Fisheries co-management, the role of local institutions and decentralisation in Southeast Asia : with specific reference to marine sasi in Central Maluku, Indonesia

Harkes, I.H.T.

FISHERIES CO-MANAGEMENT, THE ROLE OF LOCAL INSTITUTIONS AND DECENTRALISATION IN SOUTHEAST ASIA

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With specific reference to marine *sasi* in Central Maluku, Indonesia

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We build too many walls and not enough bridges.

Sir Isaac Newton

Cover photo:
Mr Pieter Huliselan, village headman of Nolloth, pronounces ceremonial words and sprinkles water over the sea to open *sasi*. Thereafter (backside) a diver enters the *sasi* area to harvest the first *Trochus* shell (photo: Ansye Sopacua).

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Institute of Environmental Sciences (CML)
Leiden University
PO Box 9518
2300 RA Leiden
The Netherlands

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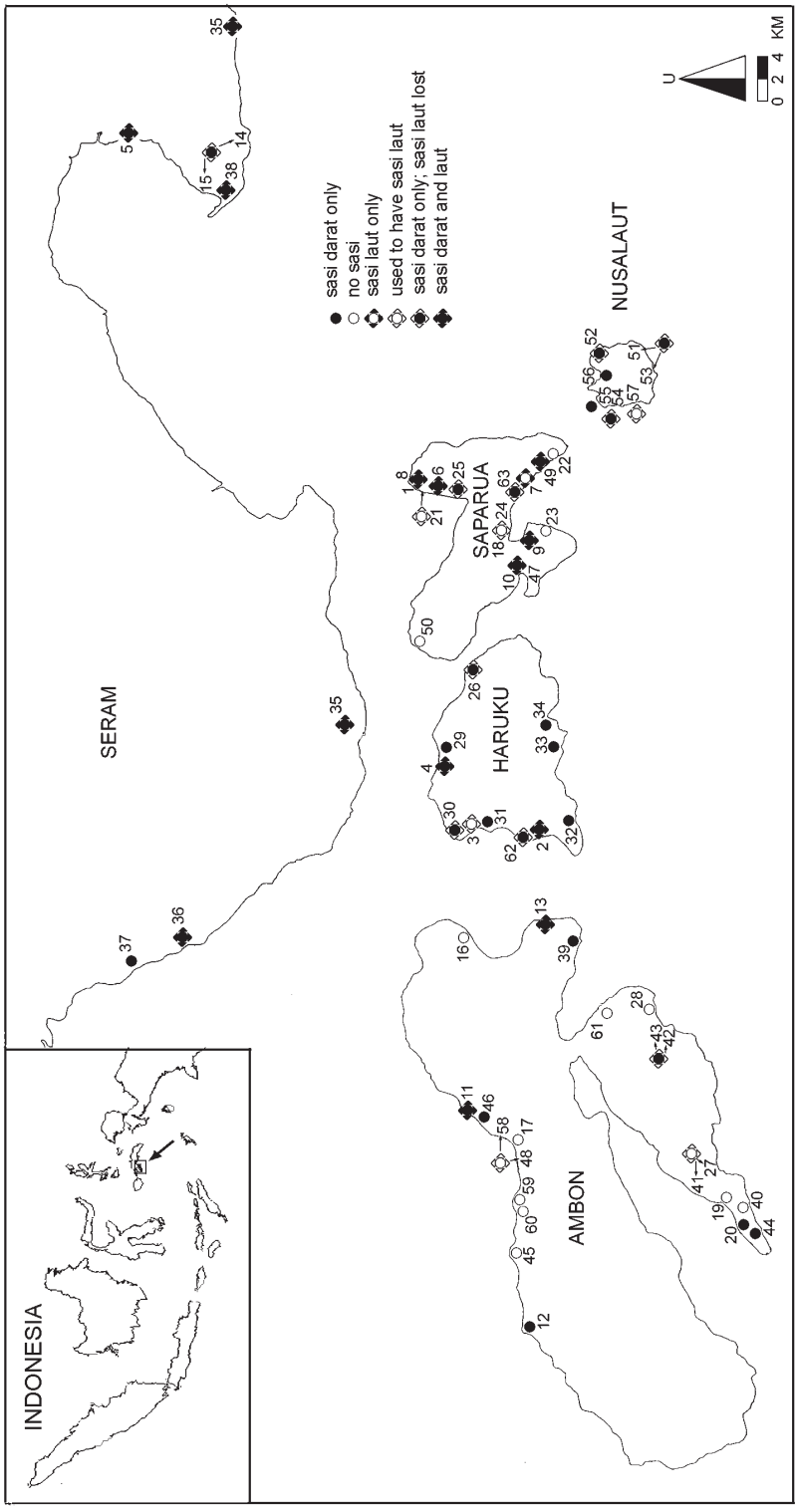
INDONESIA
SERAM
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SAPARUA
NUSALAUT
AMBON
sasi darat only
no sasi
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used to have sasi laut
sasi darat only; sasi laut lost
sasi darat and laut
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Glossary

Adat	Customary law and ritual practices
Ambonraad	Government council (under the Dutch rule)
AR	Artificial Reef
ARISAN	Informal savings group
BAPPEDA	Regional Planning Board
BAPPENAS	National Development Planning Board
Bagan	Floating lift net
Baileo	Community house
Bantay Dagat	Local (traditional) enforcement unit in the Philippines
Baor	Beel or lake in Bangladesh
BPD	Village Representative Board
Bupati	District head
BVC	Beach Village Committee
COREMAP	Coral Reef Rehabilitation and Management Program
CRMP	Coastal Resources Management Project (Proyek Pesisir)
DANIDA	Danish International Development Agency
DENR	Department of Environment and Natural Resources (Philippines)
Desa	Village (under the formal village structure)
DGIS	Netherlands Directorate-General for International Cooperation
DKP	Departemen Kelautan dan Perikanan (Ministry of Marine Affairs and Fishery)
DPRD	District and provincial assemblies (house of representatives)
Dusun	Subdivision of village (literally: garden)
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
FAD	Fish Aggregating Device
Giob	Type of net
GPM	Protestant church of Maluku
ICLARM	International Center for Living Aquatic Resources Management (currently the WorldFish Center in Penang, Malaysia)
IDRC	International Development Research Centre in Canada
IDT	Economic development group (village level)
ITQ	Individual transferable quota
Kabupaten	District
Kapitan	Traditional warrior chief
Kecamatan	Sub-district
Kelapa	Coconuts

KEP	Economic development group (village level)
Kepala adat	Traditional leader, head of the adat
Kepala desa (kades)	Village head (under formal government structure)
Kepala dusun	Head of a dusun (part of village)
Kepala kewang	Head of the kewang
Kepala soa	Hereditary clan leader
Ketua adat	Chief adat authority
Kewang	Traditional law enforcers in the village
Klasis	Lower administrative church structure
Kotamadya	Municipality (district level)
KUD	Village cooperative
Latu	Chieftain, king
Latupati	General assembly for (traditional) village leaders at island wide level
LGC	Local government code
LGU	Local government unit
Lelang	Auction
LIPI	National research institute
Lola	Top shell (Trochus niloticus)
LMD	Formal village council
LKMD	Implementing organisation of the LMD
Manerinti	(High level) village cooperative (KUD)
Marga	Clan structure
Marinyo	Village heralds
MREP	Marine Resources Evaluation and Planning project
Mauwin	Shaman
MCE	Monitoring, control and enforcement
MREP	Marine Resources Evaluation and Planning Project
MEY	Maximum Economic Yield
MSOY	Maximum Social Yield
MSY	Maximum Sustainable Yield
Muhabet	Coordinates communal action in the village
Muro-ami	Fishing technique with which corals are smashed
Musbangdes	Village Development Deliberation
NARS	National Aquatic Research Partners
Negeri	Village
Negeri lama	Small kingdom
NMC	National Maritime Council
P5D	Regional Development Management and Planning Orientation
Pancasila	State ideology
Papalele	Female fish trader (small scale)
Patalima	Union of five negeri
Patasiwa	Union of nine negeri
Pelpri	Church men's group

