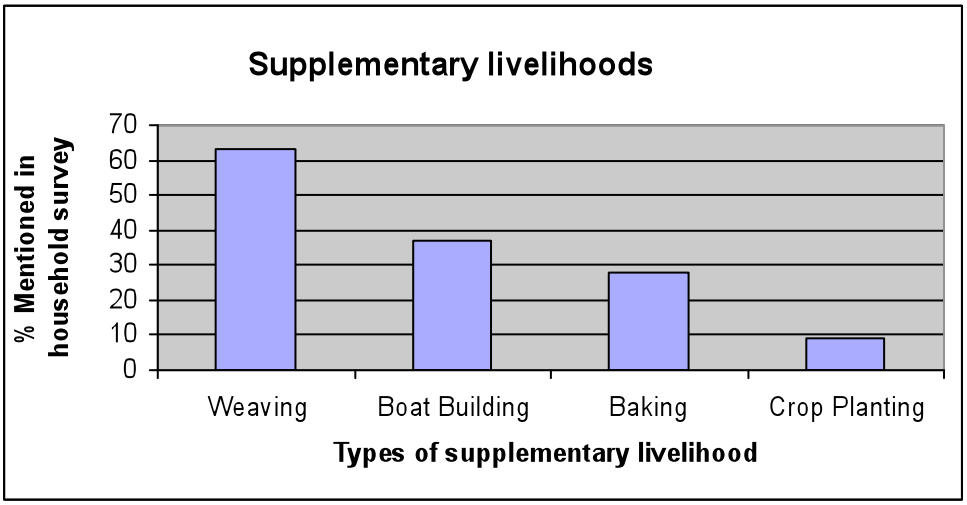


Table 3: Main primary and secondary income sources

Source of Income	% of People having this as primary income source	% of People having this as secondary income source	% of People having this as primary and secondary income sources
Betel nut	64	9	73
Copra	-	55	55
Other farm produce	9	9	18
Boat building business	18	6	24
Fish	9	-	9
Trochus and beche-de-mer	9	-	9
Remittance		9	9

Supplementary livelihoods
In terms of supplementary livelihoods, weaving of products, such as baskets and mats, was most mentioned, followed by boat building, baking and crop planting.

Table 4: Supplementary livelihood in Sunalailai



Perceived condition of natural resources
Household respondents were asked to rate coastal and marine resources on a scale from 1 (= very bad) to 5 (= very good). The average scores among all the surveyed households for all resources except forest resources were slightly above 3 (neither good nor bad).

Table 5: Perceived condition of natural resources

	Seagrass	Mangrove	Coral reef	Fresh water	Forest
Mean	3.5	3.2	3.2	3.1	2.7

Perceived problems with coastal and marine resources
The major concern most respondents had are related to forest clearing for farm land on the hill slopes. This was related to the growing size of population as well as dependency on farm crops as major income sources.

3.2 Key findings of key Informant interviews

The key informant interviews focused on coastal and marine resource activities, use patterns and existing management. Consistent with the results from household interviews, key informants confirmed that the main coastal and marine activities were related to fishing. The main purposes of marine and coastal harvesting were to find food, generate income, and pay for school fees. Fishing and harvesting of invertebrates took place at various locations of reefs, seagrass and mangrove areas. Methods of harvesting and gender roles also varied according to the activities as summarized in Table 6. Men are usually involved in spearing and diving activities, while women are in charge of collecting activities, particularly in mangroves. However, the impression was conveyed that roles were not tightly fixed, or perhaps were evolving (or broadening), as it was mentioned by several of the informants that a few women dived, that all family members would engage in collecting in mangroves, and that it depended what was needed to be

done (see beche de mer, mangrove cutting, etc, in table below), and who was available. Group activities for fundraising (i.e for community share of church budget, or to raise funds to help a needy family) are practiced. Few nets are still being employed as traditional net making skills are eroding, and factory-made nets are seen as expensive.

Boat building and repairing, mangrove cutting and harvesting, and tourism were also reported as main coastal and marine activities. While boat-related activities engaged only men, mangrove cutting and harvesting, and tourism activities may involve both men and women. The boat building business is owned/worked by 2 clans, timber used is taken from different participating family blocks.

