

1. Introduction

This chapter gives an introduction to the research topic; poverty in small-scale fisheries. First a general introduction is given about the extent of poverty in small-scale fishing communities. Relatively new approaches are offered to examine this problem. The livelihood approach and the idea that poverty is not just caused by an overexploitation of the resources but is also related to problems of accessibility to these resources, will be further discussed in following chapters. A distinction is made between small-scale and large-scale fishing. Finally the research problem and questions and the methodology and the structure of the text are given.

1.1 Introduction

Globally, many millions of people live in small-scale fishing communities of which a large portion is poor. Estimates of the numbers of income-poor fishers by the Food and Agricultural Organization (FAO 2002) are shown in table 1.1. It shows that 5.8 million, or 20 % of the world's 29 million fishers, may be small-scale fishers earning less than US\$ 1 a day (FAO 2002). For Africa and Asia the number of small-scale fishers living of less than US\$ 1 a day is respectively 46.3% and 25.6%. The number of related income-poor jobs, like boatbuilding, processing and sale of fish, is estimated at another 17.3 million people, thus making an overall estimate of 23 million income-poor people relying on small-scale fisheries, which is 1.9% of the total world population that lives of less than US\$ 1 a day. These numbers are interpreted here as indicators of poverty in small-scale fisheries because it is unclear how small-scale fisheries is defined here. It is difficult to make a strict distinction between small-scale and large scale fishing as becomes clear in paragraph 1.2.

Table 1.1 *Poverty in small-scale fisheries communities*

	Africa	South America	Asia	Oceania	Former USSR	Total
% of population on < US\$ 1 a day	46.3%	15.6%	25.6%	11.3%	5.1%	
Inland	279 598	2 583	514 023	0	0	796 203
Marine coastal	112 119	10 148	95 837	458	1 331	219 892
Marine other	112 875	43 867	551 133	13 515	0	721 390
Unspecified	320 733	40 716	3 660 428	0	0	4 021 876
Total	825 325	97 313	4 821 421	13 972	1 331	5 759 362
Number of related income-poor jobs	2 475 974	291 940	14 464 262	41 916	3 993	17 278 087
Total income-poor	3 301 299	389 254	19 285 683	55 889	5 324	23 037 449

Source: FAO 2002

While there are many studies on poverty in farming communities and poverty among the urban poor, only few empirical studies focus on poverty in fisheries although poverty is abundant in this sector as can be concluded from table 1.1 above. Those studies that do pay attention to poverty in fisheries focus on household income and fishers and not on the broader concept of poverty in fishing households and communities. Poverty is a multidimensional concept that is concerned with more than low earnings (income poverty) and this makes this concept very complex. Poverty in fisheries should be at the center of attention of scholars and experts in the field of development and poverty. First, because the number of poor fishers has long been acknowledged and recognized. Second, because the main themes of development issues (like collective action, empowerment, social capital, local organization etc) can be found in many small-scale fishing communities (Béné 2003).

There are different initiatives taken to improve the situation in small-scale fishing communities; initiatives to identify who are poor and the reasons for their poverty and to find out what mechanisms are most effective to reduce poverty. There have been efforts of donor agencies, national and local governments, non-governmental organizations (NGOs) and of communities themselves. Initiatives that are undertaken outside the fisheries sector and which could have a positive influence on the fisheries sector are strategies developed by the World Bank, the International Monetary Fund (IMF) and donor agencies, to identify the poor and provide instruments to improve their situation (FAO 2002). The development of Poverty Reduction Strategy Papers (PRSPs) is development for this purpose; it does not specifically focus on fishers but may certainly have effects on fishers as well. Within the fisheries sector NGOs and communities are together involved in the development of projects on alternative employment and micro-lending programs. National governments are becoming increasingly involved in co-management programs with local communities and NGOs. In the Philippines a restructuring of the governance model on fisheries management has taken place towards forms of community management.

Unfortunately a large proportion of fisherfolk is and remains poor, despite the efforts of different actors. Poverty in fishing communities can no longer be explained only through overexploitation which causes depletion of the resources. Many other factors influence the bad state of the fisheries sector nowadays. During the 1990s a new approach emerged which considered poverty as a multidimensional concept that takes a large number of factors into account. For example how is it possible that people can starve amidst a food surplus? It is generally accepted that poverty is interrelated to a lack of access to resources. Social aspects like gender and ethnicity, and institutions and organizations are believed to play a mediating role in acquiring access to resources. Factors like lack of health and education are also determinants of poverty. The sustainable livelihood approach takes these different factors into account. This approach gained many supporters and offers a holistic approach towards analyzing poverty. Social capital is part of this approach as well and is also seen as new way to poverty reduction. Communities with large stocks of social capital are considered to have more potential for growth and development than communities with minor stocks. Trust and reciprocity in communities (social capital) will lead to a reduction in transaction costs, an increase of access to different resources and information, and risk reduction.

A development in fisheries management is taking place from government projects and programs implemented from above, towards co-management arrangements between governments and communities to manage local fisheries resources. Communities are considered to be able to manage their own resources in a sustainable way. There are many different types of arrangements from co-management to community-based coastal resource management (CBCRM), with varying degrees of government and community influence. The livelihood approach, social capital and the development in fisheries management will be further examined in the following chapter (chapter 2).

1.2 Small-scale fisheries

There are many subdivisions possible to examine the fisheries sector. For example subdivisions in the type of water where the fishing takes place (fresh or ocean water); the type of species caught; types of gear used; and small-scale and large-scale or commercial fishing. In this paper the focus is not just on poverty in fisheries but on poverty in small-scale fisheries. The traditional definition of small-scale fishery that emphasizes simple technology, low level of productivity and socially and geographically constrained systems of distribution (Boelens 2002) is no longer suitable. This sector is in many cases highly productive and is exposed to commercialization. Nowadays there is no universal definition of small-scale fisheries. In the appendix (table 1.2) several characteristics of fisheries are distinguished. A distinction is made between large-scale (commercial/ industrial) and the small-scale (commercial, or subsistence). In reality the

distinction between these two sectors is not sharp but based on a continuum; there are many different levels between the extremes of small-scale and large-scale. On some characteristics fishers may score small-scale on other they may score large-scale. The main difference between large-scale and small-scale fisheries identified by the Philippine government is based on the size of the boat. Small-scale municipal fishers fish with or without the use of boats of 3 gross tons (GT) or less. Small-scale commercial fishers use vessels of 3.1 GT up to 20 GT. Medium-scale commercial fishing is done with vessels of 20.1 GT up to 150 GT. Large-scale commercial fishers use fishing vessels of more than 150 GT. In this research paper, because of practical reasons, small-scale fishers are defined as fishers using no vessels or vessels of less than 3 GT. There are only few fisheries in which none of the catch is sold, these are called subsistence fisheries. "In such fisheries, cash transactions are minimal, but fish tend to be traded or shared extensively among kinship and social networks" (Berkes et al 2001, chapter 1). Other households are commercialized and sell the households' surplus.

Table 1.3 shows other indicators of large-scale and small-scale fisheries. It shows for example the immense difference in the number of people involved in both sectors and the importance of the small-scale sector for employment.

Table 1.3 *Large-scale and small-scale fisheries compared*

Key features of the fisheries	Large-scale fisheries	Small-scale fisheries
Direct employment in fishing	500 000 people	50 000 000 people
Fishery-related occupations	—	150 000 000 people
Fishing household dependents	—	250 000 000 people
Capital cost per fishing job	US\$30 000 – \$300 000	US\$20 – \$300
Annual catch for food	15 – 40 million tonnes	20 – 30 million tonnes
Annual fish by-catch	5 – 20 million tonnes	< 1 million tonnes
Annual fuel oil consumption	14 – 19 million tonnes	1 – 2.5 million tonnes
Catch per metric tonnes of oil used	2 – 5 metric tonnes	10 – 20 tonnes

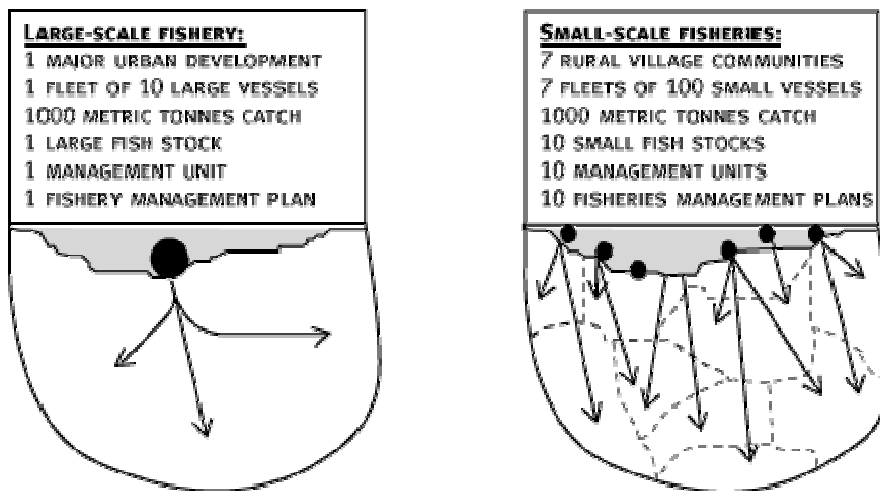
Source: Berkes et al 2001, chapter 1

Both sectors catch the same stock, but small-scale fisheries also exploit a large number of smaller stocks. The biodiversity of the catch is highest in this sector; there is a greater variety of species than in the larger commercial fisheries. Figure 1.1 shows the difference in among others the management units in large-scale and small-scale fisheries. Clearly small-scale fisheries are much more complex than large-scale fishery.

Often conflicts arise between small-scale and large-scale fishers. Large-scale fishers sometimes tend to fish illegally inside the municipal boundaries, catching the fish allocated to small-scale fishermen. They are competing for the same stock and the small-scale fisherfolk are put at a disadvantage. At the same time there may also be competition among the small-scale fisherfolk themselves, because of population pressure and the open access nature of fisheries.

In this paper a further focus is made on fishing in a marine coastal rural area instead of inland fishing in urban or rural areas.

Figure 1.1 *Relative complexity of large-scale and small-scale fisheries*



Source: Figure adapted from Berkes et al 2001, chapter 1

1.3 Research problem, objectives and research questions

This research paper is based on three earlier performed studies on the livelihood situation of fisherfolk in Cauayan, Negros Occidental, by Ard Crebas in 1998, Daniel Agoncillo in 2000 and Anna Boelens in 2001. An attempt has been made to integrate these three studies into this paper to form a complete picture (as far as possible) of the poverty related issues of the fisherfolk in Cauayan. An extensive literature review together with the previous research leads to the following research subject.

Research problem

Is there ongoing poverty in Cauayan? According to all literature and observations, it appears that poverty is present in Cauayan to a great extent; in terms of the livelihood approach: access to assets is generally low.

Is poverty related to small-scale fisheries? This question remains dubious: poverty among fisherfolk communities is a fact, but to what extent compared to other types of livelihoods? And: Are fisherman poor because they are fisherman, or are they fisherman because they are poor? Both cases appear to carry a certain degree of truth in the case of Cauayan.

Research question

Which factors sustain the ongoing poverty in small-scale fishing communities in Cauayan, Negros Occidental, the Philippines?

Primary focus: to gain an overview of small-scale fisheries in Cauayan (as a concluding report) using the livelihood approach

Secondary focus: in the livelihood approach special attention on social capital of small-scale fisherfolk in Cauayan.

Objectives

To gain insight on the situation of small scale fisheries in Cauayan, Negros Occidental, the Philippines, taking various factors into account on local level (assets and the formulation of a livelihood approach) but on regional and national level as well (trends and shocks). Special attention is given towards forms of social capital

Subquestions

- What are the characteristics of fisheries in Cauayan? (in terms of assets, activities and (small-large) scale)
- What is the influence of social relations, organization and institutions on the fisherfolk in Cauayan?
- How is fisheries management arranged in Cauayan?
- What are outside threats to the fisherfolk (trends and shocks)?
- How important is social capital? What are the three basic indicators of social capital and how do they turn out in Cauayan?

Operationalization

The following definitions are given to make certain terms used in this paper operational and to avoid confusion. Some are derived from the Philippine Fisheries Code of 1998, others from Crebas (1999) or Boelens (2002). The definitions of small-scale fisherfolk are based on those given in the Fisheries Code; this definition does not conform to the theoretical perspective on small-scale and large-scale fishing. Nevertheless for practical reasons the distinction between large-scale and small-scale fisheries is based on the size of the boat.

Household

A household is a social unit consisting of a person living alone or a group of persons who sleep in the same housing (that is under the same roof) and have a common arrangement for the preparation and consumption of food and are pooling their income.

Fisherfolk

Those people directly or personally and physically engaged in taking and/or culturing and processing fishery and/or aquatic resources.

Fisherfolk household

A household whose economic undertakings are dependent on fishing and its related activities and/or a household of which at least one member is personally and physically involved in fishing.

Fishing

The taking of fishery species from their wild state or habitat, with or without the use of fishing vessels.

Small-scale fisherfolk

Those who are actively or personally and physically engaged in fishing and who own fishing implements and fishing vessels of not more than 3 gross tons (GT). There are two types of small fishermen namely commercial and subsistence.

Small-scale commercial fishing

Fishing not only for subsistence but also for surplus, using passive or active gear. Fishing with the use of fishing vessels of 3.1 GT up to 20 GT.

Municipal fisheries

Fishing with the use of fishing vessels of less than 3 GT or no vessel

Aquaculture

Fishery operations involving all forms of raising and culturing fish and other fishery species in fresh, brackish and marine water areas

Passive gear

Characterized by the absence of gear movement, and/or the pursuit of the target species such as hook and line, traps and gill nets.

Active gear

Characterized by gear movement, and/or the pursuit of the target species by towing, lifting and pushing the gears; such as trawl, purse seines etc.

Fisherfolk organization

An organized group, association, federation, alliance or an institution of fisherfolk which has at least 15 members, a set of officers, a constitution and by-laws, an organizational structure and a program of action.

The group of fisherfolk are considered as a homogeneous group while within the group there are many different types of fisherfolk with different diversification. However in this research they are considered as a distinct group, different from other types of livelihoods.

1.4 Methodology

This research paper is based on the research of Ard Crebas (1999) and Anna Boelens (2002) both geography students at the State University of Groningen. Both examined the livelihood of fisherfolk living in Cauayan, Negros Occidental, the Philippines. The initial research question was focused on institutions and organizations that mediate access to different assets, which was a subject left unregarded by the two other students. A stay in the Philippines, from the end of March until August 2004, was arranged to study this subject.

In the first month a general introduction to Bacolod City and Cauayan by Balayan, the community outreach office connected to the University of Saint La Salle (USLS) took place. In Bacolod, the capital of Negros Occidental, a stay was arranged with a host family and during the research period in Cauayan, it was possible to sleep at the staff house of Balayan. In the first month, contacts with the local population and some key informants were made and some initial interviews were performed. An explanation was given about the work of Balayan in the research area and about the construction of the fisherfolk federation Kasamaka. During a stay in Cauayan another document was discovered, written by Daniel Agoncillo a student from Manila. This document describes the institutions and also gives an extensive analysis of fisherfolk organizations in Cauayan. This was the reason to decide to change the research topic and use the three earlier studies to write a concluding thesis on the situation of the fisherfolk in Cauayan, with a special focus on social capital, to complete the analysis as far as is possible.

Because of the change of subject which led to time constraints, a questionnaire from the World Bank was used as an instrument to measure social capital in three barangays in Cauayan. This questionnaire, called the Integrated Questionnaire on Social Capital (IQ-SC), is designed to analyze the role social capital plays in poverty reduction. It is called an integrated questionnaire because it can be integrated with a Living Standards Measurement Survey (*LSMS*).

With help of staff of Balayan some adjustments to the questionnaire were made to fit the local circumstances and to make some question and answers more applicable and easier to understand. Some hypothetical situations in questions were transformed into real events so respondents were able to identify themselves more with the situation

created in the question. The final questionnaire was translated into the local dialect Ilongo, to make the interviews more efficient and to minimize mistakes, which are likely to happen more easily when the translation has to take place during the interview. There were also some difficulties with translating the questionnaire into Ilongo; like the answer possibilities "very likely" and "somewhat likely". After the translation some test surveys took place, which led to more adjustments (the removal of neutral answer categories) and to the finalization of the final version of the questionnaire. In the meanwhile an interpreter was searched for among the local population and practice with the instrument took place. Eventually a 26 year old woman from Talangnan, Isio was assigned to the job. The experience of the interpreter with fishing and the familiarity with the environment and the people was a big advantage for the research. Working with an interpreter may also cause errors in the database through errors in the translation or interpretation. The interviews took about one hour to complete, but when the respondent was not a member of an organization many questions could be skipped and then it took about 35 minutes to complete an interview. Sometimes respondents had difficulties when they were asked to estimate how much time or money they contribute to an organization per month or year; they wanted to give very precise answers. In these cases the interviews lasted approximately one hour and a half, luckily these cases were rare. Very important and useful was the information given by respondents besides the answers given to questions from the questionnaire, stories about their lives, work and family situations.

The selection of the three research areas Man-uling, Caliling and Guiljungan, was mainly based on the experience of the Balayan staff. Three coastal barangays were picked because most likely many fishers live there. The reason for choosing three barangays was to get a possible overview of the situation in the whole coastal part of Cauayan, because the barangays differ in population size and density and in the relative importance of small-scale fisheries. Man-uling was picked because there are many fisherfolk but also many farmers, so there are farmers that fish and fishers that farm, an interesting issue. Caliling was chosen because it is not yet part of Kasamaka but some fisherfolk organizations in Caliling show great interest in joining the federation. So this was an area not so familiar for Balayan. Guiljungan was primarily chosen because both small-scale fisherfolk and commercial fishers live in this barangay and many illegal fisherfolk are settled here. For Caliling and Guiljungan the scope of the interviews was limited to the coastal area, because of the large extents of these barangays this limitation was necessary. A consequence may be that fisherfolk living in the upland areas are not represented in the research. The number of surveys was distracted from the ground rule that at least 25/30 surveys are needed to make the research significant. For Man-uling 31 surveys (6% of the households) were performed, for Caliling and Guiljungan 30 (3.4% and 1.3% of households respectively).

The respondents were picked while wandering around (the walk-and-pick strategy) and they were asked if they complied with the operational definition of a fisherfolk household. At all times there was attempted to get a good spread. This method was chosen because there were no (available) maps of the area where the different households were located on. In barangay Man-uling there was a list available of members of the local fishing and farming organization Masfa. This list was used to approach members of this organization; using this list may have biased the results, however at that time it seemed a good opportunity to contact fisherfolk. Sixteen people from this list were interviewed; the other 15 were not members of this particular organization. Using the walk-and-pick method can also cause sampling errors; this means that the sample population may be a-typical of the target population. In case of non-response (refusal, not at home etc) the nearest neighbor was chosen as an alternative. In Caliling the refusal rate was the highest, especially among men, this can probably be explained by the recent tourism developments and the fisherfolk's suspicion towards foreigners who initiate these projects. After an explanation by two of the leaders, most of them were convinced about the purpose of the interviews and were

willing to cooperate. In the other barangays there were hardly any experiences with refusal; most were happy to cooperate.

After the questionnaires (and observations) were completed there was hardly any time left for additional data gathering. Therefore in the final stage of the fieldwork there was only time to do interviews with an officer from the Provincial Agriculturist Office in Bacolod who was assigned in Cauayan, with a kagawad (barangay official) from barangay Caliling, with leaders of Masfa, Guisfa and Camaffa. During the research period also informal interviews with fishers, and discussions and clarification with the supervisor from Balayan took place. In between the interviews some things were explained by the interpreter and also afterwards she told about her life and the situation in her sitio, which was very interesting and helpful.

1.5 Structure of the text

This first chapter was an introduction to the research topic: poverty among small-scale fisherfolk in Cauayan. The extent of poverty and employment in the small-scale fishing sector worldwide is outlined. The difference between small-scale and large-scale fishing is examined as well as the complexity of the sharp division of the two sectors. The research problem and questions are given, as well as the methodology. Chapter two is the theoretical framework of the research. This chapter is meant to position the research in a theoretical perspective. Theories on poverty in fisheries are discussed and a framework to examine rural livelihoods is offered. Within the livelihood framework, special focus is paid to the concept of social capital; the main research topic. Finally fisheries management issues are looked at. The third chapter provides the geographical background of the subject. To position certain developments in the right perspective some knowledge on history, culture and geography of the research area is needed on different levels of scale. First a general introduction of the Philippines is given, then Negros Island and the province of Negros Occidental are examined and finally the actual research area, Cauayan, is discussed. Special focus is paid on the role of fisheries and its contribution to employment and income.

Chapter four is concerned with previous performed studies in the research area and their results. A characterization of fisheries in Cauayan is given and the role of social relations, organizations and institutions as mediating factors of access to assets is examined. The process of community-based coastal resource management and fishery arrangements between the local government and local fisherfolk organization in Cauayan are reviewed. Finally (future) threats to the fisherfolk are identified. The subsequent chapter, chapter five, deals with the data analysis of the data gathered with a questionnaire of the World Bank. It gives the objective of the questionnaire: to inventory existing social capital. The three basic indicators of social capital are tabulated and analyzed and the three remaining modules are used to examine certain aspects of social capital in more depth. Chapter six is the final chapter of this report, in which the research questions will be answered and conclusions and recommendations are given for further research and development options.

2. Theoretical framework

This chapter deals with the theoretical background of the research. First the issue of poverty in fisheries will be examined, using an article of Béné. Although overfishing is seen as a partial explanation for poverty in fisheries, a new approach is focused on the role of social relations, institutions and organizations as determinants for access to resources. Subsequently the sustainable livelihood approach will be explained as method to analyze these new determinants of poverty and examine rural livelihoods. Within the livelihood approach, special attention is paid to the concept of social capital which is closely related to social relations, institutions and organizations. An outcome of high stocks of social capital is community-based coastal resource management, this process will be analyzed in this chapter as well.

2.1 Poverty in fisheries

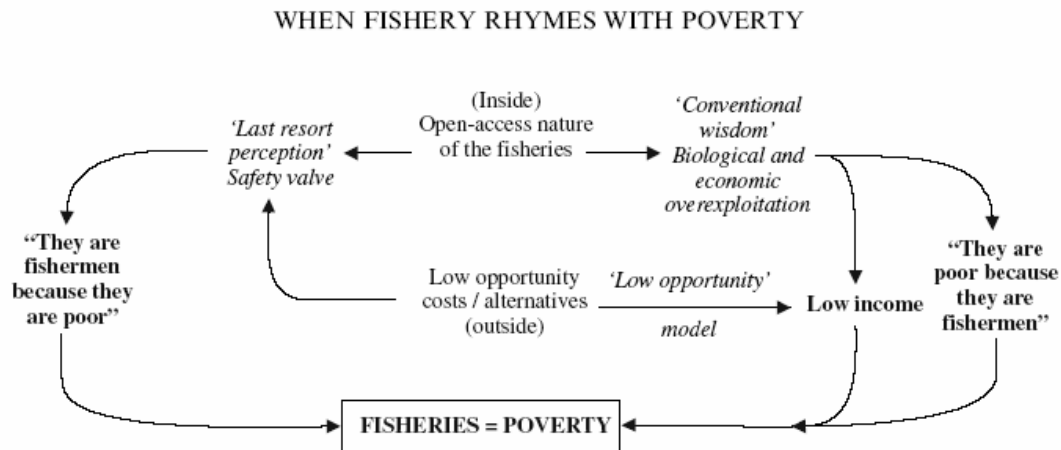
"Fishermen the poorest of the poor" is a common phrase in the literature on fisheries. Béné (2003), on the contrary, notices a lack of interest in fisheries of experts currently involved in research on poverty. He argues that most researchers think that the main reason for poverty is an overexploitation of the biological and economic resources; that poverty in fisheries is mainly related to the natural factors and its associated exploitation level. This is what Béné calls the "old paradigm". Obviously there are communities where poverty is directly related to the overexploitation or depletion of the resources but that should not lead to overlooking other elements that cause poverty. Therefore "old" must be interpreted here, not in a way that it is no longer true and existent but in a way that it provides only a partial explanation for poverty in fisheries. The perception of a strong causal relation between fisheries and poverty is explained by this "old paradigm". After an extensive literature review Béné comes to the following conclusions (Béné 2003).

In the literature there are two interpretations of the relationship between poverty and fisheries. The first relates to the view that "they are poor because they are fishermen". This perception, which is still very common, is based on two different arguments which eventually join to come to the same conclusion: fishery rhymes with poverty (Béné 2003). The first argument is based on an endogenous factor, it points to the open-access nature of fisheries (that allows more and more people to enter the fishing sector) which will lead to economic (and biological) overexploitation of the resources which will eventually lead to the impoverishment of the fishing community this is called "the Malthusian dimension of poverty". This means, a lack of resources or an overexploitation of resources caused by population growth will eventually lead to poverty and famine. The second argument is based on an exogenous factor namely the lack of alternative employment opportunities outside the fisheries sector. In this argument the causes of poverty are found outside the fisheries sector; rural fisheries communities are often located in remote areas where alternative employment is rare. Together these two arguments form the perception: fishery equals poverty (see figure 2.1 on the next page). Although they do not share the same idea of the origin of poverty in fisheries, (one looks at poverty as a problem of overexploitation inside the sector, the other seeks an explanation in the lack of alternatives outside the fisheries sector) they are often mentioned together as a combined explanation: "the tragedy of the open-access" combined with external low income earning opportunities (Béné 2003).

The second interpretation of the relationship between poverty and fisheries is based on the idea that fishery is "an activity of the last resort". The idea is that fisheries is not just a common pool resource (CPR) like forests, fields and wetlands, but because of its open-access the very last one poor people can turn to when denied access to all the other CPRs, providing the "last resort" where people can turn to. In this case the open-access nature of the fisheries is seen as a positive factor instead of the earlier idea that the open-access is causing overexploitation and thus poverty. This approach turns the statement "they are poor because they are fishermen" around and offers a new one: "they are fishermen because they are poor", because no other opportunities are

available to them anymore. The open-access nature together with the ease of entry which is possible with limited experience or capital investments means that it seems there are few obstacles to start fishing. Together these two perceptions ("poor because fishermen", "fishermen because poor") represent the old paradigm identified by Béné (Béné 2003).

Figure 2.1 *The two pillars of the "old paradigm"*



Source: Béné 2003, p.957.

The concept of poverty has been under debate for many years. From the beginning of the twentieth century until now many changes have occurred in the concept of poverty. Especially in the perceptions of the way poverty should be measured, changes have taken place. Poverty in small-scale fishing communities, just like poverty in others sectors, is difficult to measure. Communities and groups are not homogeneous and easily defined and the level of poverty changes by region and country over time. Poverty was first measured on the basis of income but later on many different aspects were taken in consideration; it became a multidimensional concept. Poverty is now seen as a complex phenomenon which encompasses, besides low income, concepts such as illness and lack of education, social exclusion, entitlement failure, vulnerability to shocks and political powerlessness. Béné points out that debate on poverty in fisheries is still in most cases focused on the natural resource itself and its limitations but should rather redirect (part of) its attention to "the role of politics of (or power over) access, control, and redistribution of these resources" (Béné 2003). He calls this the "socio-institutional mechanisms"; the importance of social and institutional mechanisms influencing poverty in fishing communities. The role of institutions will be further examined as part of the livelihood approach in the next paragraph.

2.2 Sustainable livelihood approach

A method to analyze poverty in small-scale fisheries is the sustainable livelihood approach. During the 1990s this new approach to poverty reduction emerged. All the above mentioned aspects that can cause poverty can all be traced back in the following framework (figure 2.2). There are many different diagrammatic representations of this framework. The one used in this paper is the framework summarized in tabular form by Ellis (2000). It shows the principal components of a livelihood and the interactions between them. It is possible to apply the framework at different scales, from individual, to household, to even nation level. The framework used by Ellis is typically focused on the extended household.