Pelwata	Church women's group
Pendeta	Church minister
Perahu	Outrigger boat
Perda	Regional regulation
Petuanan	Village territory
PKK	Government women's group
PRIAP	Policy Research and Impact Assessment Program
Propinsi	Province
Raja	Village leader descending from the traditional 'royal' clan
Rakorbang	Development Coordination Meeting
Rancangan Perda	Regional Regulation Plan
Reformasi	Signifying the reorganisation of the Indonesian political structure
Rumpon	Floating fish aggregating device (FAD)
Saniri besar	Legislative village council
Saniri negeri	Traditional village government (executive body)
Sarekat Ambon	First indigenous political party on Ambon
Sasi	Sets of rules which regulate resource use and social behavior
Sasi adat	Traditional sasi institution
Sasi lelang	Auctioned sasi (harvest rights)
Sasi darat	Sasi on land (terrestrial resources)
Sasi gereja	Church sasi
Sasi laut	Sasi in the sea and rivers (marine resources)
Soa	clan (also lumah tau)
Synod	Administrative church structure
TAC	Total Allowable Catch
TAKESRA	Small formal savings program
Tamaela umi haha	Great leader (traditional)
Tiga Tungku	Three hearthstones (adat leaders, village government, and religious leaders)
Tuan negeri	Keeper of sacred knowledge (adat leader)
Tuan tanah	Clan leader from one of the founding families (lit. lords of the land)
Teripang	Sea cucumber
UDKP	Permanent Work Region Unit
Uku	Tribal group
Uku dua	Group of two clans
Uku lima	Group of five clans
VOC	Dutch East Indies Company
Youth wing	Church youth group

Introduction

This PhD thesis is the result of my work during my position as associate expert for the Dutch Ministry of International Cooperation (DGIS) from 1996 to 2000 within the framework of the worldwide Fisheries Co-management Project funded by the Danish International Development Agency (DANIDA). The Centre of Environmental Science of Leiden University enabled me to write and compile additional material to complete this thesis.

The Fisheries Co-management Project is a collaborative research project of the International Center for Living Aquatic Resources Management (ICLARM) in the Philippines (now the WorldFish Centre in Penang, Malaysia), the Institute of Fisheries Management and Coastal Community Development (IFM) in Denmark, and National Aquatic Research Partners (NARS) in Southeast Asia and Africa[1]. The project was initiated in 1994 and phased out in 2004. This collaborative project was based on a mutual interest to gain practical experience in research in fisheries co-management, to demonstrate its applicability as a sustainable, equitable and efficient management strategy, and to develop models for use and adoption by governments, fishing communities, NGOs and others. The overall purpose of the Fisheries Co-management Research Project was to determine the prospects for successful implementation of fisheries co-management strategies.

As part of the Fisheries Co-management Project, with funding assistance from IDRC (International Development Research Council of Canada), together with Indonesian research partners from Yayasan Hualopu and Pattimura University[2], a study was carried out on *sasi*, a local traditional natural resource management system in Central Maluku, Indonesia (Fig. 1). The overall objective of the research project was to evaluate this community-level resource management and learn from it in order to develop better models for the future (Pomeroy and Simanjuntak 1997).

1 In Southeast Asia participating countries were: the Philippines, Indonesia, Vietnam, Thailand, Malaysia and Bangladesh. African partner countries were: Senegal, Benin, Cote d'Ivoire, Malawi, Zambia, Zimbabwe, Mozambique, and South Africa. Similar research has also been carried out in the Caribbean.

2 We worked in an inter-disciplinary team with as principal co-researcher Irene Novaczek (PhD phycology and marine biology). Ansye Sopacua (BSc chemistry) was translator and carried out the interviews on management structures. Marcus Tatuhey was responsible for data input and analysis. The parts of the research projects presented in this dissertation are the ones where I was the principal researcher (unless stated otherwise).

Rationale of the study

Worldwide, fish stocks are being over-exploited (FAO 2001; FAO 2003). The productive and highly diverse coral reefs in Southeast Asia are in a critical state (Amor 2002a; Amor 2002b). For many poor Asian communities aquatic resources represent a crucial rural safety net that not only bolsters food security, but also gives families a way to earn extra cash selling on the local markets. In countries such as Indonesia and the Philippines, close to 50% of people's animal protein intake comes from fish consumption. Degradation of natural resources, reduced access to markets and lack of political power to reverse these processes are a severe threat to people's livelihoods. Increasing competition and conflict over limited resources further stress fisheries management systems.

Ongoing over-exploitation and degradation of natural resources causes governments to rethink their management approach. Top-down, centralized government control over fisheries has lead to crises in fisheries worldwide as it created the conditions under which fishers maximized their efforts (Kearney 1984; Jentoft 1989; Pinkerton 1989; McGoodwin 1990). In many cases the government lacks the ability to effectively govern resources and enforce the rules. As a result, compliance to regulations and a sense of ownership over resources is low. The basis for government control was Hardin's (1968) 'tragedy of the commons' which left no space for local property rights over resources. Over-exploitation, increasing fishing effort, and conflicts over access lie at the basis of depleting fisheries. In search for solutions and better ways of governing resource use, new approaches have been developed of which co-management is but one of the strategies. Co-management refers to the sharing of management authority and responsibility between resource users and the government. It involves the devolvement of management authority to local and lower government levels, and the creation of institutional arrangements including rights and rules. Co-management is considered to represent a more democratic, equitable and efficient governance system as it involves participatory and collaborative processes of decision-making and power sharing, and a more equal sharing of resource benefits (Pomeroy 1994; Pomeroy and Berkes 1997; McCay and Jentoft 1996; Ostrom *et al.* 1999; Kuperan *et al.* 2003).

Clearly defined property rights are an important tool for fishers to exclude others and to be able to enforce rules and regulations concerning the fishery. Co-management therefore often includes the transfer of responsibility over natural resources to local communities (Jentoft *et al.* 1998; Jentoft 2003; Raakjaer Nielsen *et al.* 2004). Under pressure of large international organisations, supported by NGOs, and as a result of civil demands, central governments all over the world are now supporting decentralisation as a way to

transfer authority to lower government and local levels in order to improve resource management (Pomeroy 2001).

Sasi

Coastal villages in Central Maluku claim de facto rights of access and withdrawal over fairly extensive areas of both land and sea through a set of rules and regulations called *sasi*. *Sasi* is nested in *adat* which lays down the basic ethics and codes of conduct and is an intrinsic part of the culture. *Sasi* offers an important research opportunity because it is one of the few (if not the only) long enduring local resource management systems in Asia (Zerner 1994a; von Benda-Beckmann *et al*.1995). While land *sasi* (*sasi darat*) controls and manages agro-forestry, marine sasi (*sasi laut*) deals mostly with the fishery, i.e. sedentary marine organisms and pelagic fishes found in the waters close to shore. *Sasi* also applies to social behaviour. Fishery related rights and rules usually apply to coastal waters facing a village, bay, coral reef ecosystem, or other areas having easily recognized boundaries. However, while in some villages of Maluku *sasi* was still functioning, in others it was growing weaker or had disappeared entirely. The extent of *sasi* and how quickly, where and why it weakened was not clear.

The government of Maluku realized that in some parts of the province, village people were more likely to comply with traditional management systems than with formal regulations. *Sasi* institutions as well as other traditional local customs, however, were not reflected in national and provincial laws and policies. Without acknowledgement by the government, fishing communities were not able to defend their institutional arrangements and hold off the slow demise of their management systems. More recently, the situation is changing as the government of Indonesia has decided to devolve management authority over natural resources to lower levels. However, while government policy makers know that local management exists, they lack information on how well these systems perform. This research project went beyond the descriptive studies that have already been carried out on *sasi* and undertook a quantitative performance analysis. Information about the performance of *sasi* potentially forms the basis for changes in policy to support, maintain and develop local culturally appropriate and effective forms management.

As a village-level institution that has roots in the local culture, *sasi* is not a co-management structure. However, research on *sasi* helps to understand how traditional local systems change and adapt over time, providing insights that are critical for the design of new systems as is provided under the new decentralisation laws. The results can be of use to both the government of Indonesia, the fishers and local resource users and other parties involved in

the process. The results are also useful to a worldwide audience interested in the design and implementation of local (co-)management systems.

Research objectives of sasi were:

1 To identify the extent of operating *sasi* systems and practices in Central Maluku Province.
2 To describe the *sasi* institution using the Institutional Analysis Framework.
3 To measure the performance of *sasi*, i.e. impacts in terms of equity, efficiency, social sustainability and biological sustainability.
4 To investigate which mechanisms positively enhance the resilience of the *sasi* institution.
5 To describe the legal framework and government institutions at work with local resource management and the role and functioning of *sasi* under this framework.