Crop farming was not mentioned as much in key informant interview even though it was reported as a main source of household income in the survey. This could be related to the fact that the term 'coastal and marine' led the key informants to not consider crop farming on the hill side. The involvement of villagers in crop planting was made apparent not only through the visible plots on the forested hills behind the village, but also from the fact that many household members spent much of their time tending the garden daily.

Regarding the selling of coastal and marine goods for income, the informants responses indicated a generally ad-hoc, opportunistic approach, i.e. selling when there was extra (after household consumption needs met), when a fish-buying boat visited or when community members were going to Alotau. While there was some mention of local (Samarai, Sidea) markets, the primary market mentioned for selling marine products was Alotau.

Table 6: Coastal and marine activities and use patterns

Coastal &Marine Activities	Coastal and Marine Goods and Services	Harvesting Location	Means of Production	Gender Roles
Fishing	all kinds of fish, for example, reef fish, tuna, kingfish, mackerel, etc.	• everywhere up to 2-3 km from shore dependent on weather conditions • sea grass beds • mangrove areas	• hook and line, • diving and spear, primarily canoes • few nets • night diving with torches	Both men and women use hook and line and net. Primarily men dive and spear.
	beche de mer	beach, reefs, (species of highest economic value are found in deeper waters)	• collect • lead line • free diving	Both men and women glean and use lead line. They often work in big groups (for fundraising)
	trochus	Reefs	gleaning	both men and

				women
	mangrove crabs, snails shells and clams	local mangroves, seasonal for some clams	Collecting	women
	reef clams shells, oysters	• shallow reef and rocks at low tide • some regional poaching	• diving • digging	Primarily men dive. Some women dig at the low tide in shallow reef areas
	lobster	Reefs	Diving	Men
Coral harvesting	lime for betel nut (high demand)v	specific type of reefs	harvest and burn	Men and women
Seaweed collecting	food (for only a few)	(not recorded)	(not recorded)	limited number of people
Boat building and repairing	Boats	village coast and neighboring villages	people with carpentry skills and laborers	Men
Mangrove wood cutting/ harvesting	timber, posts	local mangroves	Cutting	primarily men, but some women or entire household
Tourism	dive boat and other tourism services	reef in front of village	local community members work on boat	both men and women

Local coastal and marine management practices

In terms of local practices related to coastal and marine management, there has been marine tenure arrangement whereby areas belong to clans, and area 'blocks' are allocated/owned by individual families within those clans. However, people can harvest fish from anywhere but need permission from the family or clan elders if they want to collect beche-de-mer, mangrove snails, or sedentary commercial resources. However, fishing by big boats are restricted in the area. Traditionally when someone dies from a sea-related incident, fishing grounds surrounding that area are always closed off for a certain period. When the mourning period ends, the closed area will be fished and the fish caught will be eaten in a special feast to end the mourning period. The period is usually 3 months, but now it depends on the time when the relatives are ready for traditional gifts and other items involved in the mourning period lifting ceremony.

There was some but not full awareness of the MFA beche de mer seasonal harvesting ban and total allowable catch (TAC), seen as when the buyers stop buying. Some interviewees saw the only restriction on resources as the Sawasawaga protection area. Trochus is not seen as currently restricted, but several of the interviewees felt that more

restrictions, including on fishing were likely to come in the future. Generally village elders in each community were seen as the authority responsible to implement or oversee implementation of any current restrictions. One informant felt very strongly that there was very little (but needed) government management and support to villages. He also saw many disagreement amongst resource owners, questions about who benefits, and increasing conflict over resources in the future.

Additional background information
Additional information not necessarily captured in the household surveys and key informant interviews, was received from the initial reconnaissance visit. During this visit the survey team met with the magistrate, and other community members (primarily men, as the women sat separately and seemed shy to engage in conversation), including the former village minister and the owner of the boat building business, later interviewed more formally.