Figure 2.2. *The sustainable livelihoods framework*

A	B	C	D	E	F
Livelihood platform	Access modified by	In context of	Resulting in	Composed of	With effects on
Assets Natural capital Physical capital Human capital Financial capital Social capital	Social relations Gender Class Age Ethnicity Institutions Rules & customs Land & sea tenure Markets in practice Organisations Associations NGOs Local administr. State agencies	Trends Population Migration Technological change Relative prices Macro policy World econ. trends Shocks Storms Recruitment failures Diseases Civil war	Livelihood strategies	NR based activities Fishing Cultivation (food) Cultivation (non-food) Livestock Nonfarm NR Non-NR based Rural trade Other services Rural manufacture Remittances Other transfers	Livelihood security Income level Income stability Seasonality Degree of risk Env. sustainability Soils & land quality Water Fish stocks Forests Biodiversity

Source: Allison and Ellis 2001, p. 379.

This framework is used to investigate sustainable rural livelihoods, a concept central to the debate about rural development, poverty reduction and environmental management. But what exactly is a sustainable livelihood? There are many different definitions of the term 'sustainable livelihoods'. One definition by the Institute of Development Studies (IDS) is:

"a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base" (Scoones 1998, p. 5).

According to the definition of Ellis a livelihood has a number of basic elements: "a livelihood comprises the assets (natural, physical, human, financial and social capital), the activities and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household" (Allison and Ellis 2001, p. 379). As can be seen from this definition, Ellis has excluded any reference to sustainability. Scoones puts it differently; in a given particular context (as a combination of policy, politics, history, agro-ecology and socio-economic conditions), what combination of livelihood resources (different capitals) result in what combination of livelihood strategies with what outcomes? He also stresses the importance of institutional processes that mediate the ability to carry out such strategies (Scoones 1998). The concept of sustainable livelihoods is compromised of many ideas and interests and is always subject to negotiation.

The livelihoods approach tends to explain how the difference in ability of rural families to withstand shocks and cope with crisis, such as droughts, depends on their assets holding. The starting point of this framework is therefore the assets owned by the household. "Assets are owned, controlled, claimed or accessed. They are stocks of capital that can be utilized directly or indirectly to generate the means of survival of the household or to sustain its material well-being at differing levels above survival" (Ellis 2000). Five types of 'capital' (livelihood resources may be seen as the 'capital' base from which different productive stream are derived) are identified. The types of capital, their definition and measurement are all under debate themselves but these controversies will not be discussed here (for further reading see Johnson 1997) only a simple set of definitions is offered.

Natural capital is resources that are utilized by people to generate means of survival (land, trees and fish stock). Physical capital is created by economic production processes (man-made capital like roads, buildings, irrigation canals). Human capital refers to the labor available to the household (skills, knowledge and health). Importance of labor as a resource is emphasized when large households (in household size) have advantages since it reduces the risk to livelihood security of illness and permits more diverse occupational strategies to be pursued. The human capital composition changes constantly due to births, marriages, death, migration and children. Financial capital refers to the stocks of money to which the household has access (credit, savings). This capital is convertible into other forms of capital. Social capital refers to reciprocity within communities based on trust deriving from social ties (networks, associations) (Ellis 2000). The concept of social capital will be further discussed in the subsequent paragraph.

The following key questions arise concerning asset holding (derived from Scoones 1998, p. 8):

1. What is the starting point for successfully establishing a particular livelihood strategy? Is one type of livelihood resource an essential element for gaining access to others?
2. Can one type of capital be substituted for others? Or are different capitals needed in combination for the pursuit of particular livelihood strategies?
3. If you have access to one type of capital, do you usually have access to others? Or is there a clustering of particular combinations of livelihood resources associated with particular groups of people or particular livelihood strategies?
4. In pursuing a particular combination of livelihood strategies, what are the trade-offs faced by people by different access to different types of livelihood resource?

The access to these different assets is modified by social relations (which refer to the social positioning of individuals and households within society), institutions and organizations. Externally, access is influenced by trend and shock factors, the vulnerability context, these factors lie outside the control of the household. This results in livelihood strategies composed of both natural resource based activities and non-natural resource based activities and this eventually leads to outcomes of livelihood strategies: livelihood security effects and environmental sustainability effects (Allison and Ellis 2001). Scoones identifies three main livelihood strategies open to rural people: agricultural intensification (more output per unit area through capital investment or labour input increases) or extensification (more land under cultivation), livelihood diversification and migration (either temporarily or permanently). Or a combination of these three strategies, pursued at the same time or in sequence (Scoones 1998). Carney lists the categories of livelihood strategies as natural resource based, non natural resource based and migration. Ellis differentiates only natural resource based and non natural resource based (including remittances and other transfers (Cahn 2002)).

The pursuing by an individual or household of a certain livelihood strategy is not always a conscious choice but rather the most likely or convenient option. Some strategies may be pursued for short periods of time others for a life time. Livelihood strategies change as the external environment changes. "Sometimes unsustainable and unproductive livelihood strategies continue because of tradition and habit at other times livelihood strategies are introduced as coping strategies in difficult times" (Cahn 2002, p. 3). Tradition and security are usually higher valued, than higher but more uncertain income.

Diversification is one strategy to cope with risks. Other options to confront risks are: the accumulation of resources as a reserve in times of crises or shocks; activities may be spread over time and space to minimize the risk of for example crop failure; overall enhancement of coping system to decrease the impact of shocks (Scoones 1998).

Small-scale fishing communities are vulnerable to many events. The issue of vulnerability may be as important as poverty is (FAO 2004). Examples of vulnerability are: climatic/natural events such as yearly and seasonal fluctuations in stock abundance, poor catches, bad weather and such natural disasters as typhoons; economic factors such as market price fluctuations and variable access to markets; and the dangers of working at sea (examples from FAO 2004). Also poor health and other wider determinants of poverty can be issues that make people in small-scale fishing communities vulnerable. A big factor of uncertainty in the livelihood of fisherfolk is caused by their dependence on natural resources. Responses of the individual fisher to these uncertainties and fluctuations in natural resources are for instance catching different species according to availability, geographical mobility and livelihood diversification (Allison and Ellis 2001).

As already mentioned the access to and the availability of resources is mediated by organizations and institutions (see also figure 2.2). These two terms are often used interchangeable; the terms will therefore shortly be explained. Institutions refer to both formal rules and regulations and informal codes of behaviour that define the way that individuals should act or interrelate. Examples are laws, land tenure arrangements (property rights) and the way markets work in practice (Ellis 2000). "The role of institutions is to reduce uncertainty by establishing a stable structure to human interaction" (Ellis 2000). They change slowly and are usually subject to multiple interpretations by different actors. Institutions are also referred to as the "rules of the game". Organizations on the other hand are referred to as the "players of the game". "Organizations are groups of individuals bound by some common purpose to achieve objectives" (Ellis 2000). Examples are government agencies, associations, NGOs and private companies.

But why do institutions matter for the policy of development for sustainable livelihoods? Institutional analysis makes possible to identify restrictions and opportunities to sustainable livelihoods. Understanding them is of key importance because they mediate access to livelihood resources and affect livelihood strategies. Institutions may work more or less well, but there is no guarantee that organizations that interpret institutions do so too. Some institutions and organizations can have a positive and stimulating effect, while others may inhibit or constrain certain developments. However, policy analysis is usually implemented top-down while the livelihood approach is bottom-up. The livelihoods framework provides little guidance in how to link the findings with macro level issues and policy analysis. Shankland (2000) provides a link between livelihoods and policy. To look at the impact of policy on livelihoods, emphasis should be paid to the role of institutions and organizations because they can affect the accessibility of resources and activities. Policy affects the supportive or constraining role of institutions and organizations by changing, reinforcing or reducing their role (see Shankland 2000). "A community low in social capital (manifested by weak networks and associational activities, poorly performing organizations and little reciprocity between households) seems also likely to be one that offers little scope for negotiating access to assets, and experiences weak management of common property resources" (Ellis 2000). This emphasizes the importance of a high stock of social capital for successful management and influence. Institutions are part of a process of social negotiation rather than fixed objects or 'bounded social systems'.

The livelihoods approach is increasingly being used by many development agencies and NGOs in order to achieve a better understanding of natural resource management systems. Because of the many factors identified in the framework it is very difficult to uncover all aspects (and their relative importance) and interrelations. This is also one of the concerns expressed about the framework. One of early criticisms is that the approach is too similar to the failed integrated rural development (IRD) approach of the 1970s. The two approaches do share much in common but the livelihoods approach tends to use the strengths of IRD and not its weaknesses. The livelihoods approach does

not aim to establish integrated programs in rural areas and it will take into account macro level and institutional factors (DFID 1999). Table 2.1 shows where some of the main differences lie between the two approaches.

Table 2.1 *The integrated rural development and the sustainable livelihoods approach compared*

	Integrated Rural Development (1970s)	Sustainable Livelihoods (late 1990s)
Starting point	Structures, areas	People and their existing strengths and constraints
Conceptions of poverty	Holistic, multi-dimensional Recommendation domains suggest uniformity (an operational simplification)	Multi-dimensional, complex, local Embraces the concepts of risk and variability
Problem analysis	Undertaken by planning unit in short period of time, viewed as conclusive	Inclusive process, iterative and incomplete
Sectoral scope	Multi-sectoral, single plan Sector involvement established at outset	Multi-sectoral, many plans Small number of entry points Sectoral involvement evolves with project
Level of operation	Local, area-based	Both policy and field level, clear links between the two
Partner organisation	National and local governments	Local and national governments NGOs, civil society organizations, private sector
Project management structure	Dedicated project management unit, external to government	Project within partner organisation
Co-ordination (between sectors)	Integrated execution (donor-driven)	Driven by shared objectives, benefits of co-ordination identified by those involved
Sustainability	Not explicitly considered	Multiple dimensions Core concern

Source: adapted from sustainable livelihood guidance sheets DFID 1999, chapter 1, p. 10

To explore the livelihood of small-scale fisherfolk, it is important to look at their strengths and possibilities. In most cases fisherfolk do not own many assets; their opportunities are often limited. The livelihoods approach looks at what people have, instead of what they lack. The lives of the fisherfolk are also characterized by risk and vulnerability and these are taken into consideration in the livelihoods approach. As social networks and social capital are more and more believed to play a role in poverty and the outcomes of livelihood strategies of small scale fisherfolk, the instrument of analysis must take these aspects into account. While the IRD does not pay attention to institutions and organizations, the sustainable livelihood approach focuses on these topics specifically. The general acknowledgement that poverty is a multidimensional concept in its broadest sense has made the sustainable livelihood approach more suitable for research on poverty of small-scale fisherfolk. The livelihood of the fisherfolk can readily be described by the livelihood framework. Their key assets are fishing gears, like boat and net, some may also own land as a diversification strategy. Institutions are the state rules on fishing and community rules that mediate the access to resources. The fisherfolk are vulnerable to events, especially to natural hazards like typhoons and floods. Finally fishing households are often engaged in diverse livelihood activities for earning an additional income and to reduce risk.

However, no development approach seems to get unanimous support. Criticism further focuses on the issue that the holistic approach is too complex as instrument of analysis; that because of the holistic approach the concept becomes a 'container' and will lose its analytical value (Haan and Zoomers 2003). Cahn also emphasizes that the nature of

poverty in the Pacific is very different to Asia and Africa, the influence of tradition and culture is much stronger. There are no clear guidelines on how to integrate them into the livelihood approach. Another point of concern is the fact that both governments and organizations often tend to be organized along sectoral lines while the livelihoods approach is cross-sectorally based.

What becomes clear is that the sustainable livelihood approach as a concept is still evolving and more strengths and weaknesses emerge and discussion continues (Cahn 2002). Despite the criticism, the livelihood approach is still used as an instrument of analysis in this research because it provides a good and useable method, which is widely adopted, tested and adapted.

2.3 Social capital

Social capital, often defined as kinship networks and association, is as we saw closely related to the concept of institutions and organizations and to livelihood and poverty. It is not exactly a new phenomenon and not at all without controversies. A resurrection of the concept a few years ago has led to major popularity for some academics and scholars but for others the concept should have remained dead ("They F**k You Up Those Social Capitalists" Fine 2002). This raises the question: what is social capital? What makes this concept so controversial? And what exactly is the relationship between social capital and development?

Social capital has no clear definition, one of the reasons why it is such a much debated topic. Because of this lack of definition the term social capital is used as a black box and more variables are included over time (Fine 2002). Moser (1998) defines social capital as: *"reciprocity within communities and between households based on trust deriving from social ties"*. Grootaert and Narayan define social capital as *"the norms, networks and social relations embedded in formal and informal institutions of society that enable people to coordinate action and achieve desired goals"* (Grootaert and Narayan 2000, p. 28).

Despite all the different definitions of the concepts what is agreed upon is that it can not be produced by individuals acting in isolation from one another (Skidmore 2000). Social cohesion provides the basis for reciprocity within groups, but when power and resources of the social group is limited, linking with other groups becomes important to access different resources, information and power (Grootaert and Narayan). This is the difference between bonding (social capital within groups) and bridging or linking (social capital with other groups) social capital.

The importance of social capital as an asset is reflected in the way it influences people's access to resources and the engagement with other actors of market, state and civil society. Bebbington (1999) suggests that an important factor in the failure of rural people to improve their livelihoods (described as an inability to defend their existing assets and to identify opportunities to turn assets into livelihood) has to do with their inability to create and use the networks and links with state, market or civil society actors that could have helped them to gain access to or defend their assets (Bebbington 1999). There exists much disagreement on where the boundaries should lie between state and market and the role of civil society as determinants of economic development. Civil society most commonly refers to the varied forms of social organization that lie between the individual and the state. There are many different forms of social groups that can be part of civil society; these are called civil society organizations, grassroots associations or associational groups. These groups can vary from sports clubs to political parties. They can also differ in scale and reach. Some organizations are primarily locally based and are also founded by the local community, these are called informal associations. Others, the formal civil society organizations, operate on a much larger scale (national/international) and are often initiated from the top down. The creation of

national, or even regional, networks is quite unusual; "local associations are often restricted in their scope because of a lack of resources and support and their limited impact on structural factors" (Radcliffe 2004). There are different forms (negative and positive) of social capital associated with these organizations. Negative forms of associationalism are organizations built around strong vertical ties, such as patron-client relationships and networks of corruption encompassing both state and non-state actors. Socially positive associations tend to be voluntary, horizontal, non-exclusive networks (Skidmore 2000).

There is a growing body of evidence that shows a relationship between social capital and poverty. Unfortunately there has been no agreement on which indicators of social capital predict this relationship. Narayan and Pritchett performed a household survey in rural Tanzania and came to the conclusion that an increase of one standard deviation in their social capital index (based on membership of organizations and the social inclusivity of those organizations) leads to a 20 to 30 percent increase in household expenditure. They also find proof that social capital is really 'social' in that household incomes depend on village, not just household, social capital (Narayan and Pritchett 1997). It is also acknowledged that nations with large stocks of social capital, for historical and cultural reasons, have more potential for growth and development than states with minor stocks. How does this work? How does social capital stimulate growth? First of all high levels of trust and strong traditions of reciprocity reduce transaction costs. Secondly social networks spread risk by providing individual members with support during times of trouble. Furthermore it increases the spread of and access to information and it improves the sharing of knowledge which makes transactions more easy and effective. Finally it reduces 'free rider' problems associated with public goods (social capital as a public good offers a strong temptation to free ride on the social contributions of others) because social networks allow members to solve collective action problems more easily (Skidmore 2000).

Knowing the importance of a large stock of social capital raises the question: can the positive forms of social capital be cultivated? Or is it something that emerges unplanned and in a bottom up process of development? The answers to these questions are not yet clear. Three actors may play a role in stimulating social capital: states, international organizations and transnational social networks. The state can be most influential through education; schools and other educating institutions are important in creating social capital by teaching in moral codes and values. States can also indirectly stimulate social capital by offering services like basic provisions and safety. International organizations can stimulate the involvement of local NGOs in planning and implementation. The World Bank already involves local civil society organizations in the development and execution of projects. Transnational networks can be important by creating links between groups with similar problems across national boundaries so they can learn from each other (Skidmore 2000).

There is still no consensus on how to measure social capital but increasing effort is being made to develop tools and methods to measure aspects that may be relevant to social capital. Concepts such as 'trust' and 'networks' are difficult to quantify and therefore also qualitative measurements are being used to describe social capital. The World Bank developed a questionnaire called the Social Capital Integrated Questionnaire (SC-IQ) and tested it in several countries. This questionnaire is also used to gather data on social capital for this research. More on this questionnaire and analysis of the gathered data can be found in chapter 5.

Some critics stress the negative consequences of social capital like exclusion and networks of corruption associated with vertical ties. Others criticize that aspects as gender and ethnicity are being ignored. Radcliffe mentions some examples of research in which women and gender issues are still largely ignored in the formulation and design of social projects. The same accounts for ethnicity. Research in Mexico showed that despite

strong local organization of indigenous population, their development rights and power were still dependent on their ability to negotiate with regional and national non-indigenous elites (Radcliffe 2004). Nevertheless strong community organization can lead to advanced forms of influence and power, like in the managing of fisheries resources.

2.4 Fisheries management

In the 1970s, a period in which fishing still continued to grow, overfishing was increasingly being noticed. The growing pressure on fisheries resources made the international community realize the need for more responsible practices in fisheries if these were to be available for future generations. Because of the growing concern over the conservation and management of global fisheries, in March 1991 a meeting was held by the Food and Agriculture Organization Committee on Fisheries (COFI). The need for new developments of concepts for responsible fisheries became apparent. At the International Conference on Responsible Fishery in Cancun, Mexico the FAO was asked to prepare a Code of Conduct, which needed to integrate existing laws and regulations like Agenda 21 and UN Law of the Sea, which expanded the exclusive economic zones (EEZs) up to 200 miles. This became the Code of Conduct for Responsible Fisheries (CCRF) which was adopted in 1995 (FAO 2000). The most important aspects of the Code of Conduct include the conservation of fisheries in a sustainable way and it provides principles and standards to achieve conservation, management and development of all fisheries. For further details on CCRF see the site of the Food and Agriculture Organization.

The management of fisheries is closely related to Hardin's famous concept of "the tragedy of the commons", therefore this concept is also known as "the fishermen's problem". The problem lies in the idea that every fisherman has to consider whether he contributes to conserve the resource, or catch as much fish as possible. Every fisherman is confronted with this same problem and this can eventually lead to the destruction of the very resource itself on which they are all dependent. The accumulation of all individual rational outcomes will lead to socially irrational outcomes. The positive effect (more catch) are for the individual, the negative outcomes (depletion/ destruction of fish stocks) will be shared by all. Some observers emphasize the need for top down management by the state, which works as an external power that controls the situation. Nevertheless there are many successful examples of resource management by the resource users themselves, where the users developed their own institutions (local norms and rules) without government regulation.

Fisheries management is actually about managing people (Jentoft 2000). The use of common property (common pool) resources should be regulated in the common interest and should be translated in a set of rules that all users will follow. The primary goals of management are to prevent extinction and to optimize benefits. There are two main problems associated with the management of CPRs. 1) "How to control access to the resource?", if access is not controlled this will eventually result in a "tragedy of the commons". 2) "How to deal with the problem that each person's use of the resource subtracts from the welfare of others?" First of all according to critics, Hardin confuses "common property" with "open access". CPRs are certainly not open to all; some people may still be excluded for multiple reasons. And secondly Hardin's resource users are "self centered utility maximizers" not influenced by the community or other social relations. Fisherfolk however are subject to social pressure from the community that influences their behaviour (Berkes et al 2001).

How can states, markets and communities contribute to the managing of CPRs and deal with problems of accessibility and subtractibility? In many western industrialized countries governments limit the numbers of fishers or the number of licenses is limited. In developing countries governments also use licenses but numbers are often not

limited. In some cases the types of fisheries are limited; the high technology and large scale commercial sector are banned from certain water zones because these activities are more likely to deplete the resources and make the livelihood for small-scale fisherfolk impossible. Often there is no lack of government regulation but a lack of enforcement of these rules and regulations. In the Philippines for example a large scale decentralization of fisheries management from the central government to the municipal government and local communities has taken place to deal with the lack of enforcement. This happened through the development of the Local Government Code in 1991 and the Fisheries Code of 1998 which will be discussed later.

Private property rights are hardly ever a solution for the control of access to CPRs like fisheries, wildlife and forests. Access to resources and CPRs is influenced by social capital for example. Delineation of these resources is difficult and it is also hard to divide them. An alternative may be not the privatization of the resource itself but the privatization of the harvesting rights (Berkes et al 2001). Western countries already work with a system of individual transferable quotas (ITQs) regulated by the government. This system only works when it is possible to determine the total allowable catch for every species and when the harvest is monitored, but when many different communities use the resource it is hard to determine the total allowable catch. Nevertheless privatization may be a solution to the subtractibility problem. "If the owner has property rights in the resource and those rights can be traded both the costs and benefits of resource use will accrue to the same owner. This would eliminate the divergence between individual and collective interests, thereby solving the "tragedy of the commons." The costs and benefits will be reflected in the market price of the resource, giving the owner the incentive to regulate resource use in a manner consistent with private objectives" (Berkes et al 2001, chapter 7). Sometimes the most profitable situation for the owner is to deplete the resource instead of using it in a sustainable way. Therefore these incentives may not be consistent with resource conservation.

The ability of a community to manage its own resources depends on the communication between the members, their ability to work together, make rules and enforce them. It also depends on the history and tradition of civil society of cultures whether they are able to organize themselves and create proper institutions. As the citation of Ellis (2000) in paragraph 2.2 already mentioned, a community low in social capital is likely to experience weak management of common property resources.

If civil society is weak and social capital is absent, it becomes more important to develop the capacity of fishing communities, governments and organisations (NGOs) so they can solve problems individually or together. A danger of top down management is that communities lose the power and capacity to solve their own problems simply because there is no need to think about solutions for their problems. Table 2.2 shows some ways to improve capacity.

Table 2.2 *Four major ways to build capacity*

- | |
|--|
| <p>1. Improve the knowledge base to facilitate better decision-making
Support research by improving data collection, maintenance and analysis, scientific and support practical research, and by incorporating traditional knowledge.</p> <p>2. Develop better policies and strategies
Reform legislation and policies that hinder the sustainable management of resources and the adoption of integrated management approaches to coastal resources. Raise awareness of sustainable management practices at all management levels.</p> <p>3. Enhance management practices and techniques
Train professional staff to adapt to new paradigm based on participatory decision-making. Support integrated ocean and coastal zone management in place of the more traditional sectoral approaches. Learn from the lessons of others, and help local institutions to become more self-reliant. Work at all levels to facilitate dispute resolution.</p> |
|--|

4. Reform institutions

Create partnerships involving user groups, NGOs, the private sector, and government. Strengthen and even create, where necessary, new cooperative arrangements to deal with the impacts of land-based activities on the marine environment.

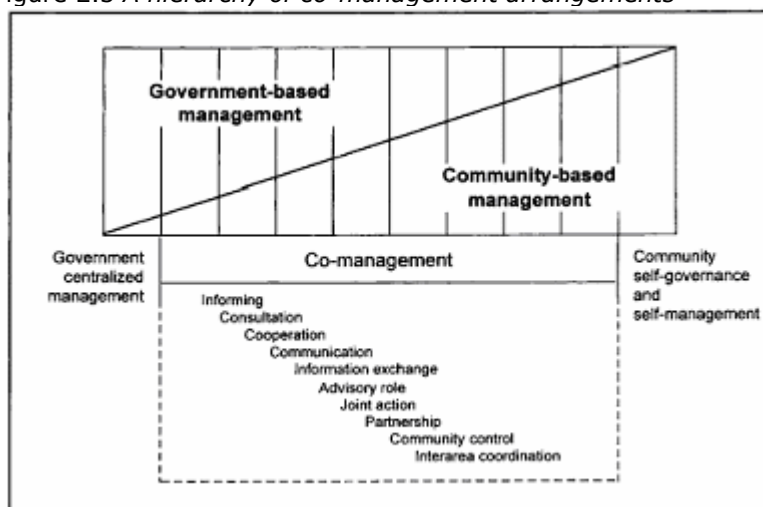
Source: Berkes et al 2001, chapter 7

Communities are not homogeneous; there will be both members that will cooperate with rules and those who will not. Important is the existence of trust and reciprocity (social capital) instead of just utility maximizing individuals. A management system that does not take kinship relations, social obligations and group membership into account and ignores networks, trust, reciprocity and values among the community members, will probably not work well. Overfishing for example may also be caused by a lack of responsibility and social cohesion among community members because this makes sanctioning of unacceptable fishing behaviour more difficult. This may eventually lead to a failure in fisheries management. Jentoft suggest a fisheries management system that includes community values besides rules and regulations. Managers should "encourage cooperation, build networks, and improve trust within and among local communities" (Jentoft 2000, p. 54).

The interest of small-scale fishers to preserve local resources is much greater than that of commercial large-scale fishers. Large-scale fishers are much more mobile; they can go somewhere else to fish or they can find other employment. Small-scale fishers on the contrary are usually bound to one place and whole families depend on the livelihood gained from small-scale fishing. In community management systems exclusion of outsiders is arranged informally by local customs, social sanctions, threats and violence. Traditional managing systems focus on rules how fishing is done and not on quantitative controls such as quotas. The rules focus on among other things territorial controls, access limits, seasonal limits, technology restrictions and size limits.

The following figure (figure 2.3) shows the management situation of full government implementation to different participating levels of community actors. There is a shift in fisheries management towards community-based and co-management approaches, in which fisher participation and decentralization of management authority and responsibility are emphasized.

Figure 2.3 A hierarchy of co-management arrangements



Source: Pomeroy and Berkes 1997, p. 466

Figure 2.3 shows the changing role of the community from informing and consultation to equal partnership and even community control. But what are the advantages of co-management? First, if local resource users take more responsibility this will lessen the burden of fisheries management for governments. Furthermore the use of local fishers' knowledge of local ecological factors is more effective in the managing of the resource than standard information on management provided by governments. Many international donors and development agencies nowadays leave the implementation of community projects to local NGOs and people's organizations. NGOs can play an important role by helping people in a community to set up a framework for co-management in which fisheries managers and fishers jointly manage the fisheries. NGOs may provide ideas, expertise and trainings to increase the ability of the people to manage their own resources. However it is important that after a couple of years of cooperation NGO back down otherwise a community may become too dependent on a NGO.

Fisheries co-management can be defined as "a partnership in which government, the community of local resource users (fishers), external agents (non-governmental organizations, academic, and research institutions), and other fisheries and coastal resource stakeholders (boat owners, fish traders, money lenders, tourism establishments, etc.) share the responsibility and authority for making decisions about the management of a fishery" (Berkes et al 2001, chapter 8). Figure 2.3 shows the different levels of co-management, all levels include a major and active role of the government. This is the main difference with community-based resource management (CBRM), in which the government plays a minor role. There are many similarities between the two concepts of co-management and community based resource management but their focus differs. CBRM is people-centered and community-focused; co-management also, but it focuses on partnership arrangements between governments, local communities and resource users as well. Co-management is also organized on a broader scope and scale (Berkes et al 2001).

Conclusions

Poverty among small-scale fisherfolk is widely spread as became clear from the previous chapter. Poverty in fisheries just like poverty in other sectors is a difficult concept. This chapter attempted to make clear that an overexploitation of resources is just a partial explanation for poverty in fisheries. It is primarily a problem of access to resources. The role played by institutions and organizations and social relations and the amount of social capital, are all important determinants of the access to resources. Social capital also determines the ability of communities to manage their own resources. If communities possess high stocks of social capital they may be able to become organized in well working organizations and in this way gain power over the institutions and organization that manage fisheries resources. Once people organize themselves, they are no longer powerless and can actually influence local government rules and regulations on fisheries and work together with NGOs to manage their resources.

3. Geographical background

This chapter deals with the geographical background of the research area at different levels of scale. First different aspects of the Philippines are examined and the situation of the Philippine fisheries sector is reviewed. Then Negros and Negros Occidental are discussed. Finally the municipality of Cauayan, the actual research area, and the three survey areas are introduced. This chapter is meant to place the research in its geographic context.