This study covers the institution and changes until 1998 when a civil strife broke out that has highly impacted Central Maluku and, unavoidably, also the *sasi* institution. The period 1998-2004 was one of major clashes between Muslim and Christian populations, and the destruction of mosques, churches and whole villages throughout the islands. Ambon Island became divided into a Christian and Muslim part and thousands of people fled to refugee camps. In the end, over 5000 people lost their lives. The role of police and army has been unclear and questionable at the least. The cause of the conflict is unclear and various explanations are given, including ignition by outside Muslim extremist groups, e.g. *Laskar Jihad*, while local gangs and groups allegedly further fuelled the violent outbreaks. Aside from some scattered information (see also Chapter 10) the long-term effects on the social structure and culture in Central Maluku, including *sasi*, are not clear. Information on the legal framework and changes in the context of decentralisation are up to date until January 2005.

Decentralisation

In response to a call for better management and a decrease in global fish production, there is a widespread move towards decentralisation of management authority to regional and local communities (Pomeroy 2001). Decentralisation is generally accepted as the way forward, but has various results. In countries like the Philippines, decentralisation has lead to positive results and sustainable resource use. Current experiences in Indonesia on the other hand show massive resource exploitation by local authorities, especially in forest areas. Due to these negative experiences there is a tendency to turn away from decentralisation (von Benda-Beckmann 2002, Ribot 2002). This would be very unfortunate as, despite the current setbacks, in the longer run

decentralisation presents the highest hope for establishing the conditions for sustainable resource use and a more equitable and efficient social political system. When assessing the current results of the decentralisation process, it is also important to change the point of view and compare the situation the past so that the important changes that *have* been made are done justice, especially in a country like Indonesia that is undergoing a major transformation from an authoritarian centralised state to a more democratic regime.

In order to make proper assessments, it is important to carefully document the features and process of decentralisation including the types of power, authority transferred, and the accountability structures. It is also interesting to analyse the role of local actors and the formation of new elites. Through an analysis of the potential pitfalls and opportunities, some key factors can be distilled that may, on the longer term, render decentralisation efforts successful.

Research objectives of decentralisation were:

1 To describe the processes of decentralisation in Indonesia and the Philippines.
2 To identify the obstructions towards true transfer of power.
3 To identify the lessons learned and see how they apply to Indonesia.

Conditions affecting success of co-management

Over the past 15 years, a growing number of projects and coastal management initiatives has been documented and assessed in terms of success. In 1999, the first 5-year phase of the international Fisheries Co-management Research Project came to an end and all the sites in Southeast Asia that were part of the project were evaluated in order to identify the principles and conditions that facilitate fisheries co-management at the household, community and supra-community level, i.e. government, including the legal framework and administrative structures.

While co-management may not be a viable alternative fisheries management strategy for all countries and fishing communities, an evaluation like this establishes in what situation and under what circumstances it proves to be a sustainable, equitable, and efficient management strategy. Sought are recommendations on how fisheries co-management can be successfully implemented, as well as methodologies and guidelines.

Research objectives of conditions for success were:

1 To investigate under what conditions co-management is a viable fisheries management strategy.
2 To identify important principles that support co-management.
3 To identify the policy implications.

Measuring project success

Within Southeast Asia, the government of the Philippines has been a leader in decentralising management of natural resources to the local level. Between 1984 and 1994 more than a hundred community-based resource management (CBRM) projects were undertaken. The time, funds, and collective effort put into these projects accumulated a wealth of valuable knowledge. However, the results in some ways were disappointing: less than 20% of the projects were evaluated as being successful (Pomeroy and Carlos 1997). Interestingly, the project participants themselves did not perceive these projects as failures at all (Pomeroy *et al.* 1996). Apparently, there was a discrepancy in the perception of success between the project implementers and the recipients.

Project activities involved, amongst others, alternative livelihood programmes, installation of protected areas, and technology for increased fish production. The project implementers set as minimum criteria for project success that (1) the community organisation still existed and that (2) at least a single project intervention was maintained after the project had terminated. For many project sites this was not the case. Why the majority of projects failed, was not clear. What clear is that the indicators that were used failed to measure the things that actually *were* achieved and appreciated by the local population.

Research objectives of measuring success were:

1 To identify project failure and project success.
2 To explain the discrepancy between the perceptions of project staff and beneficiaries on project success.
3 To design a methodology that captures the project impacts from both the insider and the outsider perspective.

This thesis

After the introduction, theoretical framework, and methodology, this thesis presents:

- A study of *sasi*, a local traditional resource management system in Central Maluku, including presence, performance and institutional resilience, i.e. the ability of an institution to survive over time.
- A case study of the, at the time, best functioning *sasi* institution of Nolloth on Saparua Island to show the performance and potential for resource management.
- An analysis of institutional resilience of *sasi* and the mechanisms behind it in order to provide building blocks for newly to be established management institutions.
- An analysis of the legal framework around *sasi* and natural resource management as it was in 1998 with an update of new laws as a result of the downfall of Suharto and the current move towards decentralised management.
- A description of the decentralisation process and the potential for coastal resource management in the Philippines and Indonesia.
- A distillation of factors that contribute to project success on the basis of research experiences in Southeast Asia as part of the Fisheries Co-management Research Project.
- A methodology to assess project success from the participants' perspective and in more qualitative terms based on an evaluation of over a hundred community-based resource management (CBRM) projects in the Philippines.

This thesis consists of several published articles and book chapters that have been edited into 'new' chapters. The overlap in information from the different articles has been edited out as much as possible, yet, some chapters will contain similar information for which I apologise. Some chapters are parts of the research report I wrote with Irene Novaczek, Ansye Sopacua and Marcus Tatuhey[3]. While they have done most work on the legal and political context that are part of Chapter 8, I like to take credit for the overall project design, the case-studies (Chapter 5) and study on institutional resilience (Chapter 7). Chapters 4 and 6 were a collaborative effort. Chapter 11 on conditions for success was written with other ICLARM staff working in the various sites in Southeast Asia and where I contributed information and insights from Indonesia. All the other chapters spring entirely from my own brain.

3 Novaczek, I., I.H.T. Harkes, J. Sopacua, M.M.D. Tatuhey (2001). An institutional Analysis of Sasi Laut in Maluku, Indonesia. Technical Report 59. ICLARM, Manila.

1 Theoretical Framework

As both terrestrial and marine ecosystems are under severe pressure from human use, climate change and other external impacts, the need for the practical application of science becomes more eminent. Scientists from various disciplines have organised themselves to look into management of common resources. Common property research is an outcome of this movement. Multi-disciplinary and international research projects have been devised in a search for solutions and better management approaches. The theory of environmental anthropology helps us to understand the role of humans in their environment and the impact they have on the ecosystem. This chapter gives a chronologic overview of the theoretical schools in anthropology and in environmental sciences to show the developments of both disciplines over time and how they came together in environmental anthropology. It further presents new schools of thought like Common Property Research that are important in studying and analysing issues in resource management and fisheries in particular. It is these (more applied) research lines that form the context of the *sasi* study central in this thesis. In line with this pragmatic approach, the chapter ends with the potential role of the anthropologist in modern fisheries management approaches.

1.1 The road towards environmental anthropology

1.1.1 Environmental determinism versus cultural determinism

In his evolution theory, Darwin (1859) explained how in each generation more individuals are produced than can survive in a context of limited resources which leads to competition and adaptation. His ideas were influenced by Malthus (1798) who argued that human populations naturally tend to outstrip their food supply and that shortages would put a limit to population growth. This idea of the environment shaping culture (human social and cultural behaviour) is typical for environmental determinism and was the dominant approach in ecological anthropology until the 1960s. Debates in ecological anthropology centred upon the question whether cultures adapt to their environment in the same way that organisms do. Researchers hoped that the study of adaptations would provide explanations of customs and institutions (Salzman and Attwood 1996). One of the findings in ecological anthropology was that populations are not engaged with the environment as a whole, but with a part of it, their local environment or *habitat*, consisting of selected aspects and elements. As a consequence, it was concluded that each

population developed its own cultural adaptations, especially technologal, within a specific environment (Salzman and Attwood 1996).

The assumption was that understanding the environment of a region would lead to an understanding of the cultures occupying that region. However, this assumption proved incorrect as it could not explain the various cultural characteristics and differences within similar geographical areas. In Europe, anthropologists responded by turning their attention to the social, rather than the ecological functions of cultural institutions (Durkheim, Radcliffe-Brown and Malinowski). In the United States the emphasis on environmental factors remained (Boas, Wissler, and Kroeber) and formed into an approach called *possibilism* (Milton 1996). Possibilism acknowledged that one the one hand the environment limited human behaviour, while it also allowed for certain activities to be carried out. The inadequacy in explaining cultural diversity, however, remained an issue and in a search for a more precise understanding of the effect of the environment on cultures Steward (1955) developed a methodology called *cultural ecology*.