In terms of traditional practices, there are seasonal practices related to certain foods. For example the yam harvest in May/June, and June/July low tide for net fishing certain species such as unicorn fish and parrot fish. This is not sold. There are only a few net fisherman. Net fisherman have to share their harvest so as not to generate bad feelings from other community members. After distributing fish to families they receive gifts in return, usually clothes and food). Traditionally it is the first born who organizes the net fishing, which is part of the family heritage. Many families have lost the knowledge of net-making so then only those who can afford it can buy pre-made nets.

Dugong used to be hunted as a festival food, using a special bamboo shaft spear attached to a string. The last dugong caught was remembered as being in the 1960s. They are no longer hunted because there are few left, and those who knew how to do this fishing have died.

Regarding the Sawasawaga – Seacology agreement, according to the boat building business owner, the whole regional community was consulted, even though that particular sea area is owned by the Sawasawaga community. This is due to the regional communities' joint ownership of the mission station on Sawasawaga (each community contributes K5-600/year divided up between families), and other common projects such as the school are agreed upon by elders from all the communities. Their understanding is that divers want to study the reefs, which are not present in their own country. As an appreciation gift, Seacology supported the school renovations. However, he believed that 3-4 ha is what is actually being currently protected, rather than the 10ha that was agreed upon.

For tourism in the area, apparently there is an arrangement with dive boats wherein agreed fees for community marine area (primarily reef for scuba diving) goes to a trust account managed by the Tourism Bureau. The Bureau expects communities to register and prove ownership of the specific resource in order to get access to the funds.

One income generation source not mentioned in the surveys or subsequent interviews, was pig raising to sell, particularly for festival times (such as Christmas, and in fact a number of small pigs were observed roaming the village, and there was a pig pen pointed out). Pig exchanges between communities or families is also part of the 'kula trade', a traditional relational network of obligations and support that can be called upon (such as when building house or canoe).