Figure 3.1 Map of the Philippines



Source: Western Washington University 2005

3.1 The Philippines

Geography

The Philippines consists of thousands of islands (7,107) and is politically divided into 17 regions, 79 provinces and 115 cities. There are over 1,500 municipalities and 41,000 barangays, which are the smallest political units in the country. The total land area is approximately 300,439 square kilometers and is comparable to Poland and Italy. 94% of the total land area is covered by 11 islands (Luzon, Mindanao, Palawan, Mindoro, Masbate, Samar, Leyte, Panay, Negros, Cebu and Bohol). The country can roughly be divided in three geographical regions: Luzon, the largest island situated in the north; Mindanao, the second largest island situated in the south and the Visayas, the group of smaller islands in between. Only 2000 of the 7107 island are inhabited by people, and about 2700 island own a name (World Atlas 2004). The total number of inhabitants in 2004 is 86 million. Metro Manila includes 12 cities and 5 municipalities and has around 14 million inhabitants. Manila has about 10 million inhabitants, it leaves other cities far behind. Davao is the second largest city and Cebu the third with 1,147,116 and 662,171 inhabitants respectively (NSO 2005). The Philippines is located in the South Chinese Sea, north of the equator. The total length that is occupied by the country is about 1850 km from north to south, from east to west the length is 1060 km. From the most northern island Y'ami it is only 150 km to Taiwan; the most northern tip of Borneo is only 25 km by boat from the far south of Palawan and the islands in the north of Sulawesi are approximately 60 km from Mindanao.

The Philippines is located in a geological turbulent area; it is situated on a line of fracture, the so called "ring of fire" in the Pacific, and as a consequence it suffers from volcanic activities and earthquakes and is one of the most geologically disturbed areas of the world. The volcanic eruptions are the cause for all the (small) islands in this area, although there are also some other explanations for this phenomenon found in local myths. The position close to the equator is responsible for the tropical climate, which is generally warm with a high humidity and an abundant rainfall. There are two different seasons which are under the direct influence of the monsoon: *habagat* and *amihan*. Habagat is the rainy season approximately from June till November, amihan is the dry, hot season from December till May. In the period from June till December there are also a lot of typhoons (tropical storms) which terrorize the area. Every year there are about 30 typhoons attacking the Philippine islands with wind speeds of over 300 kilometers per hour, these storms are always accompanied by heavy rainfall that can lead to flooding and landslides (World Atlas 2004).

Politics

In 1946 the Philippines gained independence from the United States of America, who had taken over the country in 1898 from Spain. Spain colonized the country for 300 years while the American power lasted for only 50 years, interrupted by 5 years of Japanese rule during the Second World War. Nevertheless the American influence is more profound and long-lasting than the influence exercised by the Spanish, who among other things introduced the Christian religion. The language, the educational system, democracy etc are all American legacies. After the independence, the successive governments served American economic interest and Philippine large landowners. In the meantime Spanish Christianity is interwoven with superstition and democracy turned out to be a facade. Different governments since 1965: 1965-1986 Marcos (policy characterized by fraud, intimidation and use of force), 1986-1992 Aquino (characterized by elite-government, total war against rebels, rise of NGOs), 1992-1998 Ramos (end the rebellion, economic rise partly succeeds), 1998-2001 Estrada (was suspected of corruption and was impeached), since 2001 Gloria Macapagal Arroyo (World Atlas 2004). In the last government elections in May 2004 the two main candidates were president Arroyo and Fernando Poe Junior an actor in Philippine movies. Arroyo won and was reelected for a period of 6 years (2004-2010). Her main policy topics are to create more job opportunities, invest in education and reduce corruption, to reach two main goals:

sustainable economic growth and poverty alleviation and lasting political stability and peace (The Official Government Portal of the Republic of the Philippines 2005).

People

The average annual population growth rate from 1980 to 2002 was 2.3% and from 2002 to 2015 it is predicted to be 1.6%, this indicates a decrease of population growth. The population in 2015 is estimated at around 98.2 million. The growth rate of the urban population from 1980 to 2002 was 0.3% so it is mainly the rural population that is growing. Around 40% of the population lives in rural areas (World Bank 2004). Filipinos are a mixture of mainly Malay, Chinese, Spanish and Polynesian predecessors. In the archipelago 8 main languages and about 70 dialects are spoken. Tagalog is the national language since 1937. Besides their own dialect and Tagalog, most Filipinos also master English; it is considered as a second language in many regions. Eight out of 10 people have the Catholic religion (4% of which is from the *Iglesia Philippina Independiente* and 4% is from the *Iglesia ni Cristo*). Furthermore 3% of the population is Protestant, 5% Muslim and 1% consists of Buddhist, Taoist and Hindu (World Atlas 2004).

Economy

The World Bank classifies the Philippines as a lower middle income country and counts it among the East Asia and Pacific region. In 1960 the Philippines was the most industrialized country in Southeast Asia and also had the fastest growing economy. Compared to other countries in Southeast Asia the Philippine economy performed badly in the 1980s (World Bank 2004). The Philippines is one of the five founding members of the Association of Southeast Asian nations (ASEAN), together with Brunei, Indonesia, Malaysia and Thailand. Table 3.1 compares the gross national income (GNI) in billion dollars and per capita and the percent of growth in gross domestic product (GDP) and GDP per capita for these countries and Vietnam, that are all reckoned among the East Asia and Pacific region in the classification of the World Bank. GDP can be defined as "the total value of all goods and services within a territory during a specified period (most commonly a year)" (Wikipedia 2005). GNI comprises "the total value of goods and services produced within a country (its GDP), together with its income received from other countries (notably interest and dividends), less similar payments made to other countries" (Wikipedia 2005).

Table 3.1 *Economic indicators of Southeast Asian countries*

	GNI in \$ billions	GNI per capita in \$ (2002)	GDP % growth 2001-02	GDP per capita % growth 2001-02
Indonesia	149.9	710	3.7	2.3
Malaysia	86.1	3.540	4.1	1.9
Philippines	82.4	1.030	4.4	2.3
Thailand	123.3	2.000	5.4	4.7
Vietnam	34.8	430	7.0	5.8
South East Asia & Pacific	1,768	960	6.7	5.8

Source: World Bank (World Development Indicators 2004)

The main export products of the Philippines are electronics, textile, minerals, agricultural products, coconuts, and fish. These products are mainly exported to the USA and Japan. Imports also come from the USA and Japan as well as from China. Import products are primarily machines, raw materials and petroleum (World Atlas 2004). An important contribution to the Philippine economy comes from money overseas contract workers send home (visible in value of GNI per capita in table 3.1); the Philippines has a high number of migrants working in Western countries. Most of them, especially women, find employment as a nurse or nanny in the USA, Hongkong, Japan, Australia, the Middle-East or Europe. Other women find employment as actress in adult movies or can be ordered from a marriage catalogue. They are cheap employees and attractive to men who do not like emancipated women. In 1998 the number of overseas contract workers (OCWs) was estimated at 7 million people, spread over 181 countries worldwide. This is

about 10% of the population and nearly 20% of the productive age population (PESC 2004). In 1996 and 1997 Filipino migrants remitted some \$5 billion in foreign currency according to data of *Bangko Sentral* (PESC 2004). This is about 18% of GNP. Although the data is somewhat outdated, it shows the importance of the remittances of OCWs to the Philippine economy.

Poverty

In the Philippines two approaches are used to measure poverty: an income based and outcome based approach (Santos 2003). The income based approach uses a 'poverty line', which measures whether there is enough income to buy a minimum amount of food and non-food basic items. This is done with the use of poverty incidence figures. Using this approach, 36.8% of the population lived below the national poverty line in 2002 (UN 2004). The United Nations define poverty in one way as the number of people that live from US \$1 a day. For the Philippines this number is 14.6%. This percentage of people living below the poverty line, is comparable to countries like Bolivia (14.4%), Paraguay (14.9%) and Venezuela (15%). It is however questionable to make this comparison because the situation in these countries is probably very different from the situation in the Philippines. A regional comparison with Malaysia (< 2%), Indonesia (7.5%), Thailand (< 2%) and Vietnam (17.7%) shows that the number of people living below the poverty line of US \$1 a day, for the Philippines is relatively high in the South East Asia and Pacific region (UN 2004).

The outcome based approach, which is most commonly used, looks at a minimum level of basic needs that goes beyond a lack of income and also takes into account literacy rates, education, and life expectancy and so on. The Human Development Index (HDI) is an example of an (international) outcome based measure. To compare: Norway has the highest HDI of 0.956 of the high human development countries in 2002, the Philippines ranks 83rd (of 177) of the medium human development countries with a HDI value of 0.753 in 2002 (in 1975 the HDI value was just 0.653), which is comparable to countries like Armenia, Maldives, Peru and Turkmenistan. To compare: the HDI in 2002 for Malaysia is 0.793, for Indonesia 0.692, for Thailand 0.768, for Vietnam 0.691 (UN 2004).

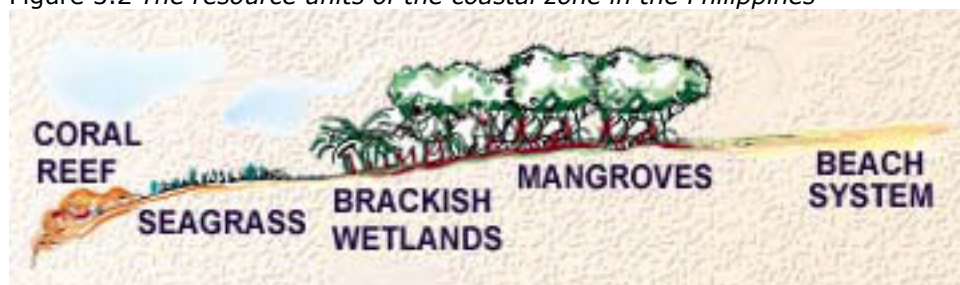
Fisheries

There are two types of fisheries in the Philippines: municipal fishing (use of fishing vessels of less than 3 gross tons (GT) or no vessels at all) and commercial fishing (use of vessels larger than 3 GT). Municipal fisheries are regulated by the local government, commercial fisheries by the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture (DA-BFAR). Municipal water, a zone extending up to 15 km from the coast, is under the jurisdiction of local municipal and city governments. Commercial fishing is not allowed in this zone unless approved by special ordinances.

The coastal zone in the Philippines has 5 major resource units or ecosystems. An ecosystem can be defined as: "a basic functional unit of the environment in which the *biotic* and *a-biotic* components are inseparable interrelated maintaining the equilibrium of life" (One Ocean 2004). These major ecosystems are involved in coastal resource management (CRM) but CRM is not limited to the coastal zone; many factors from outside this zone can have a major impact on coastal resources. The resource units are: 1) Beach systems 2) Mangroves 3) Brackish wetlands 4) Seagrasses 5) Coral reefs (see figure 3.2).

Beach systems act as wave buffers and protect the shoreline from erosion. Most beach systems are developed for coastal tourism but they are also used for landing of fishing crafts and as drying area for fishing gear. Impacts from human activities like the clearing of beach woodlands for settlements and recreational activities or mining of sand result in a change in the capacity of the beaches to act as buffers and it also increases solid wastes in coastal areas.

Figure 3.2 The resource units of the coastal zone in the Philippines



Source: One Ocean Coastal Resource Management Project 2004

The importance of mangroves, salt-tolerant trees, is that: they provide shelter, breeding and nursery grounds for fish and other marine organisms; they protect the coastline by acting as sediment traps thereby preventing erosion; they export nutrients to other ecosystems (coral reefs and seagrasses). Human impacts are, among many, the conversion of mangrove areas into fishponds and the cutting of mangroves for human settlement, industries and coastal tourism development. Brackish wetlands are characterised by the predominance of the *nipa* palm. These areas are sometimes converted into reclamation areas for housing, or they are used for the development of fishponds or as a garbage dump place. This has resulted in a decrease in fishery productivity and loss of wildlife. Seagrasses are marine plants and important sources of food for fishes, sea turtles and other marine organisms. They also serve as nursery and breeding grounds. Reclamation and coastal development causes great damage to seagrass communities, also typhoons, tidal waves and destructive fishing methods and practices are a menace. Corals are colonial marine animals composed of thousands of little organisms called polyps. These polyps secrete calcium carbonate and as coral skeleton they form a reef. Most of the 500 species of corals in the world can be found in the Philippines. Corals provide food and shelter for fishes and other marine organisms. They act as wave breakers and thus protect the coastline and they provide income from ecotourism. Destructive fishing techniques, extraction of coral limestone and sands for building materials are examples of human impacts that destroy coral reefs. Coastal ecosystems are under severe stress from the combined impact of human overexploitation, habitat destruction, pollution and natural disasters like typhoons (One Ocean 2004).

The contribution of fisheries to the GDP of the Philippines in 2002 was 4%. The total Philippines fish production in 2002 was 3,369,306 metric tons (MT) this is a 6.4% increase compared to the previous year. One metric ton equals 1000 kilograms. The Philippines ranked 11th among the fish producing countries in the world in the year 2000 when total production was 2.94 million MT, which is 2.1% of total the world production of 141.78 million MT in 2000 (DA-BFAR 2002). Forty percent (40%) of the total fish production came from the aquaculture sector, 31% from the commercial and 29% from the municipal sector. The fishing industry provides employment to around 1 million people, which is about 5% of the country's labour force. The number of jobs in the different sectors is shown in the following table (table 3.2).

Table 3.2 Employment in fishery sector 2002, Philippines

1. Aquaculture	258,480 persons
2. Municipal fisheries	675,677 persons
3. Commercial fisheries	56,715 persons
Total	990,872 persons

Source: DA-BFAR 2002

Others also find indirect employment in the fishery sector, like additional employment in ancillary activities such as fish processing, marketing and boat building. The number of persons involved in municipal fishing is by far the highest as can be concluded from this table. The total fish production in MT can be found in the next table (table 3.3).

Table 3.3 *Total fish production by sector 2002, Philippines*

Sector	Quantity (000 MT)	%	Value in billion pesos (% of total)
1. Aquaculture	1,338.2	39.7	35.4 (31.3%)
2. Municipal fisheries	988.9	29.4	38.2 (33.7%)
3. Commercial fisheries	1,042.2	30.9	39.7 (35.0%)
Total	3,369.3	100	113.2 (100%)

Source: DA-BFAR 2002

The total fish production by sector of Region VI, Western Visayas (where this research took place) is for the commercial, the municipal and the aquaculture sector 117,924; 127,406 (of which marine: 125,913; inland: 1,493); 104,598 MT respectively. The total fish production for Region VI was 349,928 MT in 2002, which is about 10% of the total fish production of the Philippines. The Autonomous Region for Muslim Mindanao (ARMM) is the region that contributes the highest share (16%) to the total fish production. Seaweed is the major commodity cultured there (DA-BFAR 2002).

Of the marine municipal fish catch, which makes up the largest part of the municipal fish caught, the top three is tuna, big-eyed scad and roundscad. Tuna is also one of the major fishery export products of the Philippines. Besides tuna (72,296 MT), also shrimps/prawn (16,919 MT), seaweeds (40,258 MT), octopus (11,821) and crabs (5,296) belong to the major export products. The top three export counties are Japan, the United States of America and Hong Kong (DA-BFAR 2002).

Table 3.4 *Fishery exports and imports*

	2001	2002
Fishery exports (MT)	159,069	182,032
Fishery imports (MT)	179,994	218,585
Trade balance (MT)	20,925	36,553

Source: DA-BFAR 2002

In 2002 there was a trade surplus of 409 million dollars; an increase of 6.8% from the previous year. Total fishery exports amounted up to 506 million dollars 182,032 (metric tons), imports up to 97 million dollar (218,585 metric tons of fish). Major imports are chilled/frozen fish and fish meal (DA-BFAR 2002).

The socioeconomic situation of fishers is still basically the same as thirty years ago. In 1996 80% of fisherfolk households were living below the national poverty line according to socioeconomic reports for the Fishery Sector Program (FSP). In 1985 annual net household income (including non-fishing activities) of municipal fishers was estimated at P5.000 (DENR et al 2001). The average household income for municipal fishers nowadays is not clear.

There are many complex problems associated with fisheries in the Philippines and there is no easy solution. Primarily the problems are the open access nature of the sector; too much fishing effort due to population growth and migration to coastal areas and the use of more effective gear; many people are dependent on fishing because of a lack of employment opportunities outside the fishery sector caused by slow economic developments in coastal areas; and a lack of integrated planning and management of coastal resources (DENR et al 2001). Poor management threatens fisheries resources, which contribute to income, employment, foreign exchange earnings and nutrition. Philippine coastal fisheries have been characterized by declining fish catch, competitive exploitation, conflicts between gear groups, resource depletion, and enforcement problems. The lack of implementation of fisheries management plans and a lack of enforcement with existing laws, rules and regulations is probably the biggest problem in the Philippine fishery sector. As already mentioned in the previous paragraph decentralization has taken place to deal with these problems. In the Local Government Code (LGC), local government units (LGU) and local communities are given certain

privileges and rights. For example fisherfolk and their organisations are given privileges in municipal waters like gathering fry (Pomeroy and Pido 1995).

Through the LGC and other initiatives the Philippine government promotes CBRM to conserve coastal resources. The Philippines has the highest number of experiences in community-based coastal resource management (CBCRM) in the world. They are likely to have gathered a lot of knowledge in this field of work but because of a deficiency in documentation and evaluation of projects, this important source of information is missing. This can partly be explained by the fact that the number of completed and successful CBCRM projects is quite small compared with other community-based management activities (Pomeroy and Carlos 1997). Pomeroy and Carlos attempt to describe and analyze the various programs and projects over time and space that have taken place in the period of 1984-1994 in the Philippines. They conclude that a total number of 43 CBCRM projects and programs have taken place during this period. In 105 project units or sites these CBCRM programs were implemented throughout 12 regions of the Philippines. Policy implications drawn from this study that may be relevant for other sites:

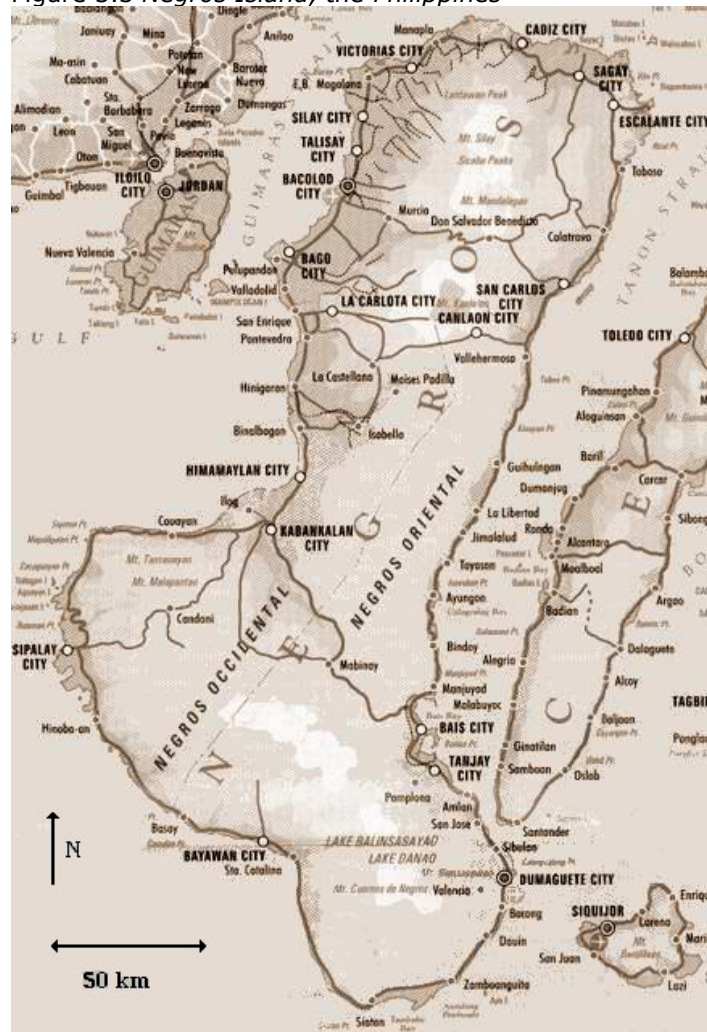
- 1) *Context of CBCRM policy.* CBCRM projects are based on years of experience also in CBM in other resource systems such as irrigation and forestry. Fishers are encouraged to fish less and are provided with alternative livelihoods.
- 2) *The role of governments.* The Philippine government played a big role in the development of CBCRM. For example through the LGC it provided the legislative framework for decentralization. This illustrates the will of the Philippine government to sustain coastal resources. Government support through legislation, funding and enforcement is crucial for the success of CBCRM.
- 3) *The role of NGOs.* NGOs and people organizations (POs) have played a leading role in implementation of CBCRM initiatives.
- 4) *Successful implementation of CBCRM.* The review of Pomeroy and Carlos showed a low success rate for CBCRM projects and programs. CBCRM will not work in every community; it requires good staff and a community that is willing to manage their own lives and resources.
- 5) *Participation of project beneficiaries.* The early and continuous participation of project beneficiaries in the planning and implementation process is crucial for success and sustainability of a project. Involvement will also lead to better understanding of problems by resource users themselves.
- 6) *Institutional collaboration and co-management.* Cooperation between different actors like POs, NGOs, governments and academics has many advantages like a more holistic and integrated approach which takes various factors into account (Pomeroy and Carlos 1997).

3.2 Negros

Negros, part of the island group the Visayas, occupies an area of 12,748 square kilometers and that makes it the fourth largest island of the Philippines (after Luzon, Mindanao and Samar). In 1890 the island was politically split in a western and eastern part: Negros Occidental and Negros Oriental (see figure 3.2). The provinces are also separated by natural boundaries; the mountains. There is also a division in the type of languages spoken in west and east; Ilongo or Hiligaynon and Cebuano. There are two inactive volcanoes on the island: Silay (1534 m) and Mandalagan (1880m) and one active volcano: Kanlaon (2465m). Kanlaon is also the highest mountain in the Visayas. There are two pronounced seasons the wet (from June to November) and the dry (from December to May). The average temperature is about 26° C (The Official website of the Province of Negros Occidental 2004).

The island is famous for its sugarcane (“sugarbowl of the Philippines”), which was introduced during the Spanish period, and many people still find employment in the sugarcane industry. This industry did not only bring wealth to the island but is also responsible for the enormous differences between the landowners and the landless; the rich and the poor. There is no island in the Philippine archipelago where the differences in social classes are as obvious as on Negros island. After the prices of sugarcane dropped, first caused by the introduction of sugar beets in Europe and America and later by the introduction of artificial sweeteners, the island had to find other sources of living. Many people became very poor in this period and that is the reason that Negros became a stronghold for the New Peoples Army (NPA), the armed wing of the Communist party of the Philippines.

Figure 3.3 *Negros Island, the Philippines*



Source: Camperspoint 2004

Negros Occidental is one of the five provinces of Western Visayas, or Region VI. It occupies the western part of Negros island and is bounded to the north by the Visayan Sea, east by Negros Oriental, west by the Strait of Guimaras and south by the Sulu Sea. It has a total land area of 7,926 square kilometers and consists of 13 cities and 19 municipalities. Bacolod City is the capital since 1849, after Ilog, the first capital in 1734 and Himamaylan. Cauayan is biggest municipality of Negros Occidental with a total land area of 519 square kilometers. The most recent population census of 2000 estimated the total population to be 2.6 million and this number is still growing with an annual growth rate of 1.13%. The average household size is 5.32 and slightly increased compared to 5 years earlier (5.2). Average family income in the year 2000 was estimated at P73,923

per year, which is an increase of 9.25% since 1997 (P67,665). Most people speak Ilonggo or Hiligaynon (78%) others Cebuano (22%) and Tagalog (0.18%) and further several other dialects are spoken (The Official website of the Province of Negros Occidental 2004).

Fishery is a major source of income for the province; a great portion of the population depends on fishing for their livelihood. In 1999 the total fish production was 92,874 MT in 2001 this increased to 99,083 (see table 3.5). Again the numbers in table should be interpreted carefully, because the division between commercial and municipal fishers is not sharp. In 1999, according to a report of the Provincial Agriculturist Office, 7,349.07 MT of fish products with a total value of P536 million were shipped to Manila and other parts of the country. Cadiz City responsible for 32% of the total catch with a value of P166 million, is the top producer of the province. Squid is the top fishery product; 28% of the products with a value of P149,473.80. Shrimp and bangus fry are also important revenues, with a total value of P150 million and P87 million respectively.

Table 3.5 Fish production (in MT) by type of production

Type of production	2000	2001
Commercial	31,742	35,337
Municipal	51,474	46,952
Aquaculture	22,336	16,794
Total	105,552	99,083

Source : the official website of the Province of Negros Occidental 2004

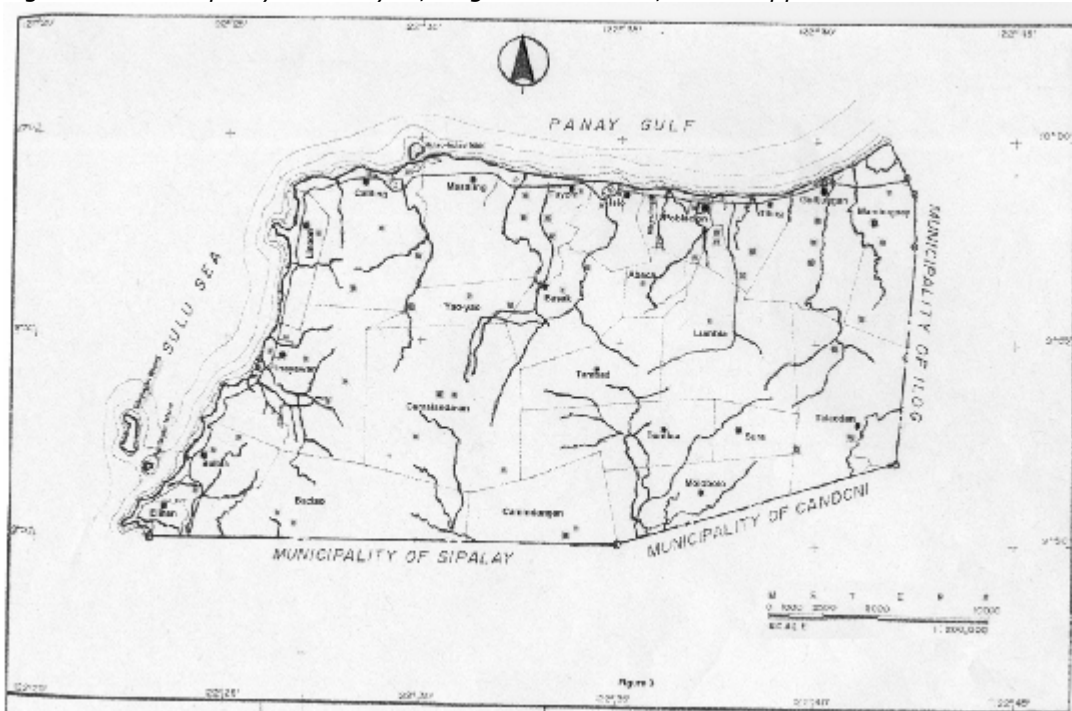
Other industries in Negros Occidental are aquaculture (cultured tilapia showed an increase of 38% from 1998 (91.0 MT)to 1999 (125.6 MT)) , agribusiness, steel fabrication and beer breweries. Besides the sugarcane industry a lot of people find employment in these other industries and in mining and (illegal) logging. Unemployment and underemployment are big problems on the island especially in the agricultural sector which is dependent on the seasonal cycle of sugarcane planting and harvesting (The Official website of the Province of Negros Occidental 2004).