Steward searched for the adaptive responses of various cultures to similar environments (Orlove 1980). He examined the available resources and distribution in relation to the technology, economic arrangements, social organisation and demography of a certain place. As a result, he identified a 'culture core' consisting of the elements of a culture influenced by the environment, i.e. the features most closely related to subsistence activities and economic arrangements. Yet, cultural ecology could neither provide a model for explaining the origin and persistence of cultural features, nor for determining the extent of environmental influence in the evolution of specific cultures (Netting 1977; Orlove 1980; Barfield 1997).

As a reaction, in the 1960s and 1970s new schools of thought were formed based on cultural determinism, i.e. the idea that culture influences the environment. One of those schools, *ethno-ecology*, describes the conceptual models that people have of their environment.[1] It distinguished, for example, 'folk nature' or the perceptions that people have on nature, from 'real nature' on which these perceptions are based. The approach used classifications and shared its methods and underlying premises with cognitive anthropology.[2]. In the end, however, neither environmental nor cultural determinism

1 The prefix 'ethno' was used to denote the field of knowledge defined from the viewpoint of the people being studied (Fowler 1977). 'Ethno' was already used in the 19th century in ethno-botany which focused on how and why people used and conceptualised herbs, plants and trees. It is still an important approach in medicinal research.

2 The focus on classification and the extraction of knowledge in cognitive anthropology lead to the development of structured methods of research still in use today such as interviews, direct observation and participation.

formed a satisfactory basis to describe human-environment relationships.[3] Alternatively, instead of shaping or being shaped by environmental factors, human beings were understood to interact with their environments in mutually constructive ways (Milton 1996).

1.1.2 The ecosystem approach, human ecology and processual human ecology

The *ecosystem approach*, brought into play by anthropologists like Rappaport (1968) and Vayda (1969), conceptualized human populations as participants in ecosystems. It was a first attempt to reconcile ecological sciences with functionalism[4] in anthropology. Research focused, amongst others, on the material outcomes of economic activities and the efficiency of subsistence systems. Yet, the approach was limited with its focus on 'units' and 'populations' rather than cultures and its preference for small-scale (island) societies (Rappaport 1969). A broader focus was presented by *human ecology* which was concerned with the ways human populations interact with their environment. Yet, even though it acknowledged the importance of knowledge, information, and people's understanding of the world (Ellen 1982), the ecosystem approach excluded the unobservable components of culture. It is therefore – and this is where I agree with Milton (1996) – inadequate to study people-environment relations.

In the mid 1970s, in contrast to cultural ecology, neo-evolutionism and neo-functionalism,[5] another approach emerged: *processual ecological anthropology*. It focused on the processual relationship between the local population and their immediate environment conditioned by the intervention of external political, legal, and economic factors. Important research trends were, amongst others, the relation between demographic variables and production systems, the response of populations to environmental stress, and the formation and consolidation of adaptive strategies[6] (Orlove 1980). Processual ecological an-

3 Human-environment relationships can be defined as the interplay between people and their environment, including the elements and arrangements by which humans use the environment and the limitations that the environment puts on human behaviour. Culture plays a prominent role in human-environment relations (Milton 1996, 6).

4 Functionalism originally attempted to explain social institutions as collective means to fill individual biological needs; later it came to focus on the ways social institutions fill social needs, especially solidarity. Functionalists argue that social institutions are functionally integrated to form a stable system, and a change in one institution will precipitate a change in other institutions (http://encyclopedia.thefreedictionary.com/).

5 Within neo-functionalism the social organisation and culture of specific populations are seen as functional adaptations which permit the population to exploit their natural environment successfully without exceeding the carrying capacity through negative feedback (Orlove 1980; Bettinger 1996 in McGrath 2003).

6 If adaptive strategies are seen as the outcome of decision-making or repeated allocation of scarce resources to a hierarchy of goals under conditions of constraint, then it is necessary to examine the pattern of resource distribution and the source of goals and constraints. This is the contribution of recent work in Marxism (Orlove 1980).

thropology examined shifts and changes in individual and group activities and focused on the mechanisms by which behaviour and external constraints influenced each other. It stimulated the importance of decision-making models in ecological anthropology.

1.1.3 Ecological anthropology and environmental sciences in the Netherlands

In the Netherlands, anthropology had always been strongly linked to the colonial past (Indonesia) and focused on culture, judicial systems, religion and language. After the independence of Indonesia in 1945 and the subsequent rigid relationship between the two countries, this focus was expected to change towards a more environmentally oriented anthropology (Persoon and Hobbes 1993; Schefold 1994). Research, however, continued largely along existing research lines and aside from a number of interesting studies on environmental use, innovation and adaptation (Van den Breemer 1984; Visser 1989; De Bruijn and Van Dijk 1995, Bavinck 2001), ecological anthropology in the Netherlands never strongly developed.

A major influence in the 1970s were the actor-based models which shifted the focus from cultures towards the study of social processes and individual incentive structures for certain (environmental) behaviour (Orlove 1980). The actor-based models were elaborated by Vayda who developed the methodology of *progressive contextualisation* (Vayda 1983, 1996).[7] In the 1980s Dutch environmental science searched for an approach to study environmental problems without having to describe entire people-environment systems. Vayda's approach formed the inspiration and therewith the basis of the *Action-in-Context* approach which describes the role the different actors involved in a problematic environmental action and their influence in the decision-making process at different levels. This model was developed further by De Groot (1992, 1998) into the *Problem-in-Context* approach – a normative, solution oriented approach to environmental problems.[8] This approach has been applied to study the social dynamics and driving forces of deforestation in the Philippines (Van den Top 1998) and in Brazil, Ecuador and Cameroon (Cleuren 2001).

The emergence of new generations of anthropologists together with a restructuring of the Dutch academic landscape has resulted in inter-university research schools that cross the disciplinary boundaries. Environmental

7 Progressive contextualisation works its way from a defined (problematic) action outward to the actors and factors that explain that specific action.

8 The Problem-in-Context approach contains a so called 'actors field' which presents the interactions between actors at different levels (horizontal and vertical linkages). Options and motivations of actors are influenced by contextual factors but also by other actors, usually at a higher level i.e. in a more powerful position. The social chain in the model describes the institutional setting, the social arrangements and the dependencies.

themes as 'dynamics of natural resources' and 'management of coastal zones and food security' as well the study of complex resource systems such as reefs (Buginesia Project) involve researchers from various disciplines among which is anthropology (cf. Pet-Soede 2000). Nowadays, anthropologists are often involved to represent the social science aspects of a multi-disciplinary project in order to deal with a particular type of questions or to act as an intermediary between local people and project. New types of research projects are being developed genuinely aiming for an integrated approach on the basis of problem oriented research questions. The search for solutions where different disciplines need to feed in leads to interesting discussions, for example about values, which form an important aspect of the process. The program Environment and Development of the Centre of Environmental Sciences in Leiden is such a collaboration of various disciplines.

1.1.4 Environmental anthropology today

Environmental issues were a strong impulse to develop a more applied anthropology, which came up next to mainstream academic anthropology. *Environmental anthropology* has the potential to understand, inform and present information on how to construct sustainable ways of living (Brosius 1999; Osseweijer 2001). It looks at 'the ways in which a particular population purposely or unintentionally shapes its environment, and the ways in which its relations with the environment shape its culture and social, economic and political life' (Salzman and Attwood 1996). The impact that humans have on their environment is a combination of technology with economic values, ethical standards, political ideologies, religious conventions, practical knowledge, the assumptions on which all these things are based as well as the activities that are generated by them (Milton 1996). Hence, it is important to understand all aspects of human thought and action.

The distinction between people's actions and what they hold in their minds, made 'choice' available for investigation. It allows us to look at the incentives that people have for certain behaviour and the choices they make about their environment and the use of it (Milton 1996). Attention on the rationale behind these choices, i.e. the options and motivations of people, is growing as they appear essential in adaptation of behaviour, for example, in the setting up of a management system and the institutions that support this over a longer period of time. In the Fisheries Co-management Research Project the study of the 'patterns of interaction' was essential to understand local initiatives towards resource management, i.e. the creation of organisations, rules and regulation. Also studied were the outcomes in terms of sustainability, equity and efficiency. Insight into these components and the incentives that people have can provide a key in resource management as it identifies the level on which adaptations can be made to stimulate people to change their behaviour towards a more sustainable approach in resource use.