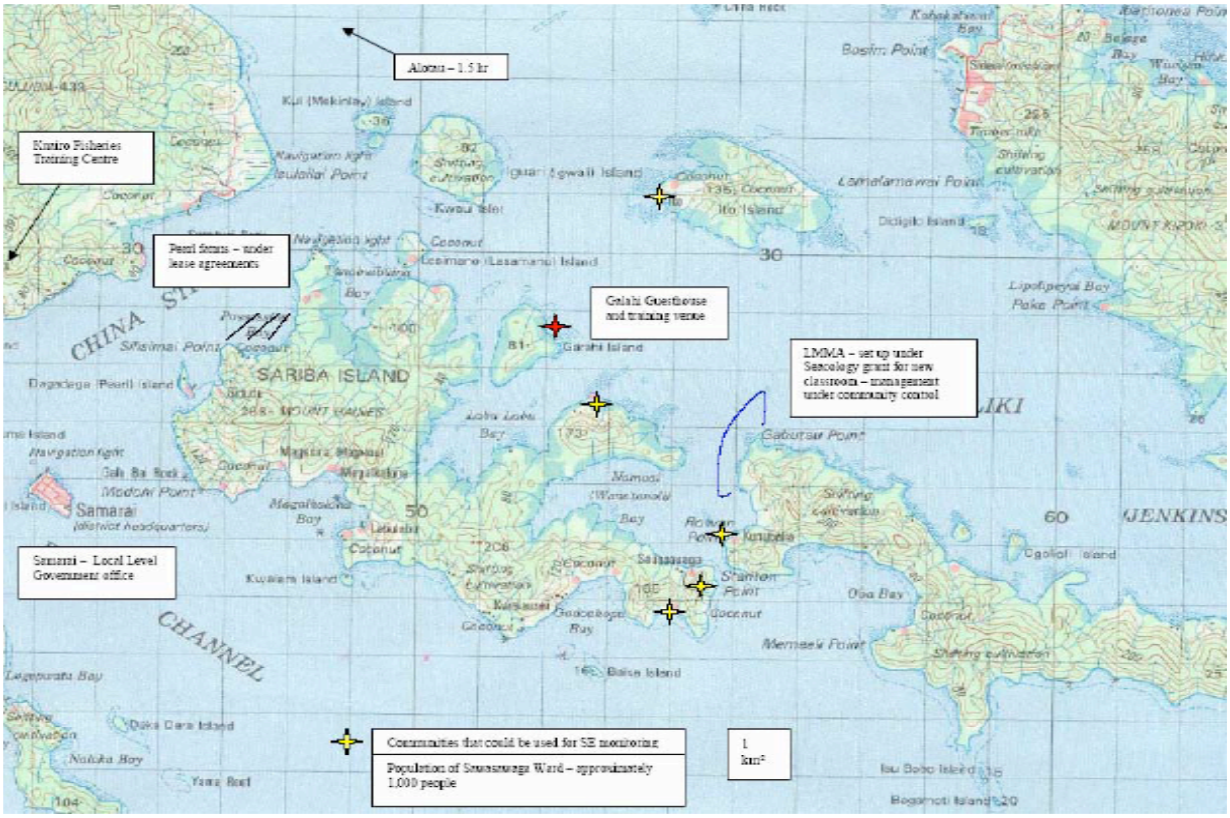
4. Conclusion and Recommendations

Sunalailai villagers engage in various types of fishing activities but their main sources of cash income are planted crops, including betel nuts and copra. It is not clear from the assessment whether the villagers' low income dependency on marine resources has been going on for a long period of time or whether a shift to land resources took place recently because crops promise higher economic returns. However, because the survey did not assess resource use and dependency for household subsistence use, it is not yet possible to conclude on the overall value and importance of coastal and marine resources to the community. Historically, forest resources have always been much used and logging was common. At present, many small plots of forest are being cleared for swidden agriculture where economically viable cash crops are planted. At the same time, wood is needed for the local boat building business. The general perception among the household members, as evidenced in informal interviews with them, is that the condition of forest resources is in accelerating decline. It seems that the use of forest resources and its impacts may need to be monitored more closely, and related conservation measures may need to be initiated or revised accordingly.

As this brief assessment is able to provide only limited information about the socioeconomic condition of Sunalailai, we would like to recommend that a more comprehensive assessment be conducted to obtain fuller baseline information on various socioeconomic aspects of the community and on the extent of long-term monitoring being planned. Local stakeholders should be consulted to identify issues of interest and relevance. A more apt and expanded set of future indicators might include resource use for household subsistence, changes of occupation or livelihood activities, markets for coastal and marine resources, non-market and non-use values, formal use rights and rules governing different resources, and the impact of management tools, compliance, stakeholder groups and participation.

Appendices

Appendix 1: Map showing Sunalailai



Appendix 2: Household survey questionnaire

Name of respondent _____
Name of interviewer _____
Questionnaire code _____ ***(initial of interviewer plus # of survey)***

1. How many people live in your household? _____
2. How many people are male? _____
3. How many people are female? _____
4. How many are children? _____
5. What is the most important primary source of your household income?
   _____
6. What is the most important secondary source of your household income?
   _____
7. What are supplementary income sources of your household?
   1st _____
   2nd _____
   3rd _____

How would you rate the condition of the following resources on a scale of 1 to 5 (1= very bad, 2 = bad, 3 = not good, not bad, 4 = good, and 5 = very good)?

8. Seagrass _____
9. Mangrove _____
10. Coral reef _____
11. Fresh water _____
12. Forest _____

13. What are the 3 most important problems with the natural resources?
    1st _____
    2nd _____
    3rd _____

Appendix 3: Questions for key informant interviews

Name of respondent: _____
Name of interviewer: _____

1. What are the main coastal and marine activities in Sunalailai?
2. What are the main coastal and marine goods and services?
3. Where are the locations of the coastal and marine activities?
4. What are the means of production of the coastal and marine goods and services?
5. What are the main purposes of the coastal and marine activities?
6. Who (men or women, or both) are involved in the coastal and marine activities?
7. What are the local coastal and marine management practices?

Appendix 4: Photos from Sunalailai

Photo 1: Household survey

Photo 2: Key informant interview

Photo 3: Children returning from school

Photo 4: Members of a participating household in survey

Photo 5: A house in Sunalailai village

Photo 6: Key informant interview participants

Photo 7: The boatyard, seen from approach to Sunalailai

Photo 8: Gardens behind the village houses