3.3 Cauayan

Don Vicente Paulo Decena, a merchant from Cebu, formally founded the *pueblo* of Cauayan in 1822. The name Cauayan derives from the word "kawayan", which means bamboo in the local dialect. The area used to be thickly forested with bamboo, but there is not much left of the old features. Because of widespread illegal logging major gaps in the forest cover exist nowadays, with the well known risks of erosion and land degradation as a consequence. The degradation of forests began under the American colonial rule with the entry of a lumber company. Illegal and destructive fishing practices such as trawl fishing and the use of dynamite and cyanide was estimated to have begun around the 1970s. Fishing in municipal waters with big commercial vessels has intensified from the late 1980s up to present.

From 1968, Cauayan was ruled by the Chua clan. The Chuas have managed to maintain their power by having the political support of past national governments, landlords and big business. They were aligned with Marcos until the 1991 elections after that they aligned themselves with the Cojuangco clan. Other names of powerful clans in the municipality are Montilla, Tumpag, Starke, Perez, Lacson, Tabujara, Mabayag, Sola, Nervez and Olac. The current major is Jerry Tabujara. For a while, the municipality was the breeding ground of the communist NPA, one of the responses of the people against the local elites. In the 1990s, the NPA was weakened by internal ideological splits and heightened army operations; "Operation Thunderbolt" (Agoncillo 2000).

Figure 3.4 *Municipality of Cauayan, Negros Occidental, the Philippines*

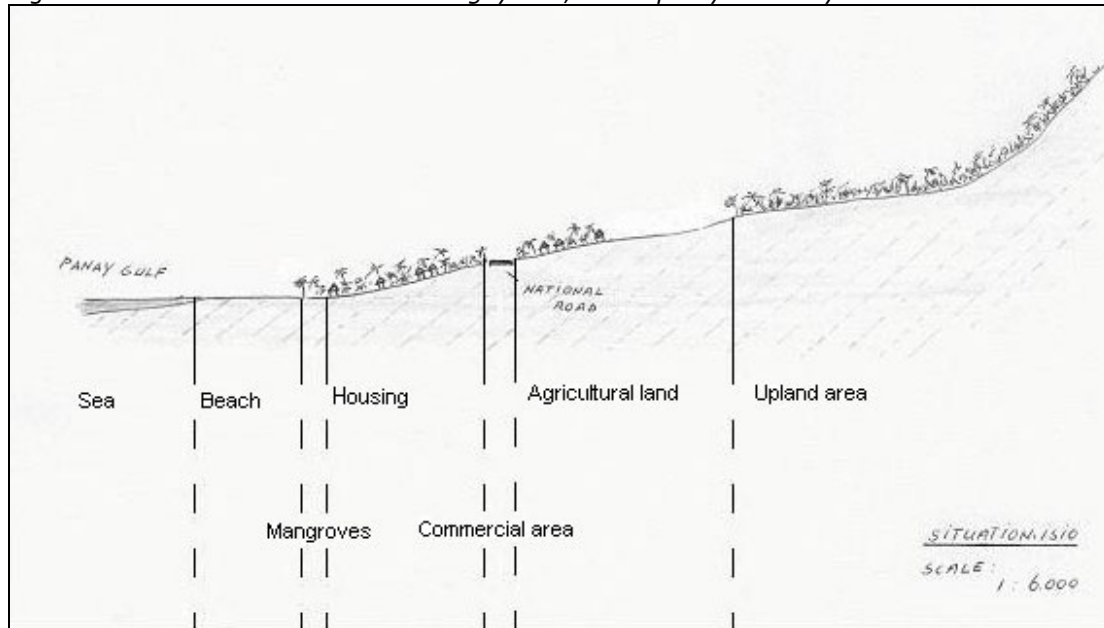


Source: Municipal Planning and Development Office 2000

The municipality of Cauayan is located on the southern portion of Negros Occidental, 120 kilometers, or a 3 hour bus drive, from the provincial capital Bacolod. It is bounded on the east by the municipality of Ilog, on the south by the municipality of Candoni, on the west by Sipalay and on the north by the Panay Gulf (see figure 3.4). The total land area is 51,994 hectares, as was already mentioned. The municipality consists of 25 barangays of which 13 are situated in the coastal areas and 12 in the uplands. The municipality is predominantly agricultural and a lot of people find employment in this sector. Cauayan has approximately 92,684 inhabitants in 2004 according to the data of the Health Office in Poblacion. Most lots in this municipality are not owned privately but the houses are usually built and owned by the people themselves. The highway is very important for the access to services, for sale of products and for employment and the accessibility to other cities. Many shops are located along the highway so they can be reached easily. Since 1998 the highway is paved and this makes transportation a lot easier. Most barangay roads are unpaved. The municipality can be reached by buses and jeeps operating on the route: Bacolod-Cauayan-Sipalay-Hinoba-an. There are terminals in Bacolod and Kabankalan City. There are 525 tricycles operating in the municipality which provide for short distance travel. As to telephone services, the municipality has no land line connections.

There are two public calling offices, Philippine Long Distance Telephone Office (PLDT-PCO) and Bayan Telephone Services. The Negros Occidental Electric Cooperative (NOCECO), provides the major source of power in Cauayan, but only covers 6 of the 25 barangays. The demand for power however, is increasing with a growing population. There is a deficiency of piped potable water for residential and commercial use. Most people are reliant on point sources of water such as wells, springs and rain collectors. There are 62 elementary schools (of which 31 offer complete elementary education), 3 barangay high schools and 3 private secondary schools. In 1999 the Negros Occidental State College of Agriculture (NESCA) was opened (Municipality of Cauayan 2004). The main concern of the Local Government Unit (LGU) is the provision of adequate health. At present, the Rural Health Unit is supported by 24 barangay health stations and 22 sub-stations, which provide in medical consultation, immunization, family planning etc. (Municipality of Cauayan 2004).

Figure 3.5 Crosssection situation barangay Isio, Municipality of Cauayan



3.4 The three research areas

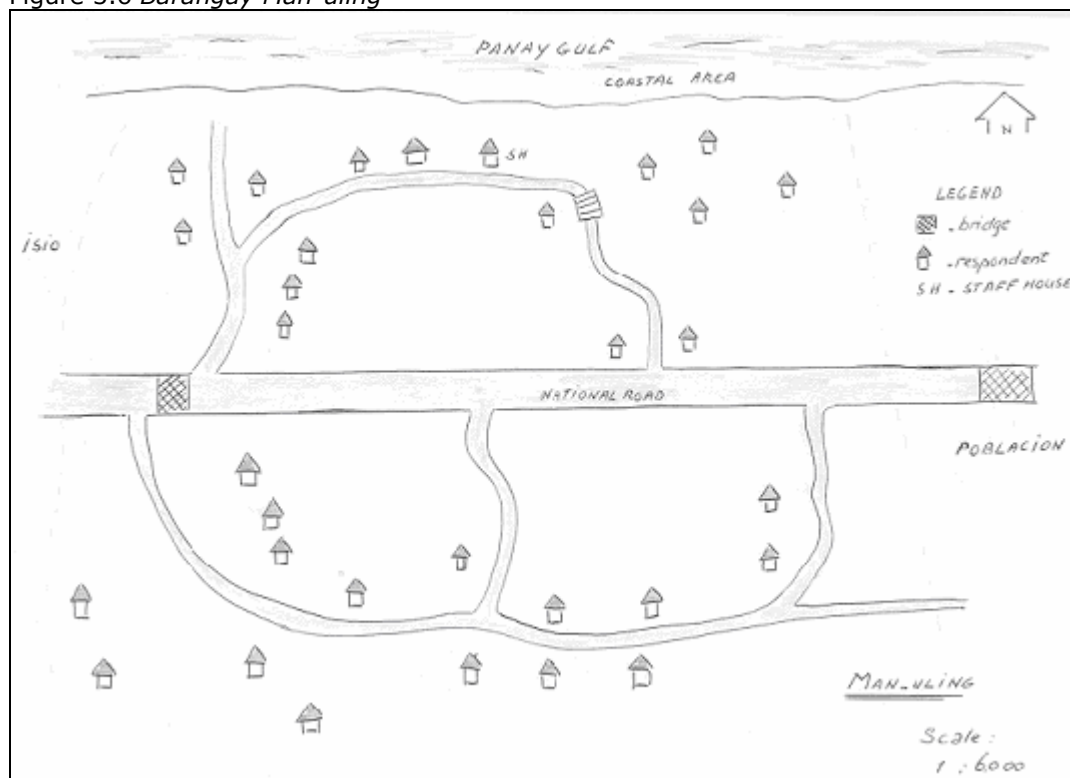
The geographical background of the three survey areas, which follows next, is meant as a first introduction to the research area, general topics like the number of population and households and geographic features are given.

Man-uling

There is no official data on the history of this barangay, but there exists a local story. Before the Spaniards came, the place was surrounded by giant trees. In order to have a better clearing, one day the local people decide to burn the trees and gather the remains of fire. When the Spaniards arrive they notice that the people gather the charcoal, which they call "oling". So they called the place "Man-oling", which means a place where people gather charcoal (Barangay profile). At the north the barangay is bounded by the seashore, in the south by barangay Abaca, in the east by barangay Poblacion and in the west it is bounded by barangay Isio. The total population according to the data of the health center is 2,592 in 2002. The total number of households is 497. According to the barangay profile of the Municipal Hall, 20% of the area is mountainous, 10% hilly and the remaining 70% is plain. Man-uling is separated by the national road in a coastal and mountainside part.

Some of the lowland is used for rice and sugarcane cultivation and the mountain slopes are primarily used for corn. Crops like vegetables and casave are mainly grown by women. Crops that are mainly grown by men are rice, corn and coconut. Because of illegal logging -charcoal offers an additional livelihood and a source for fuel for some of the farmers- erosion is a common feature. Unfortunately most of the farmers can not afford to buy fertilizers on a frequent base to improve their soil conditions so only marginal land uses are possible (Boelens 2002). Some of the fishermen live high in the uplands and they have to wake up very early if they want to go fishing in the morning because they have to walk all the way down in the dark (sometimes 4 hours!). The area is sparsely populated, both in the upland and in the coastal part, and the houses are often solitary.

Figure 3.6 *Barangay Man-uling*



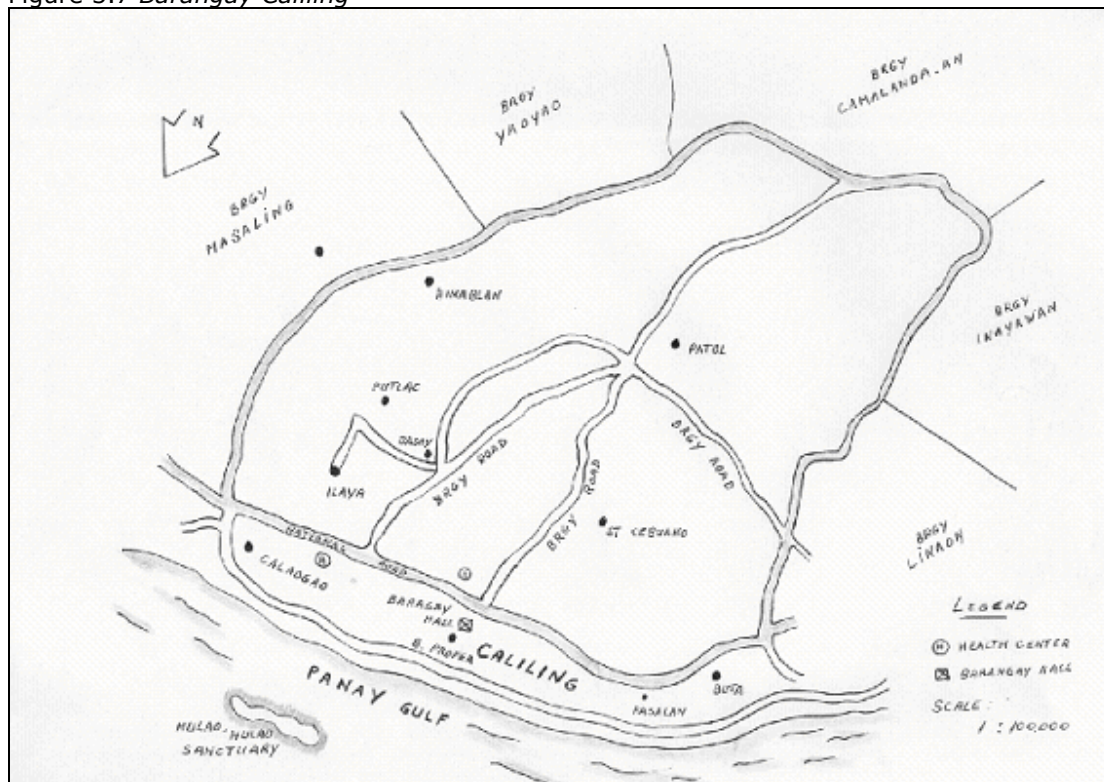
There is an elementary school, a public market, a health center and some sari-sari stores. Some household do not have electricity so these households are reliant on the use of batteries for their radio for example. Unfortunately some of the household can not afford to buy batteries and therefore have no access to any source of information. According to the Integrated Rural Accessibility Planning III of the International Labour Organization (ILO-IRAP 2002), 70% of the households is engaged in farming and 20% in fishing; the relative importance of fishing in this barangay is therefore quite low. This might indicate that fishing is an activity of the last resort; there are other possibilities available for the population in Man-uling, like agriculture, so the number of fishers is still relatively small. The main problems perceived by the people are the lack of job opportunities (mentioned by both women and men), lack of agricultural inputs because of a lack of capital in farming purposes (mentioned by men) and the lack of classrooms in the elementary school (mentioned by women) (IRAP III 2000).

Caliling

The name for this barangay derives from the word "liling", the name of the only daughter of the first couple that lived in this place. It has an approximate land area of 8,840 hectares. The number of inhabitants is 4,600 in 2004 according to the data of the barangay profile; the number of households was 881. It is situated 17 kilometers from the town proper, Poblacion. It is mountainous and limestones are abundant in the area. The plains are planted with rice and corn and other agricultural products like banana and coconut trees. The swampy area near the seashore is used as a nipa plantation and also large fishponds, to grow the bangus fry, are located in this area. Most people in the barangay are dependent upon agriculture, fishing and mining (limestone). Also in this barangay the relative importance of fishing is probably less than that of agriculture, there is no official data on the number of people employed in fishing and agriculture but there is 2,304 hectares of land used for agriculture.

There are two public markets, three health clinics, two day care centers, two elementary schools, one primary school and one high school. And of course a lot of sari-sari stores, where people buy their daily basic needs. There are some tourism developments in this area; because of the nice beaches some foreigners buy land to develop beach resorts to attract tourists. For the fisherfolk this is a bad development, although some critics say it will provide employment. The fisherfolk have to be replaced from their houses along the beach, while their position along the coast provides them with much advantage. When they have to move inwards it takes them much more time to get ready to go out fishing. The level of trust in this community towards strangers and foreigners was notable less because of these tourism developments. Unlike in barangay Man-uling, Caliling had a very active barangay council. Most of the *kagawads* (barangay officials) were really compassionate towards the wellbeing of their barangay, especially to stop illegal fishing at the coral island of Hulao Hulao.

Figure 3.7 *Barangay Caliling*



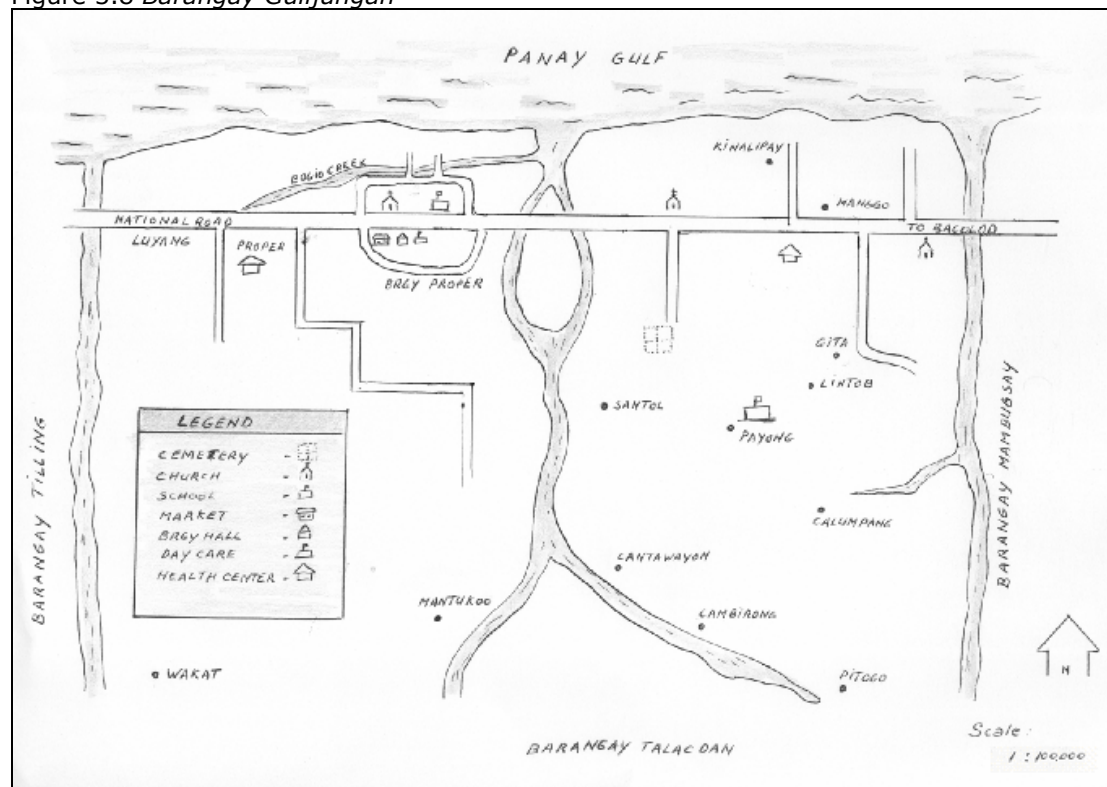
Guiljungan

This barangay is, with a total population of 10,536, one of the biggest of the municipality. It has a land area of 23,460 hectares. It is only 7 kilometers away from the town proper and 15 kilometers from Kabankalan City. It is located between the sea and the mountains. Fishing and farming are the main sources of livelihood for the people. Main agricultural products are rice, corn, sugarcane and coconut trees. It has a very high population density which is noticeable in especially the coastal part of the barangay, where the houses are built very close to each other.

The land that is free from houses is used for growing crops. The biggest problem the fishermen are faced with is the illegal encroachment of large fishing vessels. Strangely the workers and the owners of these large trawlers are themselves mostly living in Guiljungan. Small scale fishers and fishworkers on large-scale fishing vessels are living side by side in this barangay. Guiljungan has more commercial fishers than the other two barangays which is visible through the greater amount of motorized boats there (on average these boats are also bigger than the sailboats and paddleboats used by the

small scale fishers). The fishers involved in larger scale fishing earn much more money than the small scale fishers; the difference in welfare is very noticeable for example their houses are built of stone instead of the usual wood, bamboo and *nipa*. The importance of fishing is obvious; people are busy disentangling lines and hooks, repairing nets and cleaning and drying fish in the sun. In this barangay there are conflicts between large-scale and small-scale fishers but among the small-scale fishers there is also major competition for the finite resource; it is very crowded at the sea shore with boats and houses everywhere. According to the barangay profile that dates back to 1999, there are many pronounced problems which trigger the socio-economic condition of the barangay. Bad roads, inadequate medical supplies, lack of livelihood programs, poor health and sanitation, lack of health services in remote areas, poor garbage and waste disposal, poor drainage system are some of the problems mentioned in the profile.

Figure 3.8 *Barangay Guiljungan*



Conclusions

As became clear from the chapter 2, poverty is not just related to overexploitation of the resources. This is also the case in the Philippine fishery sector, where many different problem identified by Béné can be recognized. The open access nature of the sector and population pressure lead to problems in coastal areas in the Philippines. There is lack of employment outside the fishery sector as well. Together these problems match the view "they are poor because they are fishermen". For many the fishery sector is also an activity of the last resort; in 1996 80% lived below the poverty line. The implementation of fisheries rules and regulations is problematic, therefore the Philippine government decided to restructure the fishery sector; a decentralization to the local level took place. Communities and local governments became responsible to manage fishery resources in a sustainable way. This is the shift identified in the chapter 2 towards co-management and community-based management. The number of CBCRM project and programs shows the organizational capacity of Filipinos, it seems that there is a considerable amount of social capital present in Philippine society.

Fishing on provincial level is quite important; in 2001 it had a total fish production of 99,048 MT. The relative importance of fishing on the local level differs between the three barangays. In Man-uling the importance of fishing is quite low. Because of the soil condition in this barangay the inhabitants have access to diverse resources. There are many farmers that fish as an additional livelihood and fishers that farm. In Caliling the growing of fish in fishponds is apparent; they occupy large areas in the coastal area of this barangay. Agricultural activities are also abundant, because of the good soil conditions. In Guiljungan the population pressure is much bigger than in the other two barangays. There are many people involved in fishing; small-scale as well as large-scale. It seems that the open access nature of fishing in this barangay causes problems. The level of trust and the feeling of safety seemed also less among the respondents this might be related to the presence of both small-scale and large-scale fishers and the illegal fishing practices of the last group.

4. Thesis review

This chapter summarises data gathered by earlier performed research. First a characterisation of fisheries in Cauayan is given. Then social relations, institution and organizations in Cauayan will be examined as factors mediating the access to different assets. Finally fisheries management arrangements in Cauayan and outside threats to the fisherfolk are examined.

4.1 Characteristics fisheries in Cauayan

The research performed by Anna Boelens (2002) took place in barangays Guiljungan (sitio Luyang), Poblacion (sitio Tabuk-Suba) and in Man-uling. The research performed by Ard Crebas (1998) took place in the barangays Isio, Guiljungan and Elihan. The research of Daniel Agoncillo (2000) was directed to the whole municipality of Cauayan and the fisherfolk organizations associated with the fisherfolk federation *Kasamaka*. Agoncillo performed interviews in Poblacion (Tabuk-Suba) and Elihan (sitio Sabang), focus group discussions with leaders and members of fisherfolk organizations were held in Isio (sitio Talangnan) and in barangay Tiling. He also held interviews with several key informants in Bacolod. First assets like house, boat and gear of the fisherfolk will be described, and then the amount of catch and the distribution and processing of the fish will be examined. Next, aspects like income, the level of education and skills are reviewed. Subsequently additional activities and diversification of fisherfolk households will be discussed.

Physical assets

Most houses in Cauayan are built of light materials: earth or bamboo floor, walls of bamboo, roof from "*nipa*" (palm leaves) or "*cogon*" grass. When there is new money available, more firm materials are used: the floor is made of cement; the roof of galvanised iron. Most people build their own house and therefore own the house. Very often the lots are owned by the government or by large landowners. This causes uncertainty among the population because when the government or the landowner decides to change the destination of a piece of land, fishers are forced to move. In Guiljungan the fisherfolk organization GUISFA tries to purchase land for their members to assure housing for their members. Besides their houses, people hardly own any other assets, of course there are exceptions; the number of assets is directly related to the level of income and some people are relatively rich compared to the average fishing household. Usually the first asset people purchase when they earn money is a radio; later on they often buy a television and a stereo. There are hardly any households which own a refrigerator, a gas stove or a fan (Boelens 2002).

Not all fisherfolk own a boat. In most cases people borrow someone else's boat in exchange for a share of the catch (about 1/4 of the catch is for the owner). According to the data of Boelens (2002), 37% of the households in Guiljungan own a boat, in Tabuk-Suba this was 47% and in Man-uling 63%. A minority of these boats is motorized. In Guiljungan 17% from the boats owned is motorized, in Tabuk-Suba 38% owns a motorized boat, in Man-uling this number is only 5%. Most fishers can not afford the purchase of a motorized boat and also the daily operation price, the gasoline, is an extra burden. For the boats that are non-motorized, they either use paddle or sail, nevertheless with paddle it takes much more time and effort to get in the right position for fishing, approximately 7 kilometres from the shore. The wooden boats, called *bancas*, are usually very small and two bamboo poles are attached to the sides to keep the balance. In barangay Man-uling the average boat is quite small and the somewhat bigger boats, trawlers, are rare. In barangay Guiljungan there are quite a lot of big trawlers lining up the beach but smaller *bancas* are used by the fisherfolk as well.

Photo 4.1 *Small bancas*



In Caliling there are fewer boats on the beach compared to the other two barangays. Other equipment is used here which is less common in Man-uling and Guiljungan; a construction, called push net, to catch bangus fry (see figure 4.3 in appendix and photo 4.2). The fishermen, often women, stay in the shallow water on the beach side and walk through the water with this push net, the fry, with sizes from 10 to 25 mm, are caught in a net inside the construction and they are shifted out of the water using a bucket. Besides a boat, most fisherfolk also use other gear. The most common gear used is a hook and line; this is the simplest and lowest in maintenance cost. They also use nets but these are very valuable and have a high price and high maintenance costs. The most common net is a very long one with on each end a hook that has to be disentangled after every fishing trip.

Photo 4.2 *Push net*



People from other municipalities invade the fishing grounds of the municipality of Cauayan. The situation in Caliling for example is much better than in the neighbouring Sipalay because there are many different species of corals which are well protected. In Cauayan the fishing with compressors (see figure 4.1 in appendix) is prohibited by law but in Sipalay this is still allowed. Between the barangays reciprocal access takes place as well. There is no exclusive territoriality.

Figures 4.1 to 4.3 in the appendix show the different kinds of gear (legal and illegal) used in the Philippines to catch fish, most of these methods are used in Cauayan, fishing with compressors, spears and blast fishing are all prohibited. A distinction is made between active and passive gear. Active gear is characterized by the Municipal Ordinance as: "gear movement, and/or pursuit of the target species by towing, lifting and pushing the gears, surrounding, covering, dredging, pumping and scaring the target species to impoundment such as but not limited to trawl, purse seines, Danish seines, bag nets, 'paaling' and 'hulbot-hulbot'" (Republic of the Philippines 2003). Active gear is restricted in some areas such as in municipal waters because it is damaging to the natural habitat of the fish. Passive gear is characterized by: "the absence of gear movement and/or of the pursuit of the target species such as but not limited to hook

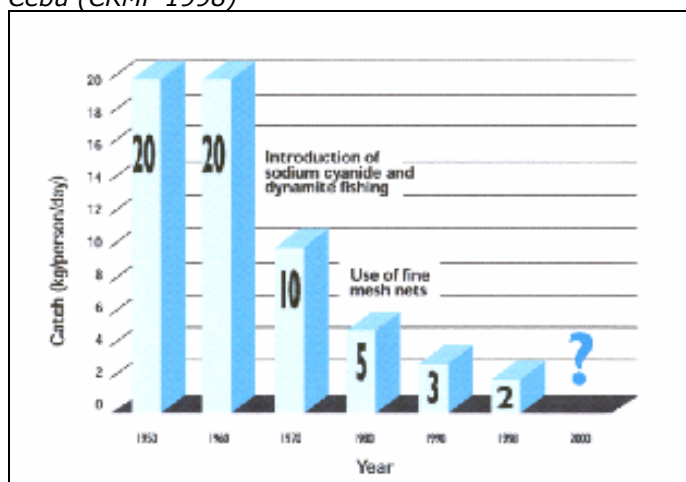
and line, fish pots, traps and gill nets across the path of the fish” (Republic of the Philippines 2003). Passive gear is allowed in municipal waters provided that the use is not damaging to the natural habitats.