1.2 Other environmental approaches

The general growth in environmental scholarship and the recent theoretical discourses have led to the development of a number of cross-disciplinary approaches that deal with environmental issues and human-environment relationships. A combination of those, and *Common Property Theory* in particular, form the overall framework for the Fisheries Co-management Research Project and hence the *sasi* study described in this thesis. The members of the research team were from various disciplinary backgrounds and my views from environmental anthropology were complemented with insights from political science, resource economics and (marine) biology. Together we assembled the information necessary to complete the various boxes of the institutional analysis framework. My specific area of interest is institutional resilience, which is a spin-off from resilience thinking. These fields, as well as other current environmental approaches, are described in the section below.

1.2.1 The systems view

Systems view or *systems ecology* is a relatively new field, but one with impressive evidence on co-evolution in human-nature relations, including traditional ecological knowledge and the self-organising ability of people for sustainable resource use (Holling 1978; Berkes and Folke 1992). In the systems view, the structure and function of the ecosystem is sustained by synergetic feedbacks between human societies and their environment. The underlying assumption is that the physical and biological environment places constraints on the growth and development of the human sub-system and vice versa. Leading scientists in this field are Fikret Berkes and Carl Folke who look at how the social system has developed management practices based on ecological knowledge for dealing with the dynamics of ecosystems and on the social mechanisms behind management practices (Berkes and Folke 1993, 1994, 1998, 2003). The self-organising abilities and adaptations of both the ecological and human sub-system shape the way in which society defines and uses natural capital.

The vital role of the life-support functions for economic development and sustainability has caused a shift from ecology to economics and is theoretically as well as empirically analysed through *ecological economics* (Odum 1975). The shift has, in part, given rise to the terminology of *natural capital* and *human-made capital*. In contrast to the assumptions of standard economic theory, ecological economists regard human-made capital and natural capital as fundamentally complementary. Natural capital consists of non-renewable resources such as oil and minerals, renewable resources such as fish and wood, and the quality of the atmosphere and climate. Human-made capital on the other hand is capital generated via economic activity through human ingenuity and technological change – the produced means of production. Natural capital and its derived goods and services are the basis for economic

development while it is not possible for human ingenuity to create human-made capital without natural capital (Daly 1990). Only through maintenance of an integrated, functional ecosystem can each environmental good and service be assured (Berkes and Folke 1992) Sustainability, however, cannot be studied by focusing only on natural capital and human-made capital. A third dimension, *cultural capital*, is needed to explain the interrelations between the two.

Cultural capital refers to factors that provide human societies with the means and adaptations to deal with the natural environment and to actively modify it. It pays attention to how people view the world and the universe and includes cosmology, environmental philosophy and ethics (including religion), traditional ecological knowledge, and social-political institutions. Cultural capital, as used here, thus includes the wide variety of ways in which societies interact with their environment (Berkes and Folke 1998). From a systems perspective, it is emphasized that the three types of capital are strongly interrelated and form the basis for guiding society towards sustainability (Gunderson *et al*. 1995).[9]

1.2.2 Adaptive management

Adaptive management (Holling 1978; Walters 1986; Charles 2001; Folke *et al*. 2002; Gunderson and Holling 2002) is based on the assumption that the environment is inherently unpredictable and that scientific information will always be incomplete. The advantage of adaptive management is that it allows for changes in the locus, scale, and the scope of decision-making, depending on the issue being addressed. Active adaptive management views policy as a set of experiments designed to reveal processes that build or sustain resilience (Berkes 2003). It requires and facilitates a social context with flexible and open institutions and multi-level governance systems that allow for learning (Folke *et al*. 2002). Learning and adaptive management are probably the most important processes to make cross-scale approaches work (Degnbol and Raakjær Nielsen 2002; Berkes 2003).

There are attempts to combine adaptive management and co-management in what Folke *et al*. (2002) have called *adaptive co-management*: a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing, self-organised process of trial and error.

9 There are a number of other approaches, such as ecosystem management (Schramm and Hubert 1996 in Jentoft *et al*. 1998, 423) and participatory environmental research (Berkes 2001), but these are not further discussed here.

1.2.3 Resilience thinking

Another current approach that studies people's responses to a changing environment is *resilience thinking*. It focuses on the adaptive capacity of social groups and their institutions to deal with stresses as a result of social, political and environmental change (Berkes and Folke 1998; Charles 2001). One way to approach this is to look for informative case studies of change in social-ecological systems and to investigate how societies deal with change. This knowledge is envisaged to provide a basis for improved governance and management of natural systems so that their capacity to sustain human and natural capital is enhanced. The study of *sasi laut* can be regarded as such a case study. Looking at the changes in processes and the adaptation and survival of the institution over time helps in explaining and understanding what is called *institutional resilience* (see Chapter 7). Recently, a platform has been established to work on issues around resilience: the Resilience Alliance.[10]

1.3 Common property theory

Currently, one of the most prominent approaches in dealing with natural resources management is *common property theory* or *commons research*. Because this approach is important as it forms the context of this thesis, it is dealt with in more detail.

1.3.1 The tragedy of the commons

In the 1960s and 1970s policy innovations, based on early work of resource economists and the idea that without private ownership commons would be depleted, transferred forests, pasture land, inshore fisheries and other natural resources from their previous property rights regimes to government ownership (Dietz *et al.* 2002). The rationale for centralised government control was Hardin's (1968) 'tragedy of the commons' which presented a pessimistic view on human behaviour. The rationale for the tragedy of the commons was in a common-pool resource, each user faces the dilemma about how much to harvest. If all users restrain themselves, everybody benefits and the resource will be sustained. However, if one person limits his use while his neighbours do not, the person has lost the short-term benefits of taking his share and the resource collapses. People therefore were assumed to always maximise their efforts (Hardin 1968).

Sometimes, however, the transfers of property rights to the national government were disastrous for the resources they were intended to protect. Instead of creating a single owner with a long-term interest in the resource, nation-

10 The Resilience Alliance is a multidisciplinary research group that explores the dynamics of complex social-ecological systems in order to discover foundations for sustainability (www.resalliance.org/).

alising common-pool resources typically led to a rejection of existing indigenous institutions, poor monitoring of resource boundaries due to a lack of capacity of the national government, and subsequently de facto open access conditions and a race to use the resources (Dietz *et al.* 2002). As a result, the presumption that government ownership was a universally applicable solution to the 'tragedy of the commons' was seriously challenged.

The rational-choice theory that underpins Hardin's theory regards humans as acting merely out of self-interest (Smith 1977). Opposing views, however, argue that people are not simply a *homo economicus*, but members of a community and as such under influence of social and cultural values which are important when economic decisions are made (Jentoft *et al.* 1998).[11] Economic action thus is not an individual decision, but it is socially situated and embedded in networks of social relations (Swedberg and Granovetter in Jentoft 2004). This implied that the 'tragedy of the commons' could be averted by mechanisms that cause individuals to act in the interests of the collective good, such as communication, trust, the anticipation of future interactions, and the ability to build agreements and rules (Rappaport 1968; Vayda 1969; Rappaport 1984; Dietz *et al.* 2002). Their arguments are backed up by rich case study literature which present a wide diversity of settings in which users organised themselves and achieved better outcomes than Hardin's model could ever predict (Johannes 1978; Kalland 1981; Akimichi and Ruddle 1984; Cordell 1984, 1989; McGoodwin 1984; Ruddle and Johannes 1985; Ruddle 1987; Sengupta 1991; Johannes 1998; Feeny *et al.* 1990, Pomeroy 1994; Pomeroy *et al.* 1996), and also the study central in this thesis (Novaczek *et al.* 2001). In the end, the 'tragedy of the commons' was shown to be the consequence of open-access conditions and *not* of common property (Berkes 2003) thereby providing an argument for good governance and local management.

1.3.2 The study of common property resource management

Largely in reaction to Hardin's article and the frightening stories about rapid population declines of many (marine) species, in the late 1970s and early 1980s scientific interest in the commons grew (Dietz *et al.* 2002). Commons research documented in considerable detail the self-organisation and self-regulation of communities of resource users to deal with *subtractability* and *exclusion* – two central problems of commons management.[12] The dilemma of 'free riding' can be an important incentive for individuals to maximise their own resource benefits at the cost of the benefits available to others. However, the studies mentioned in the above section showed that people appeared to sometimes have different motivations and do move beyond individual self-interest.

11 Jentoft therefore prefers to talk about homo socious (2004, 14).

12 The problem of subtractability means that overuse or destruction by one person subtracts from the benefits available to others. The problem of exclusion means that the benefits go to all, while the costs are shared between those who have paid their fair share (Dietz *et al.* 2002).

By the mid-1980s, more and more questions were being raised about Hardin's model and the number of scientists from various fields and countries examining common-pool resources increased. Yet, the issues were not discussed widely across scientific disciplines because each tended to use its own language and theory and there was little exchange between scholars from various regions of the world. In 1983, the Panel on the Study of Common Property Resource Management recognised the need for a common research framework, which was designed by Oakerson (1986) and developed over the following years.[13] The Institutional Analysis Framework (IAF) used in the Fisheries Co-management Research Project was derived from this model (see Chapter 3).

The empirical foundations for the analysis of common-pool resources were laid by a number of studies (Berkes 1986, 1989; Berkes *et al.* 1989; Blomquist 1992; McCay and Acheson 1978; Pinkerton 1989; Ostrom 1990; Bromley 1992; Tang 1992). They demonstrated that, under some conditions, local groups using a common property regime (or resource management system) could manage their resources quite well. This research changed the focus of the field from a search for the 'right' overall conception and the 'right' policy, to a search for the conditions under which particular institutional arrangements serve user groups well in sustaining their resource base over long periods of time (Dietz *et al.* 2002). One of the most renown publications that still guides many researchers is 'Governing the Commons' by Elinor Ostrom (1990) who studied (and still does) complex institutional arrangements which guide the use of common-pool resources such as large marine ecosystems, groundwater basins, fresh water and grasslands. The conditional propositions she presented have been formulated as 'design principles'. The evolving theory of the commons fairly establishes the conditions under which community-based management may or may not work.

The members of the panel also identified needs in research and lessons learned that still provide guidance in studying common property regimes (Dietz *et al.* 2002):

13 In 1990, the International Association for the Study of Common Property was established (IASCP). At their bi-annual meetings, scientists from over 50 countries exchange their findings (Dietz et al. 2002, 8).

1 The need to define the performance of an institutional arrangement in terms of both environmental and human dimensions.
2 The importance of the initial situation as it affects emergence, performance, survival and relative costs and benefits of institutional arrangements.
3 The importance of the distinction between the characteristics of the resource and the regime that manages the resource.
4 The need to compare and synthesize analyses of common-pool resources and common property regimes using a multidisciplinary framework.
5 The need, especially for international donors, to understand how various changes in property rights affect institutional arrangements, such as the distribution of wealth.
6 The need to understand how spatial and temporal heterogeneity in the resource endowment creates opportunities for some at the expense of others.
7 The need to compare the costs and benefits of various institutional arrangements for a given resource.
8 Resource users' ability and willingness to cooperate depends on their bargaining power, the initial value of the resource, shared values and other factors.

FIGURE 1.1 – Research needs

Also developed were several comparative data bases designed to facilitate quantitative work related to the evolving theories. The cross-national study on fisheries co-management conducted by ICLARM and IFM in collaboration with national partners in Africa and Southeast Asia formed such a network. The purpose of this network of collaborating research institutions was to apply the same core measurements to a series of cases within a country and to revisit locations regularly in order to study the dynamic processes over time. The common IAF framework allowed for comparison within, but also between countries and regions (ICLARM/IFM 1996). From the case-studies a number of new design principles or conditions for success were distilled that are described in Chapter 11.

Currently, common property theory and 'the commons' are at the centre of the international research agenda on the human dimensions of global change. It is an important theme in studies on international cooperation, environmental decision-making, and the design of resource management institutions in order to achieve global sustainable development (Ostrom 1999; NRC 2002). Commons research is at a point of rapid growth in work intending to understand the dynamics of common-pool resources and the institutions that manage (and mismanage) them (Dietz *et al.* 2002). This is even of more relevance in the light of ongoing decentralisation processes where decision-making power is being transferred to the local level (see Chapter 10). New kinds of commons are being analysed and new methodological tools and theoretical perspectives developed. This thesis aims to contribute to this field through the study of *sasi* and insights that have been derived from my experience in fisheries research.

2 Co-management

Top-down, centralized approaches to fisheries management have lead to over-exploitation, mismanagement and crises in fisheries world-wide (Kearney 1984; Jentoft 1989; Pinkerton 1989; McGoodwin 1990; Hannesson 1996; Berkes and Folke 1998; Finlayson and McCay 1998; Hara and Raakjær Nielsen 2003). The lack of (local) property rights is an incentive for fishers to over-harvest and compete over resources (Charles 2001). The inability of the national government to enforce the rules has been undermining compliance further. In some countries, such as Indonesia with a coastline of 81,000 km long, effective management by the national government is physically impossible. The infamous case of the collapse the Canadian cod fishery was a turning point both in recognising the vulnerability of fish stocks and the need to manage them, as well in acknowledging the inability of the government to do so (Finlayson 1994; Hannesson 1996; Symes 1997; Finlayson and McCay 1998; Haedrich and Hamilton 2000). In search for solutions and better ways of governing resource use, it has become clear that one single best strategy does not exist. Given the wide diversity of threatened resources it is agreed that multiple institutional strategies are needed (Dietz *et al.* 2002). Co-management is such a strategy.

2.1 Co-management defined

Co-management, or collaborative management, was introduced in the early 1990s as the way forward (Pomeroy 1994; McCay and Jentoft 1996; Sen and Raakjær Nielsen 1996). Co-management is commonly defined as a partnership in sharing management authority and responsibility (and the benefits) between a group of resource users and the government. As an institutional mechanism it brings together groups of resource users and government agencies, and it involves a participatory and collaborative process of regulatory decision-making and power sharing (Jentoft *et al.* 1998; Raajaer Nielsen and Vedsmand 1999; Berkes 2003). Subsequently, co-management requires decentralisation of management authority from the national to local and lower government levels. Because of the active participation of resource users and decision-making powers being transferred to the local level, co-management is considered a democratic, efficient and equitable governance system (Kuperan *et al.* 2003).

Over the years, the concept of co-management has been used for a wide variety of arrangements in various contexts. In its broadest sense, co-manage-

ment is seen as an evolving process guided by a set of institutional principles which must be allowed to adapt and be flexible. It can also be viewed as a set of institutional arrangements (rights and rules) that define the co-operation among the fisheries administration and relevant fishing communities (Pomeroy and Berkes 1997; Nielsen and Vedsmand 1999). Others describe co-management as: 'A process of social creation through which knowledge is gained, values articulated, culture re-expressed, and community formed' (Jentoft *et al.* 1998). The result of its vague and common adoption is that co-management has lost substance in the process (Pinkerton 2003). Also, as co-management is applied on a wider scale and experience is growing, a number of issues and challenges become visible and need to be tackled. In this chapter I attempt to clarify some of the confusion by describing some aspects important in co-management and I will briefly deal with some of the current issues.

2.2 The parties in co-management

According to the definition, the two main parties in co-management are the local community and the government (or government institution). In reality, however, the process is often supported by NGOs or external agents and can involve scientists, the private sector, and other stakeholders.[1] Naturally, the more parties become involved, the more difficult it is to establish a functional management institution without alienating certain groups (Jentoft *et al.* 1998).

Even where only two parties are involved, the process is complex as both the community and the government are not one-dimensional and homogeneous. Many scholars have contested the notion of a community as a homogenous and static entity (Pannell 1997; Brosius *et al.* 1998; Van Est 1999; Leach *et al.* 1999; Ellen 2003; Persoon and van Est 2003; Wilson 2003a). There are often divisions and power issues in a community based on gender, ethnicity, age or social class. Also in a region, the group of resource users is often heterogeneous and composed of indigenous people as well as migrant resource users. Such a complex group cannot be approached as one single community or as one partner in co-management (Osseweijer 2001).

To identify a community in co-management Jentoft *et al.* (1998) suggest looking at four aspects: 1) the definition of a community, 2) the locus and scale

1 Large international organisations and donors such as the World Bank, USAID and the Asian Development Bank are important as they are playing a key-role in the move towards decentralisation (Persoon and van Est 2003). Also private organisations, the tourist industry, scientists and researchers have a potentially important role in co-management. For the sake of simplicity, they are not further discussed here.

of a community, 3) the representation of sub-groups and 4) property rights. Another interesting and helpful categorisation is presented by McCay (1999 in Pinkerton 2003) who talks about territorial communities (or communities of place) and functional communities (or communities of interest).[2] A community of place can be seen as a web of social interactions tied to place, history and identity, whereas a community of interest usually consists of a group with a shared reliance on a particular gear type or species (Jentoft *et al.* 1998). It is important to realise that communities of interest generally have a weaker incentive to protect local fish habitats than communities of place, simply because they are less dependent on the local resources and have the option to move elsewhere (Pinkerton 2003). The incentives to maximise individual short-term interests for communities of interest are thus stronger than the incentives to collectively exercise rights (Pinkerton 2003).