Photo 4.3 Man repairing net



The amount of fish caught fluctuates among others with the season, *habagat* the peak season and *amihan*, the lean season for fishing when there are strong winds that inhibit the fisherfolk to go out on the sea. Usually 1 kilo of the catch is reserved for the household consumption; the rest is sold or dried (often for future consumption of the family). The sharp distinction between subsistence and commercially oriented fisherfolk is dubious as already mentioned in the first chapter. If the catch is just enough for the household a fisherman is subsistent, but when the catch is beyond the household need the fishermen will probably decide to sell part of catch and he becomes a commercial fisherman. The average fish catch for the fishermen in Guiljungan in 2002 was approximately 4.4 kilos and in Man-uling the average fish catch was 3.8 kilos (Boelens 2002). Besides the seasonal variety of the catch volume, most fisherfolk indicate a decline in catch in the last 10 years. When asked what they think causes this decline, illegal fishing is most often replied. Other answers given are the weather circumstances (the El Niño phenomenon which causes drought and strong winds), the increasing number of fishermen (the new, starting ones), pollution, few fish in the sea and apprehension by the *bantay dagat* (the coast patrol). Figure 4.4 shows the enormous decline in fish catch and the causes for it for municipal fishers in Cebu, a nearby island. Local varieties of fish caught in the Panay Gulf are for example: “*bangus fry*” (milkfish), “*kuyog*”, “*sugpo fry*”, “*lobo-lobo*” and “*bubog-bunog*”; but also crabs, shrimp and squid are caught here.

Figure 4.4 Trend in estimated daily fish catch per municipal fisher for Olango Island, Cebu (CRMP 1998)



Source: DENR et al 2001

In Cauayan there are large-scale as well as small-scale fishers. Chapter 1 already pointed to conflicts that might arise between them and the diffuse division between the two sectors. In the Philippines however the division is quite straight: small-scale fishers have boats of less than 3 GT, large-scale fishers of more than 3 GT.

Photo 4.4 Trawler



Photo 4.5 Big bancas



Especially in Guiljungan the presence of large-scale fishers leads to a tense situation; they often fish illegally within the municipal boundaries, taking the fish at the expense of the small-scale fisherfolk. Illegal fishing practices are: fishing with vessels of more than 3 GT in municipal waters; use of active gear in municipal waters; and the use of fine mesh nets. Once the illegal fishers are apprehended by the *bantay dagat*, they get arrested and are fined. Unfortunately the penalties are quite low and the illegal fishers can easily afford to pay this fine. The illegal fishers of course are not happy with the *bantay dagat* operations, while for the fisherfolk their activities are very important. The illegal fisherfolk are organized in an organization *Maguiting*, and this organization even pays the fines they receive. Some fisherfolk organizations became organized in a federation to tackle problems collectively (see the next paragraph).

Distribution and processing

When the fisherfolk return from the sea, most of them are tired and glad they can sell (part of) their catch to a fish vendor or *panting*, which are mostly women and children waiting on the beach. For the fisherfolk this is easy and accessible and also efficient; they are often too tired to look for other marketing channels. The local fishing industry is controlled by big fish traders (*komprador*), small middlemen (*manugpanting*) and the *suki-an* or the owners of dried fish enterprises who together control the financing, marketing and credit aspects of the business (Agoncillo 2000).

Some fishermen are in need of direct money or they have borrowed food or gears from a *panting* and are obliged to sell their catch to this vendor. Where the distance between the coast and the wet market is far, usually a large number of small middlemen exist. The *komprador* often brings down the price of the fishermen's catch by buying it on the basis of what he or she can apparently sell in the market. This control is possible because of a lack of government influence on rules and regulations. This is an example of negative social capital; strong vertical ties based on a relation of dependence.

The high population density in some barangays, like Guiljungan, is also not favourable for the market conditions: many suppliers and few buyers. The big fish are sold by the *kompradors* in the bigger cities like Kabankalan and even Bacolod because there is no market for these fish in Cauayan; they are too expensive, only the small fish are sold at the local market by the *manugpanting*. In Caliling, the fishers that are specialised in catching *bangus fry* or *fingerlings* sell about 100 pieces of fry for 20 pesos. They count them by hand. Some customers, who own a fishpond, buy about 150.000 fingerlings a time.

Photo 4.6 *Fishpond in Caliling*



To break the dependency of fisherfolk on the big fish traders and middlemen and to create more employment possibilities, Cauayan could be turned into a processing area, where fishermen can take their fish directly to the processing area, without the use of middlemen. A possible option might be to create an organization or cooperation that buys and sells fish products and in this way can compete with the unequal *komprador* system. For this development much capital is needed and many skills have to be acquired. At this moment there is no harbour or facility where boats can dock, because coral reefs are abundant in the coastal waters of Cauayan. There are ports in Sipalay and Hinoba-an but this is too far to make Cauayan efficient and cost worthy as a processing area. There is only one cooling facility in Man-uling, but furthermore there is an absence of cold storage and other market support facilities. Most fish processing is done by the fishermen and their families themselves. They cut and clean the fish and put them in salt or dry them in the sun for future consumption or for sale; this is the traditional way of processing.

Seminars on advanced processing methods, post harvest facilities and value adding options are offered to farmer-fisherfolk by the Provincial Agriculturist Office (PAO). Farmers were introduced to the farming of tilapia (fish species). At these seminars the farmer-fishermen are introduced to other ways of earning money with the processing of fish in cans for example and to conserve and minimize fish losses (spoilage), especially a problem faced during the peak season when there is a surplus of fish. The farmer-fisherfolk are made aware that the handling of fish basically starts from the time the fish are caught out of the water. They are taught the three basic rules in handling fresh fish: cleanliness, care and cooling (3 C's). Post harvest actions consist of: harvesting and handling; processing and storage; distribution and marketing of fish.

There are different ways to increase the value of fish products. Some value adding options mentioned at the seminar of the PAO: 1) food coatings/breading/battering; 2) incorporation of herbs or spices; 3) simplifying preparation for end consumers; 4) improve packaging; 5) improve market forms (filets, steaks, split or deboned); 6) fortification of essential elements/ nutrients (carotene, vitamins etc).

The reasons for doing this are: to earn a better income; to improve processing utilisation; to keep in phase with consumer needs; and to provide a variety of products. This seminar was offered to farmers that fish but maybe value adding is also option for the fisherfolk, although they first have to invest before they can reap the benefits of value adding

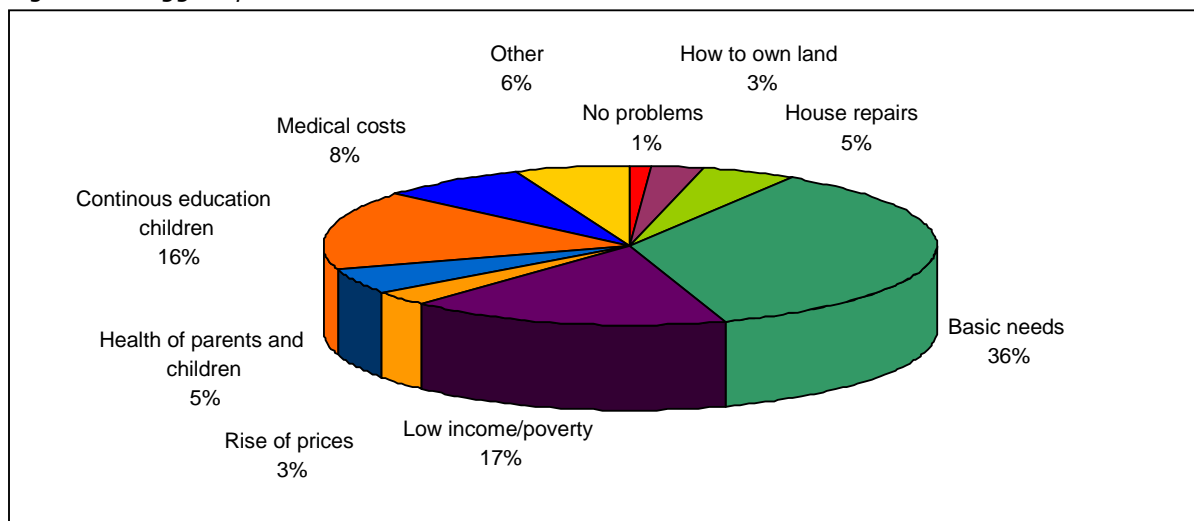
Income

From the research of Crebas it became clear that the fisherfolk are suffering from a deteriorating income. Many replied they did not earn enough money and need much more to cover household expenses. Respondents were asked how they were coping with this deteriorating situation. Some were looking for additional employment inside or

outside Cauayan. Other ways of coping are to change expenses on food (the first thing people choose for to change); save money on hospital and medicine; let children work instead of sending them to school; let the women work outside the house and let the older children take care of the younger. Most money is spent on food, education, medical treatment and clothes. Crebas also asked the households what their three biggest problems were at that time. The biggest problem for the household turns out to be the provision in basic needs; which includes meals, clothing and daily care (shampoo, soap etc) see figure 4.5.

To find out what the importance is of fishing in the livelihood for the fisherfolk households, respondents were asked about their different sources of income. These were related to fishing, farming, construction, carpentry, factory work, commerce, public services and the household. In Elihan and Guiljungan about 40% of the respondents indicated that their income was totally dependent on fishing. In Isio this number was less than 10%, approximately 50% of the respondents even indicated fishing was not part of their income at all. In Isio the average income is much higher than in the other two barangays, this indicates that fishing as a primary source of income is becoming a difficult way to support a household. The majority of the women in Elihan and Guiljungan work household based, while the women in Isio also work in the commercial sector. The commercial function of barangay Isio has led to a diversification of jobs and accessibility of the job market is relatively good here. Guiljungan and Elihan have more difficulty with access to jobs; a possible explanation is the population pressure in the case of Guiljungan and the large distance to other parts of the municipality in the case of Elihan (Crebas 1999).

Figure 4.5 *Biggest problems for the household*



Source: adapted from Crebas 1999

Boelens asked a similar question in her research: "What is the role of small-scale fishery within the households' subsistence- and income strategy?" For 66%, 47% and 31% of the respondents in respectively Guiljungan, Tabuk-Suba and Man-uling, the primary income generating activity in the *habagat* season is fishing. The other respondents expressed that their primary income depended upon another activity. Notable is that in *amihan*, the relative importance of small-scale fishery increases in all barangays (respectively 72%, 50% and 47%) according to the research of Boelens. For Man-uling this can be explained by the fact that *amihan* is also the lean season for farming and the majority of the population consists of farmer-fisherfolk (Boelens 2002).

Another reason that makes it hard to find a job is the low educational level. According to the research of Crebas, the average educational level of the parents in Isio is low (pre-school to grade 6) to medium (1st year- 4th year high school). In Guiljungan and Elihan

the level is low. In Elihan the case is worst this has probably to do with the availability and accessibility of schools. The overall characteristic is that women are higher educated than men, and children get a better education than their parents did.

One of the main objectives of the research of Crebas was to focus on the skills of the fisherfolk in the three survey areas of Cauayan. It became clear that there were few jobs available and people wanted to learn more skills. The skills they already mastered were, of course mostly fishing related, but other skills they possessed were related to farming, commerce, construction, driving, handicrafts and the household. Increasing the skills of the fisherfolk could be one way to improve the situation of the fisherfolk in Cauayan. Crebas suggests this can be done by organising workshops or extra educational programs, but until then there were hardly any government projects from the national level. Since his research in 1999, the fisherfolk became increasingly organised in well working organizations and in the meantime all kinds of diversification projects and seminars have taken place (see the next paragraph).

To summarize, there are several reasons why people are not looking for work outside the fishery sector, even though the deteriorating incomes seems to give reason to do this. First of all skills and job opportunities are limited; there is a lack of alternative employment opportunities outside the fisheries sector and even if there are few jobs available, the fisherfolk often do not master the adequate skills needed for the job. Secondly the educational level is too low to get a job where high education is demanded. Thirdly fishing is a "life style"; even a deteriorating income is no reason for change. What has become clear from the research of Boelens is that households with no or few resources, households which are lower educated and households with the least cash income all generate a major share of their income with fishing. These findings all confirm the concept of fishery as a "last resort" occupation (Boelens 2002).

Financial assets

For fisherfolk in Cauayan access to credit is another very difficult issue because they often do not have any possessions. Negros Women for Tomorrow Foundation and the lending facility of Kasamaka, the fisherfolk federation in Cauayan offer ways to improve access to credit facilities for the poor in Cauayan. Both organizations will be discussed in paragraph 4.2.

In the previous part a general description of fisherfolk in Cauayan is given. Among other different assets of fisherfolk in Cauayan are discussed: their physical capital (house, boat and gear), natural capital (fish stock), human capital (education and skills) and their financial capital. Social capital remained underexposed by the previous research; this asset will be examined in chapter 5.

Activities

As already mentioned above, it becomes more and more difficult to sustain a household with fishing as a primary source of income. In many households therefore a pattern of job diversification is visible. The degree of diversification is among others explained by the household size and the demographic phase of the household. Large households and households with children in all age categories and/or extended households, have a significantly higher degree of employment diversification than other types of households (Boelens 2002). Households with a medium to high level of education have a higher degree of diversification as well. Especially in the lean season people look for additional or alternative employment. Diversification patterns reduce risks but moreover fish stocks get the chance to recover when fishers are pursuing other sources of income; diversification therefore works in a sustainable and conserving way as well (McGoodwin 2001).

Similar as in the livelihood framework of Ellis, the activities can be divided in both natural resource based as well as non-natural resource based. According to the research

of Boelens, most households have two other income generating activities besides fishing. Man-uling has the highest number of side activities, primarily farming (69%) and livestock (84%). In Guiljungan 20% of the respondents have no other activities besides fishing, 51% is involved in farming and 56% in livestock. For Tabuk-Suba these numbers are respectively 50% and 77%. Especially in Man-uling, men engaged in making charcoal by burning trees, to sell the charcoal as an additional income. Additional activities, like agriculture and logging depends on the natural characteristics of the barangays. In chapter 3 it became clear that Man-uling, Caliling and Guiljungan all have good soil conditions for agricultural activities.

Photo 4.7 Agricultural land in Man-uling



Wage labour, a non-natural resource based activity, is done by 50% of the households in Guiljungan, Tabuk-Suba and Man-uling. Most common jobs are construction work or work as a domestic helper in Cauayan, Bacolod, even in Manila or someplace else. In Guiljungan some are crew member on large-scale fishing vessels (Boelens 2002). Some rent a jeepney, a local means of transportation, and try to make as much money as possible. Unfortunately they first have to collect the rent of the jeepney before they start making money. Others hire or buy a tricycle, a motorcycle with a side-car, which is used for transport over short distances. Another additional livelihood for a lot of fishers is a *sari-sari* store. These shops differ in size and composition; some only sell drinks and snacks, others sell anything from shampoo to slippers to snacks. All products are sold in very small quantities, shampoo for only one-time use, oil and vinegar sold in small plastics etc. Women in Caliling sell spaghetti and *pancit* (noodles) in small plastic bags while walking around with their baskets. In Talangnan some women were earning money by doing the laundry for wealthier households, others specialised in manicure. In Man-uling even the elderly women were still making themselves useful by drying the *nipa* leaves and weaving them together with a traditional technique to construct some sort of roofing. Some ultimately decide to migrate to the United States or some other western country to work as a nurse or nanny. These overseas contract workers are very important for the Philippine economy as became clear from chapter 3. The importance of remittances for the fisherfolk in Cauayan is unclear because it is not yet examined.

Let us return to the concept of Béné who explained poverty in fisheries as a combination of factors (see chapter 2). The interpretation "They are poor because they are fishermen" existed of two arguments: the open access nature of fisheries and a lack of alternative employment outside the sector. In Cauayan the fishery sector is also characterized by its open-access nature; everyone can enter this sector with a permit and license. But still skills and experience are needed because it is dangerous to go out on the sea. Access depends on social relations; women for example, because of social relations, may not be able to enter the fishing sector although they may want to. There are many people fishing for the same stock, municipal fishers as well as commercial fishers, and overexploitation of the resources is a big problem in this area. There is also lack of alternative employment outside the fisheries sector; Cauayan is a relatively remote area where employment is rare. So this part of the pillar that explains the

relationship between fisheries and poverty is applicable to Cauayan. The other interpretation "They are fishermen because they are poor" is partly true as well. Béné sees fishing as an activity of the last resort, when all other common pool resources are not accessible anymore. This argument is *partly* true because some respondents explained they started fishing because they had no other skills and they were told fishing and access to the sector is easy; you only need a boat, gear and a license. So this part of the argument is true. However for many fisherfolk it is not an activity of the last resort but their father was a fisherman; their grandfather was a fisherman; so it is in the line of tradition to become a fisherman. They do not see it as having other options; this is what they do, it is their way of living and they do not want to change it, they are happy with it. Therefore the fisherfolk rather look for additional livelihood within the community than to look for different employment outside the sector (for which they often do not have the appropriate skills and education) and outside Cauayan. Young people however are willing to move or migrate but they often do not have the financial means or the proper education.

4.2 Social relations, institutions and organizations

Social relations

In the framework of Ellis (see chapter 2) social relations, consisting of gender, class, age and ethnicity, is a mediating factor in the access to the different assets. Very often in fisheries a distinction is made in the division of labour among both gender and age-class lines. First, this division is related to the practical requirements of certain fishing activities: it is hard work. Second, the division is part of a larger culture of gender and age-class roles (FAO 2001). The primary producers are usually men. The women usually play multiple roles; they are responsible for the household and the children's wellbeing and they are often involved in fish processing, marketing and distribution. The role of boy and girls is also divided along these gender roles; the boys often go out on the sea with the males and the girls are doing the same work as the women in the community. Women in small-scale fishing communities are usually "involved in more numerous, extensive and complex social networks than men" (FAO 2001 chapter 2.8). Men spend much more time away from home and are less involved in community life. The most important economic contribution of women is still in the processing, marketing and distribution of fish, but they increasingly become important as primary producers as well. When women do work as primary producers they usually stay close to home. In some cultures women are not allowed to work in the fishing sector and these households miss out on a valuable and fundamental contribution to the households' food needs (FAO 2001).

The arrangements in labour division between men and women in Cauayan can be found in chapter 5. Some female respondents replied they were not allowed by their husbands to work even though they themselves wanted to work. Their husbands on the other hand wanted their wives to stay at the house and take care of the children and the household. Some of the women were depressed about this situation but felt unable to change this pattern.

Ethnicity and class as mediating factors will not be discussed in this paper, since these issues are considered to play a minor role in Cauayan and were therefore not examined.

Institutions

Formal Institutions

The most important formal rules and regulations for the fisherfolk in Cauayan are "The Philippine Fisheries Code of 1998" and the Municipal Ordinance called the "Basic Fishery Ordinance of Cauayan, Negros Occidental". Both will be discussed here.

The Philippines Fisheries Code of 1998 is "an act providing for the development, management and conservation of the fisheries and aquatic resources, integrating all laws pertinent thereto, and for other purposes". This national fisheries law provides opportunities for community-based initiatives in coastal resource management. Its strengths include its emphasis on the conservation aspects of fisheries management, recognition of the rights and provision of incentives and support for municipal fisherfolk and commercial fishing enterprises, and generally stiffer penalties against illegal fishing (Agoncillo 2001). Unfortunately there are also many weaknesses in the Fisheries Code: commercial fishing in a specific municipal water zone is allowed; some penalties for illegal commercial fishing are too low; and rights and privileges apparently accorded to the municipal fisherfolk are constrained.

Emphasis on conservation is reflected by:

1. The issuing of the number of permits and licenses will be subject to the limits of the maximum sustainable yield (MSY) and total allowable catch (TAC) as determined by studies or evidence (section 7). MSY is the largest average quantity of fish that can be harvested from a fishery resource within a specified period of time on a sustainable basis, under existing environmental conditions. "The Secretary (the Secretary of the Department of Agriculture) may prescribe limitations or quota on the total quantity of fish captured, for a specified period of time and specified area based on the best available evidence (section 8)".
2. Establishment of a closed season. "The Department (Department of Agriculture) shall declare closed seasons and take conservation and rehabilitation measures for rare, threatened and endangered species (section 9 and 11)"
3. Update and maintain a registry of municipal fisherfolk engaged in fishing in the 15 kilometre municipal waters (section 19), for the purpose of limiting entry into the municipal waters and of monitoring fishing activities etc.
4. Limited entry into overfished areas (section 23). The LGU (Local Government Unit) has to limit or prohibit fishery activities if, based on available data or information, a municipal water is overfished or in danger of being overfished.

Recognition of the rights of the municipal fisherfolk are reflected in: the fisherfolk's preferential use of the municipal waters, a zone extending up to 15 kilometres from the coast (section 2-d); the priority of resident municipal fisherfolk over the fishery areas in the municipality (section 21); and in the formation of local FARMCs (Fisheries and Aquatic Resources Management Councils) with seven municipal fisherfolk representatives (section 73 and 75-g).

The FARMCs should be informed by fisherfolk organizations and local NGOs and be assisted by the local government units (LGUs) and other government agencies. LGUs, NGOs, fisherfolk organization and other concerned organizations are consulted before organizing the FARMCs. The National FARMC is usually composed of 15 members: undersecretary of Agriculture; undersecretary of the Interior and Local Government; 5 members representing the fisherfolk and fishworkers; 5 members representing the commercial, aquaculture and processing sectors; 2 academics; and NGO representative involved in fishing (Republic of the Philippines 1998). Its main tasks are aimed at protection, sustainable development and management of fishery and aquatic resources and assist in the formulation of national policies. Every municipality nearby municipal waters has its own Municipal FARMC. These MFARMCs help among other things to prepare the municipal fishery development plan; assist in the enforcement of laws, rules and regulations in municipal waters; and advise the *Sangguniang Bayan* (the legislative council of the municipality) on fishery matters. These MFARMCs are composed of: a Municipal Planning Development Officer; one of the Fishery Committee of the *Sangguniang Bayan*; one representative of the Municipal Development Council; one representative of a NGO; a representative of the private sector; one from the Department of Agriculture; and at least 11 fisherfolk representatives (7 municipal fishers, 1 fishworker, 3 commercial fishers), which include representative from youth and women sector (Republic of the Philippines 1998). Cauayan has its own MFARMC

because the municipality is located along the Panay Gulf and therefore is adjacent to municipal waters. Through these MFARMC the fisherfolk gain considerable power over the rules and regulations of their resources.

Incentives and support for municipal fisherfolk become clear in:

1. Section 2-e mentions many different ways of support to the municipal fisherfolk: appropriate technology and research, adequate financial means, production, construction of post-harvest facilities, marketing assistance and other services (section 2-e).
2. The Fisheries Code grants at least ten percent of credit and guarantee funds of government financing institutions for post-harvest and marketing projects as ice plants, cold storage, canning, warehouse and transport and other related infrastructure projects and facilities (section 34-a). The Department shall also undertake a capability-building program, to promote greater bank-ability and credit worthiness of municipal and small-scale commercial fishers. Activities include organising, technology transfer and skills training in commercial fishing and credit management (section 34-b).
3. Creation of a National Fisheries Research and Development Institute (NFRDI) to raise the income of the fisherfolk and to elevate the Philippines among the top five in the world in fish production, to make the country's fishing industry in the high seas competitive and to conduct social research on fisherfolk families for a better understanding of their conditions and needs (section 84).

Section 35 offers incentives for commercial fishers to fish beyond the 15 kilometre municipal water boundary, specifically the country's Exclusive Economic Zone (EEZ). This move will help to minimize the conflicts and competition between commercial and municipal fishing interests (Agoncillo 2001). The incentives include among others long term loans to finance the construction, acquisition and/or improvements of fishing vessels and equipment (section 35).

Nevertheless it became clear from a discussion with a group of fisherfolk using commercial trawlers, that they were not enthusiastic to fish farther into the EEZ, they rather stayed within the 15 kilometre zone. Within the municipal zone the fish is more abundant and beyond the 15 kilometre zone they have to compete with the large commercial vessels.

The FC also provides for stiffer penalties for illegal fishing. Some violations with their penalties can be found in the next table.

Table 4.1 *Outline of possible violations with accompanying penalties*

Violations	Penalties
Commercial fishing without license, lease or permit (section 86)	For captain and 3 highest officers value of catch or P10,000 whichever is higher; 6 months imprisonment, confiscation catch and gear.
Unauthorised fishing in municipal waters by persons not listed in the registry of fisherfolk (section 86)	P500 fine and confiscation of catch
Use of active gear in municipal waters (section 90)	2 to 6 years imprisonment for captain and master fishermen and P20,000 fine and confiscation of catch.
Use of fine mesh nets, except for gathering fry and other species that are small when sexually mature (section 89)	P2,000 to P20,000 fine and/or 6 months to 2 years imprisonment
Use of electricity, explosives or noxious or poisonous substances in fishing (section 88)	Confiscation of equipment. Mere possession 6 months to 2 years; actual use 5 to 10 years
Use of superlights in municipal waters (section 93)	6 months to 2 years imprisonment and/or P5,000 fine per superlight and confiscation of light, gear and vessel.
Use of methods and gear destructive to corals and other marine habitat (section 92)	For operator, captain, recruiter of fishworkers, 2 to 10 years imprisonment and/or P100,000 to P500,000 fine and confiscation of gear and catch

Exploitation and export of corals (section 91)	6 months to 2 years imprisonment, P2,000 to P20,000 fine and forfeiture of corals and vessel.
Conversion of mangroves (section 94)	Imprisonment of 6 years and 1 day to 12 years and/or P80,000 fine and restoration of damaged area.
Fishing in overfished area and during closed season (section 97)	6 months and 1 day to 6 years and/or P60,000 fine, forfeiture of catch and cancellation fishing permit or license
Fishing or taking of rare, threatened or endangered species (section 97)	Forfeiture of catch and cancellation of licenses
Violation of catch ceilings MSY and TAC (section 101)	6 months and 1 day to 6 years and/or P50,000 fine, forfeiture of catch and equipment and revocation of license.

Source: based on Agoncillo 2001

Weaknesses of the FC of 1998 according to Agoncillo:

1. No clear and specific provision for security of housing tenure for the fisherfolk. Vagueness of the provision on fisherfolk settlement areas, as well as absence of provisions preventing the conversion of foreshore lands into tourism facilities or industrial sites. No security on their homes means that the fisherfolk can play no meaningful role in CBCRM.
2. No clear and specific provision banning all forms of commercial fishing within the 15 kilometre municipal fishing boundary.
3. No real power for the fisherfolk (only consultative and recommending role)

Local governments are ordered, under the Fisheries Code, to modify or amend existing fisheries ordinances to conform to Republic Act 8550. Non compliance although is still possible. The act does not specify any penalties for local governments that fail or refuse to carry out the order. The governments that do amend their municipal ordinance to the FC could also repeat the weaknesses inherent in the Act (Agoncillo 2001).

The Municipal Ordinance does exactly this; it takes over the weaknesses of FC and adds some others to it. The Municipal Ordinance is called the Basic Fishery Ordinance of Cauayan, Negros Occidental. In general the Ordinance seems to comply with the Fisheries Code. When one takes a closer look on the contrary, many mistakes and weaknesses can be identified. It imposes relatively light penalties for serious offences; it allows commercial fishing with boats of 3 GT or more within the 15 kilometres zone of the municipal water (that is it allows commercial fishing 10 kilometres from the shoreline). These are just two examples of non confirmation of the Municipal Ordinance with the FC.

Informal institutions

Informal institutions are much more difficult to identify in a community. These are less obvious and often unwritten rules that exist among the population for years. The informal rules consist of customs and informal codes of behaviour. An example of informal customs is already given in the previous paragraph when the distribution of the catch in Cauayan was described. These informal institutions are especially important to the poor; they develop their own institutions and organizations when the government does not provide their basic needs and welfare. Exactly because of these informal political and economic mechanisms they are able to survive (WP57). Informal institutions are closely related to the concept of social capital, therefore these will be discussed in chapter 5.

Organizations

There are many organizations present in the municipality of Cauayan. A list of organizations was acquired at the local government but turned out not to be complete. Only a few organizations will be discussed here; those that have a profound impact on

fisherfolk in the three survey areas. Other organizations of course may be valuable for individuals or households as well. The nature and characteristics of some of these organizations will be dealt with in chapter 5. In this paragraph there has been made a distinction between governmental organizations from the national to the local level that have influence in the municipality and the influence of other organizations.