Local community members that live in the same place share their history and culture and have social bonds such as kinship. As a consequence, important cultural integrative aspects such as reciprocity, interdependence, commitment and continuity are stronger in communities of place (Jentoft *et al.* 1998; Osseweijer 2001). These integrative aspects are not only important incentives in fisheries management and compliance on the longer term, they also create the mechanisms that enhance social stability and institutional resilience (see Chapter 7). It is thus important to identify the type of community when establishing a co-management system.

It is also important to identify the locus and scale of a community in relation to the resources to be managed. Sedentary species or marine reserves can be regulated locally, but for resources that cover more than one village territory a local community may not be the appropriate structure. To manage pelagic fish, for example, it is more appropriate to set up a management system at supra-local level through functional community where access is access is regulated by means of Individual Transferable Quota (ITQs).

The second important player in co-management is the government. The national government has a pivotal role in providing the legal basis for co-management arrangements through the establishment of commensurate legal rights and authorities (Pomeroy and Berkes 1997; Pomeroy and Kuperan 2003).[3] It further needs to devolve some of its powers, including the disposition of productive resources which, in reality, rarely seems to happen

2 A third community type identified in international environmental politics and that of growing importance in co-management are so called 'epistemic communities'. These are communities that centre on specific management issues or management bodies and can be made up of industry members, lobbyists, bureaucrats, journalists and scientists.

3 In addition to providing enabling legislation, the government may provide assistance and services (administrative, technical and financial) to support the sustainability of the local organisations and institutional arrangements (Pomeroy 2003).

(Agrawal and Ribot 1999). Many cases show inadequate transfer of powers or a lack of government support (Agrawal and Ribot 1999; Wilson *et al.* 2003). Sometimes it is sheer greed that keeps higher government levels from giving up control, but often it is also the inadequacy of the organisational structures of government departments to cope with the new management concepts and approach. Besides, government institutions are often ridden with internal conflicts, vested interests and, in some cases, corruption. At the same time, the central government is under pressure from lobbyists and multi-nationals to balance sustainable resource use and economic development. This can lead to a situation where the government uses co-management as an instrument to reach its own management objectives more efficiently (Hara and Raakjær Nielsen 2003; Ahmed *et al.* 2004; Raakjær Nielsen *et al.* 2004, 6). Instead of being part of a collaborative process, fishing communities are only allowed to be involved in the implementation process. As a result, in some places, local communities felt used and have developed a suspicious attitude towards the state.

Another obstacle to effective collaboration is the fact that most departments are staffed with biologists who are concerned over resource conservation, rather than with the social aspects of collaboration and management (Hara and Raakjær Nielsen 2003; Raakjær Nielsen *et al.* 2004). Government agents seem to have little trust in the abilities and ideas of the local people. A difference in perceptions, knowledge base and incentives for management further hampers effective communication and understanding. Without bridging this gap there is no real basis for communal action. Moreover, when this situation is not acknowledged, state involvement may actually undermine the social mechanisms in the community (Pinkerton 2003; Habermas 1987 in Jentoft 2004).

Despite these hindrances, there is also great potential for collaboration. A government committed to the process will change its structures and make adaptations, for example by hiring more (social science oriented) staff (Wilson 2003a; Raakjær Nielsen *et al.* 2004; Seixas and Berkes 2004). To establish meaningful collaboration, the government and their staff need to understand the important contribution stakeholders may have in all stages of the management process (design, implementation, monitoring, evaluation, and adaptation).[4] A second step can be to study stakeholder concerns and user knowledge, to learn the tools and techniques to conduct workshops, and to learn the skills to manage conflicts among user groups (Seixas and Berkes 2004). The communication gap can be bridged during the process of institution building and negotiation. During this stage objectives can set that are in line with the wishes of both the national government and the local community, taking into account fishers' knowledge and practises. This will enhance

[4] For details on the process of co-management see Pomeroy (1998).

trust – a necessary ingredient in collaboration (Pinkerton 2003; Jentoft 2003; Wilson 2003a; Raakjær Nielsen *et al.* 2004).

The government can further increase legitimacy of the new structures and downward accountability[5] through: 1) overseeing local arrangements and dealing with abuse of local authority, 2) conflict management, 3) by backstopping local monitoring and enforcement mechanisms, and 4) by applying regulatory standards (Pinkerton 2003; Pomeroy 2003). The government may also act to address issues and problems beyond the scope of local arrangements and can act as a gatekeeper in case the co-management partners do not carry out their responsibilities (Pomeroy 2003). Finally, the way the government may serve a coordinating role is by setting up an appeal mechanism, forum or other formal administrative structure for the various parties to interact. These mechanisms stimulate accountability and thus serve as a counterbalance for the relatively powerful role of the government (Jentoft *et al.* 1998; Agrawal and Ribot 1999).

A third party often involved in initiating a co-management arrangement are NGOs (cf. Balgos 2002). In their determination to grant rights to local communities, they have been successful in gaining support for this issue, especially where it concerns indigenous people (Persoon and van Est 2003). The involvement of NGOs, however, can also be delicate (Raakjær Nielsen *et al.* 2004). For years, (international) NGOs have played a prominent role in local institution building. Regardless of how well they actually fitted with the local circumstances and traditional structures, fisheries organisations or co-operatives were established to deal with fisheries problems. The clash with existing institutions caused these initiatives more often than not to fail (Jentoft 1986 in Jentoft 2004).

2.3 Important issues in co-management

Guiding principles in co-management are participation of those affected, equity and effiency of management structures, power sharing, and respect for the local culture, including traditional institutions and local knowledge. Conflict resolution is also an important component of the co-management process. Expected outcomes depend largely on the degree to which these mechanisms are at work, but implementation or execution of these aspects is not always clear-cut and highly dependent on the context. This section highlights some of the aspects and instruments that are of importance in co-management.

5 Legitimacy and downward accountability are the two main pillars of decentralised systems (Agrawal and Ribot 1999; Raakjaer Nielsen *et al.* 2004).

2.3.1 Property rights

In studying resource management it makes sense to separate the concept of the *resource* itself, from the *rules* that govern the resource (Dietz *et al.* 2002). Commons research (see Chapter 1) deals primarily with common-pool resources.[6] Common-pool resources are ones for which exclusion is costly and where one person's use subtracts from what is available to others (Ostrom *et al.* 1999; Dietz *et al.* 2002). When no property rights define who can use a common-pool resource and how its use is regulated, a common-pool resource is under an 'open-access' regime (Charles 2001; Dietz *et al.* 2002, Stern *et al.* 2002) and subsequently subject to over-exploitation. The diversity of property rights regimes that can be used to regulate the use of common-pool resources is large, including the broad categories of government ownership, private ownership and ownership by a community. The type of governance regime depends for a large part on the characteristics of common-pool resources, i.e. size and carrying capacity of the resource system, the mobility of the resource, the temporal and spatial scale, renewability,[7] the effect of harvesting technologies, and the complex interactions between these factors (Schlager *et al.* 1994; Norgaard 1995 and Agrawal 1999 in Ostrom 1999).

The metaphor of the 'free rider' refers to a person who enjoys the benefits from the contributions provided by others without paying the costs. By stressing the self-interest of people this metaphor reflects a negative view on user involvement, but what it merely describes is human behaviour as a response to a particular institutional context, such as an open-access regime. An open-access regime can have certain advantages; it is in principal more equitable and less divisive than other systems. But in general, open-access makes it more difficult to enforce cooperation and agreed upon rules because of the free rider problem and it thus contributes to competition and over-exploitation (Jentoft *et al.* 1998). For this reason, to manage common-pool resources, private property has been promoted.

The advantage of establishing local property rights is that it creates an incentive to invest in the sustenance of the resource (Rose 1994 in Jentoft *et al.* 1998; Jentoft 2003). Clearly defined property rights are also an important tool for fishers to exclude others (Raakjær Nielsen *et al.* 2004). The establishment of a self-governing regime is easiest where there are clearly defined sets of property rights (Scott 1993 in Jentoft *et al.* 1998; Jentoft 2003) and local rights to manage can be strengthened if backed up by rights of ownership (Jentoft *et al.* 1998). Therefore co-management in general argues for

6 A common pool resource is a valued natural or human-made resource that is available to more than one person and subject to degradation as a result of overuse.

7 Renewability refers to the rate at which resource units that are extracted, replace themselves over time.

the devolution of management authority and stimulates local ownership or long-term leases.