Governmental organizations

National policy on agriculture and fisheries is translated through the provincial level to the local level. State policy from the Department of Agriculture is interpreted on the provincial level, in this case by the Provincial Agriculturist Office (PAO), and they attempt to implement the policy on the local level, in this case the municipality of Cauayan. The main state agencies involved in Cauayan are therefore the PAO and the local representatives of the Department of Agriculture and other department. In the city hall of Cauayan there are several state departments represented. The Department of Agriculture, the Department of Social Welfare and Development (DSWD), the Municipal Planning and Development Office and several other departments are present. The Department of Interior and Local Government and the Local Government Unit (LGU) are located nearby. The Bureau of Fisheries and Aquatic Resources is nationally represented under the Department of Agriculture; therefore fisheries in Cauayan are under the responsibility of Department of Agriculture as well. Because of this organizational structure the fisheries issues in Cauayan become underrepresented; there are hardly any, if any, fisheries specialists present in Cauayan. The policy of the municipality is primarily focused on farmers and farming activities, which becomes clear in the number of projects aimed at farmers. Several of these development projects are: a carabao lending project through farmer cooperatives; the Home-based Income Generating Project (HIGP) for the wives of farmers; a Farm Youth Development Program (FYDP); and a farmer field school (Crebas 1999). There are few specific projects aimed at improving the livelihood of the fisherfolk. The fisherfolk mainly blame the municipal and national government for overemphasizing the farmers at the expense of the fishers.

Some livelihood projects extended by the PAO to the fisherfolk of Cauayan are according to an officer of the Provincial Agriculturist Office:

- 1) engine distribution in the form of loan
- 2) provision in fishing gear like gill nets
- 3) small fishpond operators
 - inputs like tilapia and bangus
 - fertilizers
- 4) post harvest activities: the development of fishing value added products
- 5) training and dialogue on the enforcement of fishery laws, rules and regulations

The DSWD in Cauayan, which mission is to improve the welfare of the poor, aims to implement programs and projects with or through LGU, NGO, POs and community members. The programs and services they offer are: a self-employment assistance program, day care service program, supplemental feeding program and a number of other projects. These projects are not specifically aimed at the fisherfolk but focus on the poor in general.

Another project is from president Arroyo: a highway clean up program, in which people can participate for a few days by cleaning up the national road and its surroundings. This project can make a considerable contribution to the household income of the poor and is therefore quite popular among the community members. Nevertheless the barangay is ordered to assign people for this project and there are rumours that mainly the friends and families of the *kagawads* (barangay officials) are chosen to participate.

Two officers from the PAO are stationed in Cauayan for 8 years already. These officers are jointly responsible for fisheries in Sipalay, Hinoba-an, Kabankalan, Ilog and Cauayan. An interview with these two officers of the PAO made clear that the provincial level only start projects in those municipalities or cities were they, the municipalities and

cities, themselves have already started a project. So the agriculturist office at the provincial level basically supports local initiatives. The biggest problem in Cauayan is that because of a lack of qualified personnel there are no projects or plans for fisheries and therefore there is no support from the provincial level. Other problems identified by the two, are the attitude of the fisherfolk in the municipality and a lack of law enforcement. Illegal commercial fishers once caught are put in prison, but subsequently are released without re-education or value formation and therefore after their release these fishers go back to their old habits. Usually plans of the PAO can not simply be implemented because there are massive differences in the situation of coastal communities. It is primarily the inadequacy of the LGU, who is responsible for the general control over coastal resources in municipal waters, which cause the lack of good fishery projects, according to the PAO officers.

The LGU on the other hand points to the attitude of the fisherfolk for the lack of projects and programs in the municipality. The LGU points to the fact that many fisherfolk organizations are no longer active because the meeting attendance of its members became very low. People only showed up if they gained direct benefit from going to the meeting, for example when they were given rice or money. The LGU claims that some of the fisherfolk spend the money on gambling and *Tanduay* (local rum); they lack the ability to manage their money appropriately. They believe that projects initiated by the municipality should be carried by the fisherfolk community otherwise these projects will not work. They have the opinion that most of the fisherfolk do not have the right attitude and there is a need for values formation.

The barangay council is the lowest government body. The activity of the different barangays varies considerable. The activity in Man-uling was quite low, in Caliling and Guiljungan there was much more activity in the barangay hall. In Caliling and Guiljungan there were many bantay dagat operations and police activities which contribute to the safety in the barangays. The *kagawads* in Caliling are engaged in preserving Hulao Hulao island and protect it against illegal fishers. This small island close to the seashore of Caliling consists completely of corals. Because of destructive fishing techniques the corals are now dead. Corals are very important for marine life as can be read in chapter 3; they provide food and shelter for fishes and other marine organisms. There already exist a law to protect Hulao Hulao, by closing it for 5 years, but this law was never implemented; fishers continued to fish close to the island. Recently the *kagawads* together with the barangay police and the bantay dagat decided to undertake action. On San Juan, a national holiday, they decided to stand guard on the small coral island, to send people back who planned to celebrate the national fiesta there. At the same time they made the people aware that from this moment on, Hulao Hulao will be closed for five years so the area can recover. The action was a success; several fisherfolk were sent back that day. There is no information on how the situation is these days. More information on activities of the different barangays can be found in chapter 5.

Photo 4.8 Action to stop fishing on Hulao Hulao Island, Caliling



Fisherfolk organizations

In the municipality of Cauayan there are several fisherfolk organizations. There are 8 organizations connected to the fisherfolk federation Kasamaka. The nature, capacity and the reason for the formation of these fisherfolk organizations and the fisherfolk federation are discussed in paragraph 4.3 which deals with fisheries management. There are also two women organizations connected to Kasamaka. The chairman of Kasamaka has been exposed to several coastal environments and organizations outside Cauayan; in the Philippines as well as in Australia. Balayan, a university-based community development office connected to the University of Saint La Salle in Bacolod City, became involved in 1994 (see paragraph 4.3). Balayan offered seminars on for example gender, sustainable development, values, political education, leadership training, conflict management, bookkeeping, and financial management etc. Livelihood projects and activities of the fisherfolk organizations are among others: swine dispersal, a cooperative store, rice retailing, fishpond construction, savings and loans, garment smocking, micro-lending (Kasamaka), coastal clean up, mangroves reforestation, and bantay dagat operations. These livelihood projects are developed to offer the fisherfolk with additional income earning activities.

So far the fisherfolk organizations have achieved certain benefits with their organization and projects but they are also confronted with a few problems.

Benefits

There has been a real change in the attitude of the members. Before the members were focused on their individual problems, now they think more collective about the needs of their community. Many have gained in confidence after attending meetings and seminars. They have gained more knowledge about government issues and the government consults them now while in the past they were just ignored. Respect is gained from the community and from the barangay officials because of the organization. The apprehension of illegal fishers by the bantay dagat resulted according to some members of MASFA (Man-uling small fishermen association) in a drop in the level of illegal fishing as compared to before. Unfortunately the resources are left depleted and less fish is caught so the fishers have to go relatively far onto the sea to catch as many as compared to the past when they could stay close to the shore.

Problems

From informal discussions with some fisherfolk leaders it became clear that it is difficult for the fisherfolk to balance between their organizational tasks and finding their next meal. It is difficult to choose to go to a meeting while in the meantime they can go out on the sea to catch fish or do other work. Some projects, like the swine dispersal project of MASFA, have not been that fortunate. Some pigs did not get with young, so there were no piglets sold and no money earned. Some of the fisherfolk organizations experienced problems related to management and organization of the projects or to collect the money to pay the project back to the federation in time. Furthermore, implementation of fishery laws and regulations is bad. The bantay dagat operators are unpaid and they own only two or three boats for the whole municipality. Apprehension of illegal fishers is very difficult because bantay dagat operators first have to arrange a boat; when they finally succeed in finding a boat, the illegal fishers have gotten enough time to get away.

Lending organization

As already mentioned, the access to credit for fisherfolk in Cauayan is very difficult. The fisherfolk federation Kasamaka developed a micro lending project and another option for the fisherfolk is Project Dunganon, which offers loan and saving possibilities for women in Cauayan. The only requirement is that they have to start a business and find other women who through local self organization will together form a group. Next an explanation will be given of the nature and structure of Project Dunganon, which is part of the Negros Women for Tomorrow Foundation.

The Negros Women for Tomorrow Foundation (NWTF) is established in 1984 after the successful formula of the Grameen Bank in Bangladesh. It is a non-governmental organization (NGO) that aims to empower women economically and socially by giving them access to financial assistance. After an exposure to the Grameen Bank in Bangladesh, a model to provide savings and loans was born. The government was not suited right for the task, so it became a non-governmental organization with funds from different sources. The institution's mission is: "to create opportunities for the self-employed by providing poor people with access to integrated credit facilities; and to reduce the exploitation of the poor by money-lenders through a comprehensive credit program" (The Mix Market 2004).

Project Dunganon ("honourable project"), a project initiated by the NWTF, started at a time of major crisis after the decline in the production of sugarcane in 1985. There was a high rate of unemployment and a need for credit for micro-level enterprises and for consumption (NWTF 1999). The project works as follows: five women together form a group and eight groups form a centre; the management unit for the organization. Every member of the group saves an amount every week for the group fund. The project works with different cycles. The cycles are based on how long you are part of the project and the amount of money you are able to borrow. The longer you are a member, the more money you can get. There are weekly group meetings where the financial transactions of the members take place. The project takes place in different places in Negros Occidental and Negros Oriental. About 420 people are working for the project (The Mix Market 2004). The project has, according to data from 2003, 48,152 active borrowers.

Project Dunganon performed her own survey in 1999 to evaluate its members' age, educational attainment, incomes and improvements in their lives; a general impact study of the project. The goal of this study was to update information about the members; to find out the reason for increased income, non-payment and dropouts; to check which people crossed the poverty line; and the members' perception of the project and her services. The research took place in Calatrava, Escalante, Manapla, Bago, La Castellana, Himamaylan, Cailog, Hinoba-an, Kabankalan and Bais (NWTF 1999).

A sample of 600 people (active members of Project Dunganon) was interviewed from various cities on Negros island and the following conclusions can be made from this research (NWTF 1999). The average income of families participating in project Dunganon who were in the first cycles was P4,737 and from later cycles this was P6,215 in 1999. Reasons for increased income of PD members are according to the respondents: "Skill for business" (83%), "diligence and dedication" (77%), "good opportunity for business (70%), "support of other family members" (35%). Reasons for dropping out given by still active members: "bankruptcy or going out of business" (69%), "ashamed because one can not pay debt" (48%), "conflict with group/centre" (42%), "fed up with lending system" (25%), "change of address/residence" (22%). Reasons for non-payment are: "bankruptcy" (70%); "ran out of capital" (67%); "money used for other things" (57%); and "money used for sickness in family" (39%) were the most common answers given by the respondents of the research performed by the NWTF. Table 4.2 shows the most important contributions of Project Dunganon. The total number of respondents is 600, in cycle 1-3 there were 428 respondents and in cycle 4-10 there were 172 respondents.

Table 4.2 *Most important contribution of Project Dunganon*

	Total	C1-3	C4-10
	600	428	172
	%	%	%
Increased capital for business	46	52	31
Sent children to school	17	15	24
Increased income	15	17	12

Repaired the house	9	6	16
Able to buy household appliances	2	1	5
Able to buy motorcycle/pumpboat/jeep/tricycle	2	1	3
Able to put electricity/water in the house	1	-	2

Source: NWTF 1999

The top three reasons to stay in Project Dungganon were: "being able to borrow capital for business" (33%), "benefits derived from membership" (21%), "hope to get bigger loan later" (13%) (NWTF 1999).

Although the research was not performed in the municipality of Cauayan, the numbers and results of the study are probably representative for this area too. In the questionnaire performed in the three survey areas of Cauayan, also members of Dungganon were questioned; all of them lived in Guiljungan. The following results can be extracted from the survey. There were 6 members of Dungganon interviewed. They participated every week in meetings and joined the organization voluntarily. The amount of annual payments varies considerably from P3, 000 to P249. This difference has probably to do with the cycles in which the respondents find themselves. The benefits of joining the project are according to the respondents: "it improves livelihood" (50%); "important in times of emergency" (83%); "improves access to services" (17%); and "for loans" (17%). Membership also improves access to education according to 67% of the respondents. The number of members increased in the past 2/3 years. The average income of households of project Dungganon is about P3,000 per month which is relatively high and above the average for the whole research area (questionnaire).

Other organizations

The role of other stakeholders in the life of fisherfolk in Cauayan is not examined in much depth, but nevertheless the role of the church, health clinics and schools are discussed here. The church is still very important in the lives of many Filipinos. There are a lot of different churches in Cauayan. The church bonds people in a community and this is the most important contribution of the church in Cauayan as became clear from an interview with a reverend in Poblacion.

There are several elementary schools and high schools and even the Negros State College of Agriculture is resident in Cauayan. The college is focused on farming and in Ilog there is a faculty specialised in fisheries. Therefore there is no lack of educational organizations in the municipality. The State College also had several student projects like coastal clean up activities, mangrove planting with the University of Saint La Salle that are beneficial for the fisherfolk. The fisherfolk also receive other support from Saint La Salle in medical and dental treatment, first aid, donations and Christmas gifts etc. Student immersions take place in some barangays and skills are shared with fisherfolk.

Big problem in the municipality is the health provision; this can have a negative effect on human capital of the fisherfolk. There are a number of health care centres and there is one hospital in Isio but there are only few beds and there are hardly any medicines and adequate equipment.

4.3 Fisheries management in Cauayan

From chapter 2 it became clear that there are many different ways to manage fishery resources; from full government management to management arrangements between governments, resource users and other stakeholders. In this paragraph the fisheries management arrangements in Cauayan will be discussed.

Thanks to the help of Balayan the fisherfolk were able to become organized and have been able to exercise influence on the management of fisheries resources in their community. It is hard to get the fisherfolk organized because the sector is quite

individualistic due to the hazards of fishing and the culture of fishing communities (“the tragedy of the commons” see chapter 2). Nevertheless fisherfolk are seen as the best potential managers of coastal resources because their survival is interlinked (Agoncillo 2001). Balayan together with a group of fisherfolk organizations tried to implement a CBCRM project. This process has led to cooperation between the fisherfolk and the municipality of Cauayan which already resulted in a reduction of the depletion of fisheries resources and an empowerment of fisherfolk organizations. The process of implementing the CBCRM project in Cauayan will now be discussed.

Agoncillo studied the nature and the capacity of the fisherfolk organizations before the interference of Balayan and the reason for their formation. He comes to the following findings. After a series of informal talks about fisherfolk problems, in February 1992 Roy Santiago together with seven elderly fisherfolk formed a core group in sitio Talangnan, barangay Isio. This group encouraged others in the community to help form an organization. In April 1992 a meeting was held to formalize the creation of TASFA (Talangnan Small Fishermen Association). The organization had two objectives: 1) to conserve and protect the coastal environment and 2) to provide the fisherfolk with additional sources of income (Agoncillo 2001, p 29). They launched several projects, like the construction of artificial bamboo reefs, participation in a UN Food for Work Program, and coastal patrol operations. There appeared a couple of problems in the first two years of its existence; lack of authority, a typhoon that devastated 80% of a reforested area and internal conflicts.

In 1994 Balayan started its project, based on CBCRM. They were supported by the Camosun College of Canada, which would eventually provide them with P 200,000 for a three-year fisherfolk organizing project in Negros Occidental. The project had four objectives: 1) rehabilitate and enhance the coastal and marine environment, 2) establish sustainable fisherfolk communities, 3) create an effective community-based resource management mechanism, and 4) advocate policies supportive of the fisherfolks’ struggle (Agoncillo 2001, p. 31). Cauayan was chosen as the site for this project for several reasons among others: the absence of a NGO in the area; the rural character with limited access to services; the enthusiasm of the fisherfolk to take part in the project; and the high chance of rehabilitation of the coastal area.

At first some seminars were offered to the leaders and members of TASFA. They focused on leadership training, conflict resolution and sustainable development. At the same time fisherfolk from Masaling and Tuyom were seeking help by setting up organizations with the same objectives as TASFA. Together with TASFA, Masaling Small Fisherfolk Association (MASFA) and Paghili-Usa Sang Mananagat sa Tuyom (PAMATU) formed an Inter-Barangay Coordinating Council (InterBACC) under guidance of Balayan. The construction of reefs, mangrove reforestation and bantay dagat operations continued. The InterBACC became part of a nationwide network of fisherfolk federations. At this time, in 1995, the fisherfolk organizations were becoming more aware and informed of legislation and government matters and protested against several bills which were perceived as anti-fisherfolk. Balayan and the InterBACC started to negotiate with the local government for reforms and enforcement of existing laws (Agoncillo 2001). At first there was not much interest from the local government for the issues and problems the fisherfolk were confronted with. From 1996 to 1998 several protest actions and demonstrations took place. The fisherfolk, through the bantay dagat, continued to arrest illegal fishers and bring them to court.

In 1998 negotiation about the position of the fisherfolk with the newly elected mayor Tabujara took place and the fisherfolk federation Kasamaka came into being. The mayor signed a covenant with Santiago, the elected chairman of Kasamaka to “forge a partnership between the federation and the municipal government to protect and preserve the coastal resources of Cauayan” (Agoncillo 2001, p. 37). The mayor delineated areas off-limit to commercial fishers, he allowed the fisherfolk access to the

motorized municipal patrol boat and led the police and coast guard assist them in apprehending illegal fishers. The fisherfolk organizations were now heard by the *Sangguniang Bayan*, instead of being ignored as they were used to in the past. In 2000 Kasamaka officials were elected for key posts (chairman, treasurer and secretary) in the MFARMC.

In 1998 Balayan implemented a gender component; two women's organizations were formed under Kasamaka. A research by marine biologists was undertaken to monitor the fish catch and assess the state of the habitats. In 2000 a livelihood component was launched, with a fund of P1.4 million from the University of St La Salle. Several trainings in amongst others business management and accounting; and saving of funds for livelihood projects like swine dispersal and rice retailing were offered to the fisherfolk (Agoncillo 2001).

This CBCRM project, based on a partnership between a university-based community development office with donor funds and a federation of community-based people's organizations, is not a very common combination and has been and still is very important for the developments in Cauayan. Balayan has provided the fisherfolk with knowledge and skills by offering seminars and trainings. The current mayor who signed a covenant with the fisherfolk organizations has also been very important for this particular CBCRM process because this has further legitimized the bantay dagat operations and has led to formal and informal consultations and dialogues, including the MFARMC. The passage of the Fisheries Code of 1998 which favours municipal fisherfolk and CBCRM projects has been crucial to the process as well. But overall, how successful is this CBCRM initiative? Can this process be further strengthened?

First of all a sign of the success of this project is the strong sense of empowerment among the fisherfolk organizations. This is very important for the continuation of the project after the withdrawal from Balayan from the project site, planned in 2005. This empowerment came about through the involvement of the fisherfolk in every stage of the project planning and implementation. This boosted the self esteem and confidence of the fisherfolk. The empowerment is also visible in an increase in the number of fisherfolk organizations which are part of Kasamaka: from 3 to 10 organizations; an increase in the number of leaders; and active members to 300 in 2001.

Another sign of success is a significant reduction of illegal commercial fishing, estimated at around 50 to 90% and an increase in fish harvests thanks to coastal clean up activities and mangrove reforestation etc. As already mentioned, the local government support and a change in mayor have been crucial for this process. For small groups like Kasamaka, networks and linkages with other sectors and groups can be very helpful "because the conditions of coastal communities and the policies, programs and institutions that affect them arise to a large extent outside the communities where they operate" (Agoncillo 2001, p. 48). Also the registration as a recognised cooperative which makes access to sources of funding easier helps to make it a success. Finally the development of additional incomes besides fishing and the presence of strong fisherfolk leaders contribute to the success of this CBCRM project in Cauayan.

However there are also several weaknesses in the CBCRM project identified by Agoncillo in 2001. There is an absence of a way to contextualize and institutionalize the CBCRM project. There is no systematic resource management plan; a change in mayor can endanger the whole project. Constant monitoring of the fish catch and stock should take place to effectively monitor the conservation and protection aspects of the CBCRM project. However this was not happening at that time. Furthermore CBCRM is an integrated approach which requires many interventions therefore it is a long term project. Unfortunately there is a lack of sufficient and sustained funding, which could endanger the project eventually.

Another weakness is that the municipal government policies on CBCRM do not conform to the policies stated in the Fisheries Code of 1998. The municipal government is vulnerable to pressure exercised by the commercial sector and big business interests to not pass the proposed amendments of the municipal fisheries code. Also for example the vague provisions in the Fisheries Code on penalties for illegal commercial fishing; the lack of secure housing for fisherfolk; and the conditional granting of fishing rights to small and medium commercial fishers. Another weakness is the absence of adequate storing facilities and transportation. So the monopoly on fish trading, financing and marketing stays in the hands of the *kompradores*, *manugpanting* and the *suki-an*, which keeps the fisherfolk poor and in debt. Finally the negative perception of the CBCRM project by community members who are not participating in the project can become a source of conflict and can endanger the project in the long run.

Nowadays, there is still no effective monitoring of the fish stock and there is no information on how the catch is divided among municipal and commercial fishers. The municipal fisheries code still does not conform to the Fisheries Code, which contains certain vagueness itself. The negative *komprador* system also still exists. Balayan however is withdrawing from the area; after 10 years of participation they are phasing out. The fisherfolk only slightly gained political power and the goals set by Balayan and the fisherfolk organizations are only partially met. To really empower the fisheries sector economically, they need to become "direct participants in formulating policies, laws and programs on coastal resource management, have full and equal access to coastal resources, profitable and supplementary sources of livelihood and effective mechanisms for enforcing fishing practices that allow a regeneration of depleted coastal resources for future generations of fisherfolk" (Agoncillo 2001, p. 55).

4.4 External threats

Perhaps the greatest threat to the small-scale fishers is the large-scale fishing sector. This sector is more industrialized and more productive. The large-scale sector has greater economies of scale, is better financed, uses highly productive technologies and often has government support through subsidies. The growth of this sector is largely at the expense of the small-scale sector. This is very noticeable in the municipality of Cauayan. There is direct competition for resources between the two sectors. Fortunately the small-scale fisherfolk were able to become organized because many small-scale fishing communities are usually dispersed and politically disorganized and therefore powerless. Large-scale vessels still enter the municipal waters illegally despite the regulations in the Fisheries Code and Municipal Ordinance.

Another external threat is the ongoing growth of the population. In the Philippines the birth rates are still considerably high. There is an increase in levels of production and a growing competition for the resources, as is visible in Guiljungan. Other threats are marine pollution and coastal tourism industries. Especially the tourism developments are a real threat to fisherfolk in Cauayan. In Caliling there are tourism developments along the coast and fisherfolk are already forced to leave. Foreigners are officially not able to buy land in the Philippines but there are all kinds of tricks to avoid this regulation. Tourism development can have all kinds of impacts in a coastal area; they assert pressure on fish stocks and marine ecosystems; by displacing fishers and disrupting local cultures.

Exclusion or at least low esteem by non-fishing community members towards fishers because of their absence is another potential threat to fisherfolk. Fisherfolk are already often the poorest and the least educated people in a community who already are least-esteemed members of a community. Moreover many fishers violate management rules and policies when these are seen as unfair this undermines fisheries officials' esteem of fisherfolk (FAO 2001).

Conclusions

Most fisherfolk do not have many possessions. Besides a house they hardly have anything else. Some do not even have a boat and they have to borrow one in share of part of the catch. There are all kinds of different fishing techniques used by the fisherfolk in Cauayan and they differ per barangay. The importance of fishing for the household is dependent on other opportunities available to them; when there are good options for agricultural there is a pattern visible of fishers that farm as an additional livelihood.

Small-scale fisherfolk and large-scale fishers live side by side in some barangays, it does not lead to conflicts per se but it is a source of unrest in the community. The fishing sector is a very open sector also in Cauayan; fisherfolk are able to enter fishing grounds of neighbouring barangays and adjacent municipalities. This does not lead to problems except when rules and regulations in fishing are not consistent like in the case of Sipalay, where fishing with compressors is still legal. There is trend visible in a declining fish catch, fisherfolk are aware of this problem and attempts are made to preserve the fish stocks. Fishponds are created to culture fish and the coral island of Hulao Hulao is being protected, so the corals are able to regenerate and the habitat of the fish get the chance to recover. The distribution of the catch is arranged informally, where middlemen take the fish to the market and sell it there. There are no processing areas in Cauayan and the fisherfolk are therefore reliant on big fish traders to sell the big fish to markets in Kabankalan and Bacolod.

Social relations can be an inhibiting factor for the fisherfolk. In some cases women are not allowed to work and stay in the house the whole day, taking care of the children and doing household chores. When women would work this can form a very valuable contribution to the household income. There are two institutions of prime importance to the fisherfolk: the Fisheries Code and the Municipal Ordinance. The Fisheries Code has several strengths and weaknesses. The biggest problem is that the regulations on fishing are badly implemented. There is no real government representative on fisheries present in the municipality and this leads to lack of attention for the fishery sector and a lack of support from the provincial level. The fisherfolk organisations under Kasamaka have already gained many benefits since they became more powerful thanks to the help of Balayan. They have benefited from several successful projects, they gained in confidence and empowerment and they achieved to become an actor in the management of their coastal resources. External threats however, are the recent tourism developments along the coast, the increasing population and the interrelated problems of competition for the same resources between the small-scale and large-scale sector and among the small-scale fisherfolk themselves.

5. Data analysis

This chapter deals with the data analysis based on the questionnaires. First the objective of this research is given. Then a tabular analysis of the three basic indicators of social capital will follow and the three remaining modules which explore social capital in more depth.

5.1 Introduction

The research took place in three selected research areas: Man-uling, Caliling and Guiljungan. A general description of these barangays can be found in chapter 3. Some general characteristics of the respondents will be provided next. But first the objective of the data gathering and the structure of the questionnaire will be explained. A total number of 91 respondents were interviewed using a questionnaire of the World Bank. The data analysis that follows is based on the data gathered with the SC-IQ. The World Bank developed this instrument to provide researchers with a quantitative tool to measure the various dimensions of social capital. The questions are drawn from prior survey work, and the instrument is tested in several different countries. Adjustment of the questionnaire to the local setting is necessary and this is done with the help of Balayan, a community development office.

The questionnaire is divided into six modules which together attempt to describe the concept of social capital, these modules are: groups and networks; trust and solidarity; collective action and co-operation; information and communication; social cohesion and inclusion; and empowerment and political action. The quantitative analysis is primarily focused on the three basic indicators of social capital namely groups and networks, trust and solidarity and collective action; this will primarily be a tabular analysis. The remaining three modules are used to examine certain aspects and manifestations of social capital in more depth.

The questionnaire was used as a stand alone survey therefore analysis requiring data about household assets is not possible. The data of the SC-IQ must be integrated with data from a Living Standards Measurement Survey (LSMS) for addressing important policy questions like:

- "What is the contribution of social capital to household well-being, i.e. are households with higher levels of social capital, as measured by the various indicators proposed so far, better off?"
- "What is the importance of social capital for poverty reduction?" (relative importance as compared to other assets)
- "What are the determinants of social capital?" (SC-IQ WB)

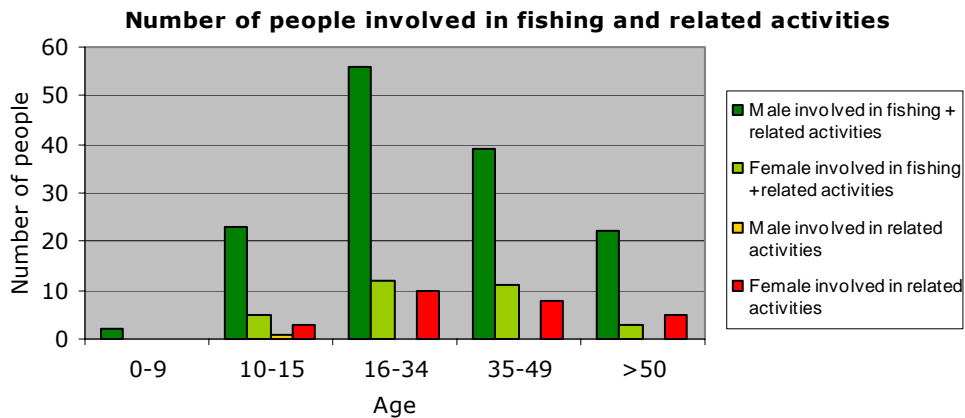
Because in this case the SC-IQ is not integrated with a LSMS, no comments can be made on whether social capital stimulates economic growth, and whether it is a way out of poverty for the fisherfolk in Cauayan. No relation can be drawn between social capital and household welfare and poverty, access to services, or other general development indicators. The objective of the research is to inventory existing social capital; to look at social capital data on its own. An attempt will be made to map the distribution of social capital across areas and socio-economic groups and to gain better insight into the different dimensions of social capital. Because only 91 respondents were interviewed, the data is not highly reliable; the data provided next can only give an indication.

5.2 General characteristics of respondents

A total of 91 people were interviewed, 50 males and 41 females. They were asked to give the names and age of all the family members and tell whether they were either involved in fishing i.e. personally and physically going out on the sea and taking fish from the water and/or involved in fishing related activities that is: helping with arrival

and departure, maintenance of boat and gear, distribution of catch, processing of catch (clean and dry), shells and fry gathering and working as crew on a commercial fishing vessel. When one is involved in direct fishing he or she is always involved in fishing related activities as well. The average household size of the respondents was 5.1; for Man-uling: 5.2; for Caliling: 4.4; for Guiljungan: 5.6. Figure 5.1 shows the number of people involved in fishing and/or related activities.

Figure 5.1 *Number of people involved in fishing and fishing related activities according to age and sex*

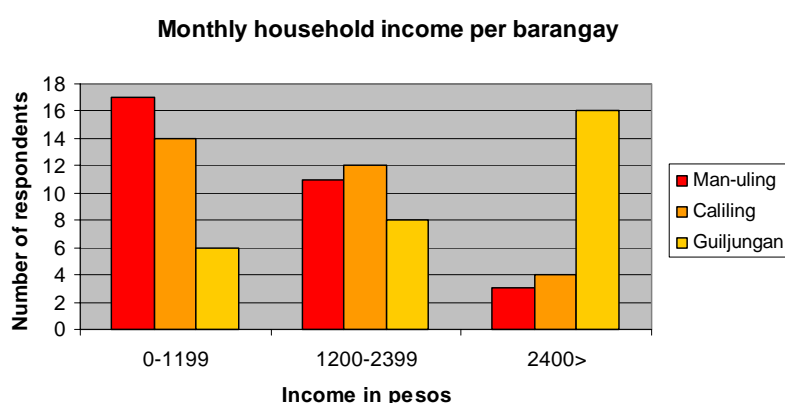


Source: questionnaire

Of the total number of 105 adult females of the interviewed households, 23 women are involved in direct fishing, which is 22% of the total number of women, 49 women are involved in fishing related activities, this is 47%. Therefore almost half of the adult women of the interviewed households are involved in some kind of fishing related activity. As observed in the different barangays women are mostly involved in the distribution, processing and marketing of the catch. Especially in Caliling there are relatively many women involved in direct fishing (15); women are using push nets to catch shrimp or fish fry and they usually stay close to the beach. Children of less than 18 years of age were also asked whether they were involved in fishing in any kind of way. Of the 123 male children of the interviewed households, 33 (27%) and 34 (28%) were respectively directly and indirectly involved in fishing. The youngest boy who went out on the sea to catch fish was 9 years old. Of the female children, 5 were directly involved and 7 were helping with fishing related activities of a total number of 108 female children. The youngest girl involved in fishing activities was 10 years of age. It becomes clear from figure 5.1 that the primary producers are still mainly men but there are definitely women involved in direct fishing as well. Children are involved in fishing practices at a very young age; especially boys go out on the sea to catch fish while girls are much less involved. Many parents expressed the importance of good education for their children; school going children were hardly ever involved in fishing activities.

The monthly household income of the respondents can be found in figure 5.2. It is evident that the respondents from barangay Guiljungan have the highest monthly income, with a majority of respondents with more than P2,400 per month. This can probably be explained by the fact that fishers in Guiljungan on average have bigger boats than in the other two barangays. Also some illegal fishers from Guiljungan were interviewed; the difference in income and amount of assets was striking compared to small-scale fisherfolk. Their income sometimes amounted up to P10,000 per month. The difference in household income between Man-uling and Caliling is less apparent. Household size in Guiljungan is also slightly higher so on average there may be more workers per family, which can lead to a higher income.

Figure 5.2 *Monthly household income per barangay*



Source: questionnaire

Next the six modules of the questionnaire will be analysed. First the three basic indicators will be analysed and tabulated. Later the three remaining modules (information and communication, social cohesion and inclusion, and empowerment and political action) will be examined; they will look at certain aspects of social capital in more depth.

5.3 Three basic indicators

Three useful indicators to measure social capital are:

- Membership in groups and networks (structural social capital)
- Trust and solidarity (cognitive social capital)
- Collective action (output measure)

These three indicators measure social capital from different perspectives. Membership in local associations and networks can be seen as a direct measure of social capital (because groups at networks are seen as vehicles for social capital) and is therefore called an input indicator. Trust is an input or output or even a direct measure indicator (it depends on the way it is perceived), and collective action is an output measure. Structural social capital means: "the types of groups and networks that poor people can call upon, and the nature and extent of their contributions to other members of those groups and networks" (Grootaert et al. 2004, p. 3). Cognitive social capital is: "respondents subjective perceptions of the trustworthiness of other people and key institutions that shape their lives, as well as the norms of co-operation and reciprocity that surround attempts to work together to solve problems" (Grootaert et al. 2004, p. 3)

Groups and networks

Social capital, in the form of local associations, can improve information diffusion, reduce opportunistic behaviour and facilitate collective decision making (Grootaert et al 2004). The effectiveness of the role of social capital depends upon several aspects of local associations. Six aspects of local associations are taken into account by Grootaert and Narayan for their research in Bolivia, these are: 1) density of membership; 2) heterogeneity index; 3) meeting attendance; 4) index of participation in decision making; 5) index of contributions; and 6) community orientation. These aspects are also used to create a table (table 5.2 in appendix) of social capital dimensions for the three survey areas in Cauayan. However first a list of organizations will be provided of which respondents are members. As becomes clear from table 5.1, fisherfolk organizations and finance groups are the most important association in which the fisherfolk are involved.

Table 5.1 *Types of organizations and membership*

Type of organization	Number of organizations	% of respondents with membership	Examples
Fisherfolk	7	50.8	MASFA, PASFO, CAMAFFA, GUISFA, BFPC/MPC, Maguiting and Kasamaka
Farmer	1	7.9	Masfampco
Trader or business	1	1.6	DXN
Sitio/barangay	2	4.8	Purok committee
Religious or spiritual	1	1.6	Church choir
Political group	1	1.6	Gabriela
Finance, credit or savings	6	19.0	Dungganon, Shaky, Erpat, HLG, Paradise and Kasamaka
Sports	1	1.6	Sports committee
Elderly group	2	6.3	Senior citizens group
Military	2	3.2	Guardian and RAM
Women	1	1.6	Pedap

Source: questionnaire

Density of membership

The density of membership is measured by the number of memberships per household. The exact number of organizations present in the three barangays is unclear; a list required at the city hall turned out not to be complete at all. Twenty three (23) different organizations were mentioned by the respondents; organizations of which they are members. Respondents were asked to give the names of all the organizations of which they are a member and then they were asked which two organizations are most important for their household. In none of the cases there were households with memberships in more than two organizations. In some cases both man and women of the household participated in activities of an organization, in that case the member that is most active is used in the analysis.

The most important organizations in this case are the fisherfolk organizations, which are already examined in the previous chapter. In Man-uling there is MASFA (farmers and fishermen), in Caliling CAMAFFA and the Bangus Fry and Prone Multipurpose Cooperative (BFPC/MPC), in Guiljungan respondents are involved in GUISFA and Maguiting. MASFA has 27 members, GUISFA has 48 members, CAMAFFA has 18 members and Maguiting has 38 members. These fisherfolk organizations take account of 50% of memberships of the total respondents with memberships (see table 5.1). The memberships in fisherfolk organization are therefore analysed separately from other organizations (see table 5.3). Memberships in fisherfolk organization are measured as a percentage of households which are member. Membership in other organizations is measured as the average number of memberships per household. For Man-uling and Caliling the average number of memberships per household (excluding memberships in fisherfolk organizations) is 0.4 and for Guiljungan it is 0.3. This implies that hardly any households are involved in two organizations which are non-fishing related, otherwise the number of memberships would have been higher than 1.

Table 5.2 (in appendix) indicates that in Man-uling almost half (48%) of the respondents are active members of a fisherfolk organization. This can be explained by the fact that in Man-uling a list of MASFA members was used to pick the respondents, therefore this number is biased. In Caliling and Guiljungan the respondents were picked at random and these barangays show a much lower membership percentage; 23.3% and 33.3% respectively. It is striking that 77% of the members is male and this underlines the previous assumption that men are more involved in fishing than women. Almost 50% of members can be found in the lowest household income; one has to consider that many respondents are from Man-uling and the respondents there have relatively low household income level.

Heterogeneity index

As already mentioned, the respondents were asked to give the two most important organizations for the household. Nevertheless because of practical reasons this analysis focuses on the first mentioned (=most important) organization. A number of questions were asked about the internal homogeneity of the group. This was done according to nine criteria; respondents were asked whether most of the members of the group are of the same barangay, family, religion, gender and age, and whether members mostly have the same occupation, education, political party affiliation and the same income level. A score of 0 to 9 is possible; a value of 1 indicates that members were mostly from different sitio, family etc. This score was rescaled where a score of 9 equals 100. The average score on the heterogeneity index is 74.8 for the three survey areas, which is quite high¹. From observations it seemed that especially the fisherfolk organisations were quite homogeneous groups, with the same occupation, almost the same income level etc.

There are minor differences between the barangays and in the sex of the respondents. The heterogeneity of the organizations is also not related to age or household income although households in the highest income level are slightly more involved in heterogeneous associations. In Man-uling there is some difference in the heterogeneity of the fisherfolk organization and other local associations (see table 5.3). For the other barangays there are no real differences between the different types of organizations.

It is not very clear whether a high internal diversity is positive or negative from a social capital perspective. In internally homogenous associations it is easier for members to trust each other because they have the same background, so it may be easier for them to share information and to reach decisions. On the other hand in homogenous associations it might be easier to share information but the members also may have similar information, so then there is not much to gain from information exchange. From previous research in several countries it became clear that associations with a high internal diversity yield high levels of benefits but in homogenous associations, collective action is easier to achieve. Differences in location and social and economic characteristics increase the chance that members have different knowledge (Grootaert et al. 2004).

People were also asked about the interaction of their associations with other groups outside the sitio or barangay. Fisherfolk organizations connected to Kasamaka obviously interact with other fisherfolk organizations. *Purok* or *sitio* committees like the sports committee or purok loan committee do not work together with other groups; they are solely focused on the barangay or purok. The military group RAM is a national organization, members even have a tattoo either a V (Visayas), an M (Mindanao) or an L (Luzon), dependent on the region where they come from. Of the respondents 48.6% replied that their organization is frequently interacting with other groups (can be of the same type) outside the barangay, 14.3% says their group interacts occasionally with other groups and 22.9% says their organization does not interact with other groups.

Meeting attendance

The meeting attendance was measured because this may give an indication of the participation of the members in a particular organization. It is measured by the number of times a member participated in the group's activity or meeting in the last 12 months. Some respondents had major difficulty in remembering the number of times they participated so they had to estimate, others on the other hand participated on a regular basis like members of Dungganon which have a meeting every week. In Guiljungan, people on average participated 25 times in a group activity or meeting in the last 12 months. Compared to Man-uling this is high. Table 5.2 (in appendix) further shows that

¹ Compared to Bolivia the equivalent score was 64.1, in Indonesia it was 53.5 and in Burkina Faso it was 77.0

females attend meetings more frequently than male members. These two numbers can be explained by the presence of project Dungganon; only respondents in Guiljungan are members and all members are females and they gather for a meeting every week. Table 5.3 however shows that the meeting attendance in Guiljungan is especially high in the fisherfolk organization and not so much in other local associations (Dungganon) at least compared to Caliling. This can be caused by the lending program of GUISFA, which is responsible for the fact that the people gather quite often. The meeting attendance of other local associations in Man-uling is fairly low; this is related to the small number of members in other associations in this barangay. People in the age category of 35-49 attend meetings the most often and people with relatively high income levels also participate the most, but this is again related to the fact that most respondents with high income levels are from Guiljungan, where meeting attendance is relatively high.

Index of participation in decision making

Organizations that decide about topics democratically are generally believed to be more effective. Therefore respondents were asked to what extent they were involved in the group's decision making. They had to choose (subjectively) whether they were "very active", "somewhat active" or "do not participate" in the group's decision making. The response was re-scaled from 2 to 0 respectively. The resulting index was rescaled from 0 to 100. The average value is 67.6. Table 5.3 shows the striking difference between the average level of decision making in fisherfolk organizations (77.4) and other local associations (52.5). This has probably to do with the fact that the fisherfolk organizations are initiated in the communities (see community orientation) themselves so they are more active in the decision making. Male members also considerably participate more actively than female members (who are more involved in other local associations). Table 5.2 does not show any significant difference between the age categories.

Index of contributions

The index of contribution is measured by the amount of money paid for the membership, whereby the highest contributed amount was set equal to 100. The idea is that when members are willing to pay membership fees they are presumably more interested in the association than people who are not. In the barangays and in other household characteristics there is one number that stands out again and again. In Guiljungan the respondents pay the highest contribution to the organization, this is project Dungganon; table 5.3 shows the highest amount of membership fees paid is in other local associations. This also explains the high amount of contributions of female members. They are apparently in age category 35 to 49 and have a relatively high household income. It is not clear from this data whether a membership in project Dungganon leads to a higher household income but according to the members themselves it improves their livelihood and the project is important in times of emergency. According to research of the NWTF itself it shows that the project can certainly improve the household income (see chapter 4). Furthermore contributions to other organizations are fairly low.

For MASFA each person pays P10 once to become a member and P3 for monthly dues and P100 for counterpart (Kasamaka), GUISFA members pay a membership fee of P20 once and they pay P7 per month for the meeting and the emergency fund, plus P200 for counterpart. CAMAFFA has no fee at all. For Maguiting every meeting members pay P10 and P25 for monthly dues, the BFPC/MPC members pay P25 for their membership per month and P50 for capital built up.

Table 5.3 *Social capital dimensions, by region and type of organization*

	Fisherfolk organizations	Other local associations
<i>Barangay</i>	<i>Index of heterogeneity</i>	
Man-uling	69.7	85.2
Caliling	71.4	74.6
Guiljungan	76.6	77.8
All	72.1	78.9
	<i>Meeting Attendance</i>	
Man-uling	18.3	8.5
Caliling	16.9	25.4
Guiljungan	27.7	20.7
All	20.9	19.8
	<i>Index of participation in decision making</i>	
Man-uling	80.0	60.0
Caliling	78.6	56.3
Guiljungan	72.2	42.9
All	77.4	52.5
	<i>Index of contribution</i>	
Man-uling	4.1	5.9
Caliling	5.8	4.6
Guiljungan	6.7	28.4
All	5.2	13.6
	<i>Community Orientation</i>	
Man-uling	100.0	40.0
Caliling	14.3	37.5
Guiljungan	100.0	16.7
All	80.6	31.6

Community orientation

The assumption is (and many case studies argue) that voluntary organizations which are initiated by the communities themselves are more effective than externally imposed groups (Grootaert and Narayan 2000). Respondents were asked who founded their group; in this case local leaders, community members and Balayan are regarded as community initiated. Respondents in Man-uling and Guiljungan regarded their organizations for 100% community initiated. This is quite logical because MASFA and GUISFA were set up by local leaders, community members and with help from Balayan. In Caliling the fisherfolk organizations were founded by the local government. Other local associations find their roots much less within the community; 31.6% of other local organizations are regarded as community initiated. Most people joined the group voluntarily, others were chosen or invited. Nobody was required to join.

Benefits of joining

Primarily the benefits to become a member are that it improves the livelihood of the household, that the group is important in times of emergency. Senior citizens receive discount on transportation when they join an elderly group. One member of Maguiting told that their organization pays the fines they receive when they get caught by the bantay dagat for illegal fishing in municipal waters. One respondent that was no member of any organization said he has a simple life; the big question is where to get food. So he has no time to be involved in an organization. A female respondent said she was afraid to join an organization, because maybe she can not pay the membership fees.

Networks

Regarding networks, respondents were asked about the number of close friends and the number of people they can turn to when they are in need of immediate money. These questions give information on the size of the network (number of close friends) and the extent to which this network would provide assistance in case of need. Many respondents had difficulty in determining the number of *close* friends and boasted about the size of their network. Some replied they had no less than 100 close friends. The average number of friends (14.4) is therefore not highly reliant and useful. The number of people (beyond the immediate household) one can turn to in case of need are categorized. Eight (8) people in Man-uling replied they can rely on no one in case of need; overall there were 11 people of the 91 respondents who said they do not expect to receive help from anyone. Of all respondents, 33 replied they can turn to 5 or more people when they are in need of money. Many said that when their friends have money, they are willing to help. Others replied they can only borrow from relatives.

Trust and solidarity

The concept of trust is difficult to define and measure because it is highly subjective; it means different things to different people. A distinction is made between general trust and trust in specific kind of people (Grootaert and Narayan 2000). Several statements about trust were presented to the respondents. The answer categories were divided in agree strongly (1), agree somewhat (2), disagree somewhat (3) and disagree strongly (4).

The statements are:

- A. Most people in this barangay can be trusted
- B. In this barangay you have to be alert or someone is likely to take advantage of you
- C. Most people in this barangay are willing to help if you need it
- D. In this barangay people generally do not trust each other in matters of lending and borrowing money
- E. Most local government officials can be trusted
- F. The police can be trusted
- G. Strangers can be trusted

Before analyzing the level of trust, the questions are examined to make sure they measure the same aspect: trust. Beforehand the expectation was that the questions A/B/C/D belonged together in the sense that they measure general trust in a community. Questions E/F/G were also thought to belong together because it seems that they measure trust in certain types of people. Questions B and D were rescaled because they were asked in a negative way and the other questions in a positive way. Factor analysis is used to identify if there are any underlying common factors across the different questions. At first a standard factor analysis was made which selected eigenvalues over 1. Three components were extracted using principal component analysis. Because the assumption was that two factors would be extracted, the factor analysis was done again for two factors.

There appeared to be a correlation between questions A/C/E/F and G with a reliability of Cronbach alpha is .647 (see table 5.4 in appendix), which indicates that the questions can be compared². It became clear that questions B and D measured something else. The correlation between questions B and D was low; therefore these questions will not be analyzed. The removal of other questions did not lead to a large increase of the Cronbach

² The value of alpha lies between 0,00 and 1,00. At value 0,00 there are no common factors between the questions; value 1,00 means that the questions completely overlap. A Cronbach alpha of .65 indicates a considerable reliability.

alpha (a higher alpha means a higher reliability); therefore no other questions were removed.

The five remaining trust factors were computed in one mean factor, to analyze the difference overall, between the barangays and in the barangays. First some frequency tables were made to analyze the data on the levels of trust overall, that means for all three barangays on aspects of sex, age and household income. In this way some general conclusions can be made on the average level of trust in the three barangays. Subsequently possible differences between the barangays are examined and finally possible differences in the level of trust in the barangays are examined for the aspects sex, age category and household income. Table 5.5 in the appendix shows the overall level of trust in all three barangays according to sex. The table shows that the overall level of trust of men is slightly higher than that of women (the mean of males is 2.28 which means the answers were between agree somewhat and disagree somewhat). N is the number of cases. To check if this difference is significant a t-test was performed using SPSS; significant means $p < 0.05$. This difference in sex in overall level of trust turned out to be not significant; a value of $p > 0.05$.

Table 5.6 (in appendix) shows the overall level of trust according to different age categories of all three barangays. It shows that the mean level of trust of respondents of 49 and younger is somewhat higher than the level of trust of respondents of 50 years and older. To verify if this difference is significant another t-test is used. This difference turned out to be not significant as well. So it is not possible to say that the level of trust in the three barangays differs significantly according to age categories. The standard deviation is also quite high, which indicates the diverse answers given by the respondents in all age categories.

Table 5.7 (in appendix) shows the overall levels of trust according to household income. Do households with higher income have a higher level of trust as well? According to the table the respondents with the lowest and the highest income show to have slightly less trust in people from the barangay and the government, police and strangers than the middle income households. The standard deviation is again quite high which indicates the spread in answers given by the respondents. Once more these differences are not significant according to the t-test.

The overall levels of trust do not show any significant differences according to sex, age and household income. Subsequently possible differences between the barangays are examined. Table 5.8 (in appendix) shows the mean level of trust for the three different barangays. Caliling shows the highest level of average trust (mean is 2.14), Guiljungan shows the lowest level (mean is 2.47). The standard deviation of all three barangays is quite high which once more indicates the diverse answers given by the respondents. The t-tests do not show any significant differences in the level of trust between the barangays. However the levels of trust between barangay Caliling and Guiljungan were nearly significant ($p = 0.07$). In Caliling the level of trust is almost significantly higher than the level of trust in barangay Guiljungan. This does not correspond with the earlier made assumption that the level of trust in Caliling was thought to be lower because of tourism developments and the accompanying distrust of foreigners and strangers. In Guiljungan the somewhat lower levels of trust may be related to the presence of small-scale and large-scale fishers and their distrust of each other.

Finally differences in the barangays themselves are examined. Table 5.9 (in appendix) shows the levels of trust between males and females per barangay. In Man-uling the average level of trust is somewhat higher for females than for males, but this difference is not significant. In Caliling the level of trust is higher for males than for females and in Guiljungan it is the other way around. The differences are nevertheless very small and are not significant according to the t-test. The standard deviation is again quite high. After carrying out several t-tests, the differences shown in table 5.9 are not significant. One can not say that the level of trust differs according to the sex of the respondents.

Table 5.10 (in appendix) shows the level of trust in the three barangays according to age categories. Does the level of trust differ according to age? Do younger respondents have more trust in other people than older respondents have? In Man-uling the third age group (50+) has the highest levels of trust but the differences are yet again not significant. In Caliling on the other hand the middle age group shows the highest levels of average trust with a relatively small standard deviation. The difference between age category 1 (18-34) and 2 (35-49) show an almost significant difference in level of trust ($p=0.07$).

Between age category 2 and 3 there is a significant difference in levels of trust see table 5.11 in the appendix ($p=0.01$). This means that in age category 2 the level of trust is significantly higher than the level of trust in age category 3. In Guiljungan age category 1 shows the highest levels of trust. Age category 3 has a notable high standard deviation. There are no significant differences in trust according to age categories in this barangay.

Finally table 5.12 (in appendix) shows the differences in trust for all three barangays according to household income. In Man-uling the respondents with the highest income show the lowest level of trust and a low standard deviation because there are only 2 respondents in this category; the difference is not significant. In Caliling the means of the different household income categories lie close together and therefore no significant differences are identified. In Guiljungan in income category 1 and 2 there is an almost significant difference ($p=0.069$). It becomes clear that household income does not have a significant impact on the level of trust in the different barangays.

To summarize, there are no significant differences in the level of trust overall according to sex, age category and household income category. There is no significant difference in the level of trust between the barangays. Only age categories 2 and 3 in Caliling show a significant difference; the level of trust among respondents in age category 35-49 show a higher level of trust than respondents of 50 years and older. Furthermore there can be drawn no conclusions on the relationship between the level of trust and sex, age and household income in the three barangays themselves.

Additional remarks

According to 96% of the respondents the level of trust increased or stayed about the same compared to two/three years ago, the remaining respondents felt the level of trust decreased.

On the question "most people are willing to help if you need it" respondents replied that it is matter of give and take. One man agreed strongly on the statement because he just experienced this in real life. He fell from a coconut tree and he was badly injured but many people in the community were extending help to him at that time.

"...all people here are ok"

Trust in strangers depends upon the motives of the strangers was a most given answer of the respondents. For the researcher it was an awkward experience when some of the respondents disagreed strongly on the statement "most strangers can be trusted".

Regarding solidarity, the respondents were asked whether they would contribute time or money to a project that is not directly benefiting them but is benefiting for others in the community (like a basketball play ground etc). Fifty eight (58) percent of the respondents did not contribute time and 79% did not contribute money to such a project. Twenty one (21) percent contributed both money and time, 58% did contribute neither money nor time. In Caliling, respondents most often contributed time and money.

Collective action and cooperation

As already mentioned, collective action is seen as an outcome measure of social capital because collective action is only possible if an amount of social capital is available in the community. The Philippine government usually does not force people to operate in projects and activities, which is a prerequisite for the validity of the collective action indicator.

Table 5.14 (in appendix) shows some indicators of collective action: the extent of collective action, the type of activities undertaken collectively and the extent of willingness to participate in community activities. The average number of days households participated in community activities in the past year is 4 days. In Man-uling this number is 6.5 days and in Caliling and Guiljungan respondents or their household members participated 2 to 3 days on average. The kind of activities undertaken are primarily coastal clean up activities organized by the barangay or an organization, high way clean up, and attending barangay meetings. Other activities are the construction of a hanging bridge and vegetable planting in barangay Man-uling and organizing a barangay fiesta, helping with the undertaking of a population census, planting seeds and participation in bantay dagat activities in barangay Caliling. In Guiljungan there are no other activities. Coastal clean up is by far the most popular community activity among the fisherfolk households. This activity is primarily voluntary as table 5.13 shows. As table 5.13 and 5.14 show, almost all activities undertaken by the fisherfolk are voluntary.

Activities in which respondents were required to participate are shown in table 5.13. Especially meetings were not attended voluntarily by the respondents. In highway clean up activities respondents were eager to participate because this effort is paid by the central government; it is a project of president Arroyo.

Table 5.13 *Type of activities undertaken*

	Voluntary %	Required %	Total
Coastal clean up	95.7	4.3	100
Highway clean up	100	0	100
Meeting	53.8	46.2	100
Other	100	0	100
Total	88.7	11.3	100

As table 5.14 in the appendix also shows, there are many respondents who do not participate in any activities. Some respondents however replied they were willing to participate in activities organized in the community but there simply was nothing to participate in. They often accused the barangay council for not organizing any projects. Others replied they have no time to participate; they need to go fishing.

"...I never hear about projects in the barangay"

"...I have no interest in projects or things that happen in the barangay"

There are hardly any respondents, male or female, that participate in 3 activities. The household income or age of the respondents does not influence the number of activities systematically.

Respondents were also asked how likely it is that people who do not participate will be talked or gossiped about. The opinions on this question vary widely and it is impossible to identify a pattern in the data according to spatial and socio-economic variables. Percentage of people who consider it likely that people who do not participate are gossiped about is 42.7%.

How do community members respond to a serious event like a death of a parent? Eighty one (81%) of the respondents answered that people in the community would get together and help the family in need, 19% replied that people would individually extend help. None of the respondents thought that no one would extend help.

5.4 Social capital in more depth

Information and communication

To maintain and enhance the amount of social capital it is important that community members are able to communicate among each other, with members that live outside the community and with other communities (Grootaert et al 2004). Therefore the respondents were asked about topics related to information and communication. The transportation network is quite good in the whole of Cauayan. The national road is accessible all year long because it is asphalted. There are hardly any landline connections; people either use a public phone or a cell phone.

The post office is located in Poblacion, for respondents in Man-uling this very nearby, except for people living in the upland area, therefore most respondents can reach the post office in less than 15 minutes. In Caliling most people hand their mail over to the barangay captain, who takes it to the post office about once a week, when he goes there for meetings etc. In this way people do not have to go all the way to Poblacion just to send a letter. People in Guiljungan either go to Poblacion, which is 7 kilometers away, or to Kabankalan, 15 kilometers away. As can be seen in table 5.15, people hardly send or receive mail; 76 respondents did not receive or sent mail in the last month.

"...mail is not important, if I want something, I go there personally"

Table 5.15 *Indicators on information and communication*

Questions	Number of respondents				
	<15 min	15-30 min	31-60 min	> 1 hour	
Time to nearest post office?	53	35	3	0	
Time to get to the nearest telephone?	20	12	2	2	
<i>In the last month</i>	0	0-4	5-10	>10	
Times received/sent mail?	76	15	0	0	
Times made/received a phone call?	45	37	5	3	
Times read newspaper?	67	17	4	3	
	Every day	Few times a week	Once a week	< once a week	Never
How often do you listen to the radio?	61	10	2	2	16
How often do you watch news on tv?	27	16	6	4	38

As chapter 3 already mentioned there are two public calling offices located in Cauayan, which people can use. Nevertheless people often do not make phone calls because it is too expensive, they rather sent text messages which cost just P1 per message. Especially people with family members in Manila or Bacolod make use of the calling services. A lot of respondents replied they could borrow a cell phone from the neighbors when they need to make a phone call.

A large number of people never read a newspaper (67), because they can not afford to buy one. Others are just not interested in the news or they listen to the radio or watch television. People often replied they watch television at the neighbors because they do not have electricity. Especially radio is an important source of information for the respondents; a lot of people listen to it every day. Important sources of information about what the local or national government is doing are primarily radio and television. Also relatives, friend and neighbors are mentioned as important sources of information.

Are there differences in the way people are informed about local and national news? Information about local news is primarily gained from the radio (33%); relatives, friends and neighbors (27%); television (19%); and groups and associations (8%). Other sources of information are the local market, local newspaper and community leaders. Information about national news is also primarily perceived from radio (42%); television (32%); relatives, friends and neighbors (10%); national newspaper (5%); and community leaders (5%). Groups and associations play a minor role in the dissemination of information on national news; only 3% of the respondents mention this as primary source of information. Nevertheless it became clear during the interviews that a lot of people do not care much about the government; they have their own problems.

"...I don't care about news; I am only looking for food for my family"

People in the upland areas probably have less access to information and communication. A respondents that used to live in the upland area but recently moved to the coastal area, replied he was more informed about national and local news now. The houses in the upland area are more scattered and people are living at large distance from each other, so information exchange with neighbors is limited.

To examine the mobility of the respondents they were asked how many times they traveled to a neighboring barangay or municipality in the past month. To identify a pattern of mobility they were also asked to give the reason for their trip. Table 5.16 shows the results. The average number of visits to another barangay or municipality is slightly higher than 6 visits per month. The main reason to travel is to go to the market (46%). Especially for males and females from Caliling an important reason to travel is to visit relatives and friends. For the interviewed women in Man-uling this is no reason to travel, maybe many relatives and friends live in the same barangay, because also the number of men traveling to neighboring barangays to visit friends or relatives is low. It seems that people in Man-uling visit a church in one of the neighboring barangays. It further seems that women visit markets in other barangays slightly more than men do. Especially men travel for work or business related reasons and especially men in Guiljungan; 50% travels for work or business reasons. Other reasons are to look for a partner; buy medicine; go to the hospital; attend a meeting; make a phone call; pay the rent; get money from the bank; and go to the post office. The main destinations of the respondents are within the municipality of Cauayan, Kabankalan and Bacolod.

Table 5.16 Number of visits and reasons for travel per sex and barangay

Sex	Barangay	Average number of visits	Reasons for traveling %					All
			Visit relatives/friends	Go to church	Go to market	For work/business	Other	
Male	Man-uling	5,5	7.4	18.5	55.6	11.1	7.4	100
Male	Caliling	8,8	22.2	0	40.7	18.5	18.5	100
Male	Guiljungan	4,7	16.7	0	25.0	50.0	8.3	100
Female	Man-uling	6,2	0	25.0	58.3	0	16.7	100
Female	Caliling	5,5	23.5	5.9	52.9	5.9	11.8	100
Female	Guiljungan	5,9	16.1	3.2	41.9	12.9	25.8	100
Total		6,3	15.1	7.9	46.0	15.1	15.9	100

Social cohesion and inclusion

The presence of conflict in a community may be an indicator of the lack of trust or the lack of structural social capital to resolve conflicts, or both (Grootaert et al. 2004).

Causes for problems or conflicts in the three survey areas are, according to the respondents, not directly related to differences in characteristics between people but alcohol, misunderstandings and "cocho cocho" (gossip) are almost always the reason for conflicts. Alcohol may be a serious problem in some fisherfolk communities. The people

make their own coconut drinks called "tuba". They start drinking in the morning out of boredom and in the afternoon conflicts arise between people who are drunk.

Have these problems ever led to violence? Eighty two (82) percent of the respondents believe that the problems in a community, primarily related to alcohol and gossip, have ever led to violence.

Almost all respondents interact with other people on a daily base; especially to talk and have food or drinks and in a less extent play games and/or sports together. They play basketball, sing along with videos and drink tuba and play cards. The frequent occurrence of every-day social interactions is a positive manifestation of a high level of social capital in a community (Grootaert et al 2004). To find out whether this social capital is primarily bonding or bridging, some questions were asked on the heterogeneity of the group with whom one meets to talk or to have food or drinks. If one mainly meets with people with the same characteristics, these meeting are bonding in nature.

The heterogeneity is examined according to six criteria: economic status, civil status, religious group, family, gender and age. Score of 0 to 6 is possible; a score of 1 on the index means that the group consists of people with the same characteristics. The score was rescaled where 6 equals 100. The average score is 73.4, thus respondents meet with heterogeneous groups of people. Respondents met with people of all different age and religion (catholic, Baptist etc). Many respondents met with groups in which all people have the same economic status. This shows that the daily social interactions of the respondents are primarily bridging in nature.

Regarding feelings of insecurity and the extent of violence in the barangay, overall 66% of the respondents feel very safe when they are alone at home, 33% feels moderately safe in that situation, only one man in Man-uling replied that he felt somewhat unsafe when he is home alone this is related to alcohol problems of some of his neighbors. In Man-uling the level of safety is significantly lower (more people answer moderately safe) than in the other two barangays. There is no difference in sex or age in feelings of safety. The perceptions of respondents regarding the extent of violence in the barangay are as follows: the majority of respondents, 82%, perceive the barangay as moderately safe, 15% perceives the barangay as moderately violent, and the remaining respondents designate the barangay as very peaceful.

Empowerment and political action

In this questionnaire empowerment is defined as the ability of people to change their lives and make decisions that influence everyday activities. Respondents were asked whether they felt they have the power to change their life.

A majority of the respondents (58%) felt mostly able to change their life; 25% felt totally able to change their life; 11% felt mostly unable to change their life; and 6% felt totally unable to change their life.

Some replied they want to change their life but the situation does not allow it or they replied it is really hard to change their situation. Many also made a connection with religion:

"...God gives me strength"

One woman replied she wanted to change her life, but her husband does not let her. She has no work and she wants out of this life.

"...I'm bored with this kind of life; I have to stay in the house"

Many people also said they were not able to change their life, because they are poor, so they have no influence.

Are their different levels of empowerment according to barangay, sex, age or household income? Table 5.17 (in appendix) shows the different levels of empowerment between the barangays (1= totally unable to change life, 4= totally able to change life). It shows that in Man-uling the respondents feel less able to change their lives than in the other two barangays. The t-test showed that the difference in empowerment between Man-uling and Caliling is significant (see table 5.18 in appendix) and the difference between Man-uling and Guiljungan is almost significant ($p=0.06$). This means that the level of empowerment in barangay Man-uling is significantly lower than the level of empowerment in barangay Caliling. Table 5.19 in the appendix shows the different mean scores on empowerment of males and females. It shows that males feel to have a higher ability to change their lives than females have. This difference is almost significant ($p=0.052$).

Table 5.20 in the appendix shows the level of empowerment overall, according to the age categories. The standard deviation is very high which indicates the diverse answers given by the respondents. It becomes clear that the youngest age category feels to have the most power to change their lives. According to the t-test the difference in empowerment between age category 1 and 2 is significant. Table 5.21 (in appendix) shows $p=0.015$ which is $< p=0.05$. There is a significant difference in the level of empowerment between age category 1 and 2, in which category 1 feels to be more able to change their lives than age category 2. Finally table 5.22 (in appendix) shows the average scores on empowerment according to household income. Do households with a higher income also feel more able to change their life? Table 5.22 shows that there is an ascending line in the feeling to be able to change ones life according to household income. Respondents with high household income show a higher level of empowerment (ascending means). However this difference turns out to be not significant. The standard deviation is again considerably high.

What becomes clear is that there is a significant difference in empowerment between Man-uling and Caliling and in age category 1 and 2.

Making the barangay a better place to live is according to some respondents solely dependent upon the barangay officials. Are there differences in perceived influence between the barangays, sex, age and household income? The answers were categorized: influence is 1, no influence is 2. Table 5.23 (in appendix) shows that respondents from Man-uling on average feel more able to influence the barangay to make it a better place to live than Caliling and Guiljungan. The difference turns out to be significant after carrying out several t-tests, see table 5.24 in the appendix. One can say that in Man-uling people significantly feel to have more influence in making the barangay a better place to live than people in Caliling and Guiljungan.

Table 5.25 (in appendix) shows the differences in sex, table 5.26 (in appendix) the significance between male and females in the perception of influence in making the barangay a better place to live. It becomes clear that overall; males feel to have more influence to make the barangay a better place to live than females; this difference is significant. Table 5.27 in the appendix, shows the feeling of having influence is descending according to age category; respondents in the highest age category feel to have less influence on average than younger respondents, but the differences are not significant. Table 5.28 (in appendix) shows the overall feelings of influence according to household income category. It appears that the feeling of influence is descending according to household income; overall, respondents with higher household income show to have lower feelings of influence than respondents with less household income.

Political action is seen here as taking part in political activities as filing a petition and voting in elections. Seventy eight (78) percent answered that people in the barangay have never gotten together to jointly undertake action against government officials etc. The remaining respondents replied they have taken part in bantay dagat operations and the processing of violators. In the past there have been several protest actions against the policy of the previous mayor.

Almost all respondents (89%) voted in the last government elections in May 2004. The ones that did not vote were often not registered or moved to another place. People working abroad or staying in another place in the Philippines are not able to vote; it is not possible to authorize or empower someone else to vote for you when you are absent.

Despite all the hardship almost every respondent considered himself/herself as moderately happy. The reason for their happiness was unanimous: family (especially children) and friends. One young man's happiness was related to 1) God, 2) family, 3) friends and 4) happenings. Another said he would be happier when he could earn more money from fishing.

"...good health is a major source of happiness despite our poverty"

Striking is also the number of people that call their neighbors as source of happiness.

Conclusions

The most important organizations for the fisherfolk are the fisherfolk organizations and the lending associations; they provide the fisherfolk with many benefits. The associations need to be of direct benefit to them, otherwise they are not willing to invest time and/or money; they are busy finding food for their next meal. This is also the reason for the low participation in collective activities in the barangay. From coastal clean-up activities the fisherfolk directly benefit and for taking part in highway clean-up activities they receive money. They were not many other activities, the reason for this is not clear, maybe there are more projects of which the fisherfolk are not aware or there really are no more activities.

The heterogeneity of the members in the organizations is quite high. Meeting attendance is especially high when this is required, like in project Dunganon. Participation in decision making in fisherfolk organization is higher than in other associations, therefore they are likely to function more democratically. Many fisherfolk organizations were initiated by the community members themselves so this may lead to higher levels of participation in decision making. Most of the other associations are initiated by the government or private companies etc. Contributions are quite low, but this is necessary otherwise nobody is able to participate. Only members of project Dunganon have to pay a considerable amount of money every week.

The average level of trust in people from the barangay, in local government officials, in the police and in strangers is moderately; this may be related to a culture of corruption in the Philippines. Generally, males show a slightly higher level of trust than females. Overall, the level of trust does not significantly differ according to age categories and household income categories. Caliling has the highest level of trust on average.

Respondents hardly use any means of communication. Most are not very interested in news about the national government. The most important sources of information for the fisherfolk are radio, television, friends, relatives and neighbors. The interaction with neighbors is quite important especially as source of information. People watch television at their neighbor's house, they use each others cell phones and they listen to the radio together. Mail and telephone calls are hardly ever used as means of communication; they rather use text messages. Most of the respondents are very locally oriented; most

of them usually stay within the municipality or visit nearby towns like Kabankalan. They simply do not have the money to travel further.

Conflicts or problems in the community are primarily related to alcohol, gossip and misunderstandings. A majority of the respondents believes these problems have ever led to violence. However feeling of insecurity are quite low. The frequent occurrence of everyday social interaction indicates a high level of social capital in the community. Groups with whom respondents meet are quite heterogeneous. From the data, it seems that the social capital is primarily bridging in nature but observations primarily showed the bonding nature of social capital.

There is a significant difference in the feelings of empowerment between barangay Man-uling and Caliling; respondents from Man-uling feel less empowered. Strangely fisherfolk from Man-uling feel to have significantly more influence in making the barangay a better place to live than the other two barangays. Overall, male respondents feel more empowered and feel to have more influence than female respondents; some females felt constrained by their husband. Respondents in the youngest age category, on average, feel more empowered than respondents from the middle age category. Feelings of influence are descending according to age categories; young people feel to have more influence than older respondents. Feelings of empowerment seem to increase with household income, however differences are not significant. Strangely feelings of influence seem to decrease with higher incomes; higher household income feel to have less influence in making the barangay a better place to live. Maybe they have less interest in this than the lower household income. In the past there have been several political actions (see chapter 4) but nowadays there are not many protest actions. Most of the respondents felt moderately happy despite their poverty. However, they would feel happier, when they have more income from fishing.

6. Conclusions and recommendations

From several studies on the livelihood of small-scale fisherfolk in Cauayan it has become clear, that there are many interrelated problems in coastal areas in the Philippines that contribute to and/or sustain the poverty of the small-scale fisherfolk (human impacts picture see appendix). This research paper has attempted to give an overview of the situation of small-scale fisherfolk in Cauayan taking these various factors into account on different levels of scale. Most of the problems can be related to factors identified in the livelihood framework. In chapter 1 the research questions were given these are formulated as:

- What are the characteristics of fisheries in Cauayan?
- What is the influence of social relations, organizations and institutions on the fisherfolk in Cauayan?
- How is fisheries management arranged in Cauayan?
- What are outside threats to the fisherfolk?
- How important is social capital (for gaining a better livelihood)? What are the three basic indicators of social capital and how do they turn out in Cauayan?

These questions will be shortly answered in the next section. Finally the main research question: *Which factors sustain the ongoing poverty in small-scale fishing communities in Cauayan, Negros Occidental, the Philippines?* will be answered and some recommendations for further research and development are given.

6.1 Research questions

What are the characteristics of fisheries in Cauayan?

The fishers in Cauayan use all kinds of different gears and boats. If the small-scale fisherfolk own a boat, it is a small *banca*. They primarily use hook and line and nets. More commercial fishers own trawlers with more advanced gear. Competition exists between the two sectors, especially when the fishers with trawlers fish illegally within the municipal water zone. Furthermore the fishing sector in Cauayan is characterized by its open access nature; reciprocal access takes place among municipalities. Especially men are directly involved in fishing, women are primarily involved in fishing related activities, like the distribution and processing of the catch and the maintenance of gear etc. Boys and girls are involved in fishing, starting at a very young age.

The fisherfolk are relatively poor; their income from fishing is hardly sufficient and therefore they have to find additional sources of income. All kinds of livelihood diversification activities are visible, such as keeping cattle, running a *sari-sari* store.

What is the influence of social relations, organizations and institutions on the fisherfolk in Cauayan?

Social relations in some families in Cauayan may be an inhibiting factor for access to assets and a better income. In some households women are still not allowed to work, while if they would work, they may contribute considerably to the household income. Besides taking care of the children and the household they can start their own business through for example project Dunganon. In some cases women might not have the time to also become involved in income generating activities; this is known as the 'triple burden'. In Poblacion and Tiling there are already two woman organizations that provide women with additional sources of income. The organisations were initiated out of boredom among the female population in the barangay. They are engaged in a garment

smocking project and in swine dispersal. At first the men in the community were not very enthusiastic about the women working, but nowadays they reap the benefits. There is a need of education in gender roles and people should be made aware of the benefits of this development. The role of women in fishing is also very important; they often play an important role in the distribution and processing of the catch and also in the maintenance of the gear. Men run the risk to become excluded from the community because of the long periods of absence.

The primary institutions in Cauayan are the Fisheries Code of 1998 and the Municipal Ordinance. They have several strengths and several weaknesses from the small-scale fisherfolk's interest. Strengths are the opportunity for CBCRM in the FC and the focus on the conservation and preservation of the natural resources. The rights of the fisherfolk are acknowledged and furthermore the FC offers special incentives and support to the fisherfolk. There are also stiffer penalties for illegal fishers, but these are still in no proportion with their income from illegal fishing practices. The weaknesses are commercial fishing in municipal water, which is allowed conditionally, and the insecure housing tenure arrangements for the fisherfolk. There is a need of values formation of apprehended illegal fishers, so once returned in the community they do not fall back in their old patterns.

There are various organizations present in Cauayan, from provincial to local government departments and community associations etc. The local government in Cauayan seems to be more focused on the farming than on the fishing sector. The organizational division of state departments at the national level can partly explain this; the Bureau of Fisheries and Aquatic Resources is part of the Department of Agriculture. In Cauayan there is a Department of Agriculture but there are no fisheries experts present in the city hall. Therefore the fisheries sector is given less attention than the agriculture sector. Once there are more fisheries projects initiated by the LGU, these projects may receive financial support from the provincial level.

Fisherfolk in Cauayan have managed to become organized in well working associations, which provide them with many advantages. At first they were primarily focused on environmental issues and later on they integrated a livelihood component. They have gained in confidence and respect from the community and from local government officials. Also the lending organizations and some other local associations are very helpful for the fisherfolk. Access to credit is quite difficult for them; the micro lending project of Kasamaka and the lending and savings possibilities of project Dunganon makes access to financial capital easier. The organizations also experienced some problems with organizational tasks and meeting attendance, and the fisherfolk only partially became empowered. The poor health facilities in the municipality might endanger the human capital of the fisherfolk and others in the long run.

How is fisheries management arranged in Cauayan?

Fisheries management in Cauayan has shifted towards forms of community-based coastal resource management with help from the university-based community development office, Balayan. Arrangements are made between the government and the fisherfolk organizations to collectively manage fisheries resources. Operations from the coast patrol have been successful in the apprehension of illegal fishers that destroy the coastal environment with illegal gear or fish within the municipal waters. The process of CBCRM has already led to a reduction in depletion of fisheries resources. There have been several projects to reforest the coastal area with mangroves and some developments to culture fish by constructing fishponds have taken place. The process of CBCRM has also resulted in a strong sense of empowerment among the fisherfolk, because they are not only taking part in the management of fisheries resources but are able to exert influence as well.

Unfortunately there is still no effective monitoring of the fish stock. The negative *komprador* system still exists; there is absence of storage and post harvest facilities; and the insecure housing arrangements for fisherfolk continue. Regrettably there are no written reports on the developments in Cauayan so other regions and fisherfolk organization have to find their own way towards CBCRM instead of follow this successful example.

When Balayan is phasing out in 2005, the question will be whether there are strong community leaders who will be able to continue the project and keep the fisherfolk organizations alive.

What are outside threats to the fisherfolk?

The greatest threat to the fisherfolk is perhaps the large-scale fishing sector. There is a direct competition for the resources and when the large vessels enter the municipal fishing grounds with technological advanced fishing techniques the fisherfolk are standing without a chance. Possible solutions for this threat are a better implementation of already existing rules and regulations; the abolishment of conditional commercial fishing in the municipal waters, which is still allowed under the Municipal Ordinance; and more severe penalties for offenders together with values formation.

Another threat is the overpopulation in the coastal areas. The population is increasingly becoming more aware of the dangers of overpopulation. Nevertheless there are still many families with 7 or 8 children. Another threat is related to recent tourism developments in Cauayan. This threat can easily be reduced when the housing for fisherfolk becomes more secure. Nowadays there are hardly any fisherfolk who own the lot on which their houses are built. When the landowner decides to change the destination of the land or sell the land to foreigners who want to build a resort there, which is a recent development, then the fisherfolk have to resettle. It is likely they have to move inward and lose their place along the coast, which provides them with many advantages.

What are the three basic indicators of social capital and how do they turn out in Cauayan?

Groups and networks, trust and solidarity, and collective action are the three basic indicators of social capital. There are several organizations present in Cauayan; some are important for the livelihood of the small-scale fishers, like the fisherfolk organizations and the lending organizations, others are important in other aspects, such as for pleasure. When an organization can directly benefit the fisherfolk they are willing to contribute time and money to the association and they show up in group meetings. It turns out that the groups in which the fisherfolk participate are quite heterogeneous, which is positive in the aspect of information exchange. Organizations, in which decision making about topics is arranged democratically, are believed to function more effectively. The small-scale fishers are active in decision-making in the fisherfolk organizations, perhaps because they are initiated by the communities themselves. In organizations that are initiated by the government, participation in decision-making is much lower. Respondents indicate to have quite a big network of friends.

Overall, the average level of trust in people in the barangay, in government officials, in the police and in strangers is not extremely high or low; the majority of the respondents replied with "agree somewhat" or "disagree somewhat". The respondents think very diverse about the concept trust; the standard deviation of the answers was most of the time quite high. Therefore it is hard to draw any conclusions about trust in the three research areas. Collective activities are undertaken very moderately; there are hardly

any activities to participate in or people are too busy finding their next meal. Collective activities are primarily coastal clean-up and highway clean-up, both activities are directly benefiting to the fisherfolk. Highway clean-up especially because they receive a loan when they participate. These are the three basic indicators.

Additionally, means of information and communication were examined. People are hardly interested in happenings outside their barangay/municipality; they are busy with their own lives. Important sources of information are the radio, television and neighbors, friend and relatives. The frequent occurrence of everyday social interactions in the three research areas is a positive manifestation of high levels of social capital. A majority of the respondents feels the ability to change their life (in this case the definition of empowerment); overall, women feel less empowered. Men also feel to have more influence in making the barangay a better place to live than women.

How important is social capital?

Social capital was defined as: "reciprocity within communities and between household based on trust deriving from social ties".

The fisherfolk seem to have a large network of friends, who are willing to help if they can. The frequent occurrence of everyday social interactions shows the high stock of social capital in the three research areas. The data showed that the heterogeneity of the group with whom one meets is quite high, from observation on the other hand it seemed that the groups with whom one meets are quite homogeneous. There were many with the same economic status and educational background. The homogeneity of the group makes it easier for people to trust each other but on the other hand when the power and resources of the group of the group are limited; linking with other groups becomes important to access different resources, information and power.

The trust in different people is moderately. Local government officials and the police people were often thought to be very corrupt; this is related to a wider context of a culture of corruption in the Philippines. Nevertheless people in the community are willing to help each other, also financially if they can. Social ties help the fisherfolk for example to borrow a boat, to listen to the radio of friends or borrow a cell phone from the neighbors. Therefore social capital is important because it provides them access to information and physical capital and it may reduce risk.

Social capital in the form of groups and networks provides the fisherfolk with many advantages as well. Through their organization the fisherfolk became more aware of their situation and that something needs to be done about the conservation and preservation of the resources. They gained respect in the community and from local government officials with their organization. Organizations like project Dunganon provide the fisherfolk access to financial capital, which is very important for them. This particular organization also helps to empower women because they have to start their own business. The fisherfolk organizations achieved to become actors in the fisheries management of their coastal resources with the help of Balayan. Communities with low stocks of social capital are also thought to be weak in the management of common resources, when people do not trust each other it is hard to reach decisions and there are problems associated with free-riding.

6.2 Main research question

Now we return to the main research question:

Is there ongoing poverty in Cauayan? And is the poverty related to fisheries?

And finally: *Which factors sustain the ongoing poverty in small-scale fishing communities in Cauayan, Negros Occidental, the Philippines?*

Is there poverty among the small-scale fishers in Cauayan? Many aspects seem to indicate the presence of poverty among the fisherfolk. Poverty in Cauayan is related to the "old paradigm" and the "new paradigm" of Béné. A lack of resources and an overexploitation of the resources caused by population growth have led to the impoverishment of the fishing community. Poverty on the other hand is also related to access problems to credit and human capital for example.

Is poverty related to fisheries? It is not clear whether poverty is only related to fisheries or to other sectors in Cauayan as well, because this research only focused on the livelihood of the small-scale fisherfolk. But are they poor because they are fishermen or are they fishermen because they are poor? Both interpretations are applicable to Cauayan. The fishery sector in Cauayan is characterized by its open-access nature and there is a lack of employment outside the fishery sector as well. The second interpretation "they are fishermen because they are poor" is partly true; there are no other opportunities available to them anymore, this is the last option left, however fishing is also believed to be a life style; they do not want to do anything else.

Which factors sustain the ongoing poverty in small-scale fishing communities in Cauayan? The main objective of this research was to identify the factors that stop or inhibit the fisherfolk from gaining a better livelihood (and at the same time identify which factors are positive for the fisherfolk).

Social relations between men and women can in some cases be an inhibiting factor. The economic role of women is not yet fully explored. By keeping the women away from employment activities a valuable contribution to household income is missing. The Fisheries Code is quite supportive to the fisherfolk but it allows commercial fishing within municipal water in some cases. Housing tenure insecurity for fishers is also inhibiting to the fisherfolk, especially with the threat of being relocated for the building of a resort or boulevard. Government organizations are indeed hindering the fisherfolk from gaining a better livelihood. Because there are no fisherfolk representatives are therefore there are hardly any fisherfolk projects, they miss out on a valuable contribution from the provincial level. Other organizations are mostly positive.

It seems that social capital is present in the three research areas. It appears that social capital is primarily bonding in nature; primarily groups/networks with people from the same economic status, same educational background, but from different age, family, civil status and religion. They have less to gain from each other; therefore it is important to create linkages with other groups of people with other information and access to other resources. The level of trust is not extremely high and this may hinder the fisherfolk to create linkages with government officials for example, who can be of use to them.

The social grouping of fisherfolk with certain alcohol consumption can also cause problems in the community.

6.4 Recommendations

The following recommendations are based on my own observations and research, and my opinion is reflected on these issues. Since I am not an expert on these cases, the recommendations should be taken with precaution.

- 1) Turn Cauayan into a processing area, and create more employment, and compete with unequal *komprador* system.
- 2) Value adding options, decrease post harvest fish losses.
- 3) More severe penalties for offenders and values formation/ find funding for more bantay dagat boats, 2/3 boats is not sufficient for the whole municipality.
- 4) Fisheries expert in municipal hall, create livelihood project then may receive support from PAO.
- 5) Secure housing for fisherfolk so they do not have to worry about resettlement because of tourism development.
- 6) Contribution of women to household income when possible, lending possibilities, access to credit.
- 7) Create linkages with other groups.
- 8) Create sexual awareness/ promote anti-conceptives, to decrease population pressure. However, to have many children is part of catholic culture.
- 9) Improve health facilities, education facilities there are quite a lot, but the quality is unclear.

6.5 Further research

What is the future of the small-scale fishermen? To what extent does the 'pure' fisherman still exist? The livelihoods of the fisherfolk have become more integrated with diverse activities. Perhaps because of all their diverse income strategies they slowly disappear. Nowadays the pure fishermen still exists, especially among older people who primarily fish for subsistence. Younger household show all kinds of diversification patterns. Are livelihood diversification (farming, wage labor) and options as migration turning the group of fisherfolk into a disperse group? Young people tend to leave Cauayan because there are no employment opportunities; they leave for Bacolod or Manila to find work, there is no future for them in Cauayan. The question of the future of the small-scale fisherfolk remains unanswered in this research.

It may also be interesting to investigate the situation of the fisherfolk organizations after the withdrawal of Balayan from the research area.

More research on housing and tenure rights; will ownership really lead to poverty reduction or development of the different capitals? Can the fisherfolk resist against tourism developments? This is a hot topic at the moment.

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