2.3.2 Participation

Participation of all stakeholders is often mentioned as vital in the formulation and successful implementation of decisions concerning environmental resources (Uphoff 1984; Costanza 1998; Jentoft 2003; Berkes 2003). Effective management requires participatory decision-making processes that are legitimate, accountable, and inclusive in the sense that they take into account multiple stakeholders and interests (Agrawal and Gibson 2001). Participation thus is the key word,[8] but in reality, meaningful participation in management processes proves more difficult than at first sight. Often there is no authentic participation, i.e. true power sharing in the sense that there is local input in allocation decisions and authority over commercially interesting products (Pinkerton 1989; Agrawal and Ribot 1999; Hildebrand 1997 in Jentoft 2003; Pinkerton 2003). Where powerful players are involved, the voices of local stakeholders are often not heard (Berkes 2003).

The obstacles in achieving authentic participation are fundamental and complex. There are differences in perspectives, interests, and expectations of the various parties that are difficult to bridge (Notzke 1995), (see also section on discourse analysis in Chapter 1). Various groups seek to control how institutions allocate rights over resources and provide for their representation in the division of those rights. It is therefore important to make a distinction between 'stakeholders' and 'right holders', i.e. between people who are making a claim or have an interest in the resource and those who can be considered as having a right to it, based on formal regulations, customary law or other practices (Persoon 2004). A third group, so-called caretakers, tries to work through the right holders – and particularly those in power – in order to achieve their own objectives. The outside elites described in Chapter 10 are an example of this. Co-management thus will not go without being contested by the many interested parties involved in securing benefits from the resources in question (Raakjær Nielsen *et al.* 2004). In starting the process of collaboration, it is therefore important to analyse those trying to get a seat at the table.

2.3.3 Local knowledge

Well-functioning communities contain untapped human and capital resources that should be put to use (Jentoft *et al.* 1998). Traditional knowledge, generations-old adaptations, and self-regulating principles have helped various groups to survive in the long-term and have the potential to improve sustainability on both the social and the environmental level (Johannes 1989).

8 For a wider definition of participation, including the dimensions and types of participation, I would like to refer to Uphoff 1984; Drijver 1991; Pretty 1994; and Harkes 1995.

These cultural and social qualities of human societies are assets or 'social capital' (Jentoft *et al.* 1998). Incorporation of this social capital into fisheries management is thought important in reversing negative social and environmental impacts and in building more socially and environmentally stable systems that are efficient and legitimate (McCay and Jentoft 1996; Milton 1996; Pomeroy and Berkes 1997; Ribot 2002; Raakjær Nielsen *et al.* 2004).

The use of local environmental knowledge however has to be dealt with critically and limitations need to be acknowledged. Some knowledge, for example, is secret and therefore inaccessible to outsiders or certain groups in the community. Also the fact that people's view is based on a limited geographical locality can cause blind spots or worse. 'Local ignorance' can form a serious obstruction in negotiations or the establishment of a fisheries management scheme.[9] In many places people are simply in denial of environmental problems and blame it on God or other externalities. This is also my personal experience: 'C'est a Dieu' is repeatedly heard in north Cameroon when people are asked why their fish catches are in decline (Harkes 1994).

Scepticism in the use of local knowledge in environmental management is also expressed by Ellen and Harris (2000) who state: 'The claims for the environmental wisdom of local people have sometimes been misjudged and naïve.' The establishment of a property rights regime may be difficult in a culture where people believe that nature is not a commodity to be bought, sold or preserved (Posey 1999). In principle, these understandings of the world are as valid as any other expression of local knowledge, were it not that particular ideas or perceptions in fact refrain people from environmentally sustainable behaviour. The way various groups tackle environmental problems thus is a reflection of diversity, both culturally as well as in terms of biodiversity (Slikkerveer 1999). The use of local knowledge in environmental management is thus context specific and requires careful consideration.

One of the main current challenges expressed in the search for solutions to environmental problems, is to combine or integrate local knowledge and so-called 'global knowledge'. Despite increasing willingness on the part of fisheries managers to make use of local knowledge found in the communities, the integration of local ecological knowledge and research-based scientific knowledge into a common basis for management decisions remains a difficult task (Hobart 1993; Raakjær Nielsen *et al.* 2004). In fisheries, there seems to be a fundamental gap in the perception of the condition of the stocks be-

9 It also refers to 'ignorance' in relation to scientific knowledge for social and economic development. Ignorance is not a simple antithesis of knowledge, writes Hobart (1993). It is a state which people attribute to others and is laden with moral judgement. The relationship of developers and those to-be-developed is constituted by the developers' knowledge and categories. Knowledge of people being developed is ignored or treated as a mere obstacle to development.

tween fishing communities, scientists, and fisheries agents. The data generated through conventional scientific methods are often quite distinct from the knowledge local people bring in, and which is by default context specific and qualitative in nature. To make use of this knowledge, it is often redefined and extracted from its context (Agrawal 1995 and Warren *et al.* 1995 in Ellen and Harris 2000). Ellen and Harris (2000) warn for this so-called 'decontextualisation' of knowledge.[10]

To prevent decontextualisation, it may prove useful to identify the different purposes for which knowledge is used and extracted and make the process explicit as Seixas and Berkes (2004) do in their description of the Ibiraquera lagoon fishery in Brazil. They present mechanisms to deal with different types of knowledge in the interactions among management institutions across political scales and administrative sectors. For this, they distinguish three purposes for a common knowledge base: (1) to provide information for decision-making, (2) to minimise differences in stakeholders' understanding of problems, and (3) to provide input to management coordination at a larger scale. In the search for fisheries management plans that allow both traditional and scientific knowledge to feed in, the above categorisation may be useful as it helps to define *what* type of knowledge is used for *what* purpose. It is also important to look at *how* local perspectives are included in the decision-making process. By making the process of explicit and placing it the context, local knowledge, even though only partially used and extracted, is acknowledged, credited and – in its limited form – useful in combination with scientific knowledge in management.

2.3.4 Conflict resolution

There are various reasons why parties decide to cooperate in fisheries management; yet, problem solving provides one of the key incentives (Pinkerton 2003). In fisheries throughout the world internal conflicts arise over access to resources, property rights, gear types, space, and markets (Jentoft *et al.* 1998; Seixas and Berkes 2004). Regulatory systems always impose restrictions on users and it is hardly possible to find a measure for conserving fish stocks that does not benefit one resource user more than others. So there are always those who win and those who lose (Raakjær Nielsen *et al.* 2004). These restrictions on fishers and unequal division of resource benefits evidently offer great potential for conflicts.

Interestingly, conflict is not only a destructive, but can also be a creative force for resource management (Wilson 2003b). This is beautifully illustrated through a comparative case study by Donda (2001) in Malawi. At Lake Chiuta

10 Decontextualisation refers to the separation of knowledge from its human agents and from the situations in which it is produced, reproduced, transformed and presumably at its most effective (Ellen and Harris 2000). See also Hobart (1993).

conflict over resources motivated local communities to request the government for assistance in setting up co-management arrangements. Through these arrangements, fishers found a judicially solid base to exclude outsiders from their fishing grounds, which reduced conflict and improved management.

Co-management accommodates for local conflicts to be resolved. Conflict resolution mechanisms can help to facilitate negotiations, for example, on access regulations or the division of benefits, or the identification of the most appropriate measures. If conflicts, however, involve groups outside the community, structures for coordination and coordination on a higher level are usually required. The current challenge, as Hanna (2003) puts it, is to develop conflict resolution processes that accommodate heterogeneous participants and multi-dimensional change while maintaining the legitimacy of management.

2.3.5 Compliance and enforcement

Compliance and enforcement in fisheries management are often understood from an economic viewpoint, i.e. the rationale that fishers are calculating the risk of being caught with the potential benefits of bypassing the rules (Raakjær Nielsen 2003). In this so-called instrumental perspective, the approach to rule compliance is often geared towards monitoring, control and enforcement (MCE approach). In contrast to this, social scientists look at it from a more normative perspective which puts special emphasis on fishers' internal incentives for compliance behaviour, such as norms. Norms form the attitudes and expectations towards others and they create social pressure.[11] One of the assumptions is that individual decisions to comply with the rules are largely based on moral obligation or peer group pressure. Active participation of fishers thus helps to create a stronger moral obligation of individuals to comply with the rules and regulations (Jentoft *et al.* 1998; Kuperan *et al.* 1997; Folke *et al.* 2002).

Legitimacy of rules, regulations and the law enforcement authorities is also a key incentive for compliance. The distribution of fishing rights needs to be legitimate (distributive fairness), but also the regulatory system (procedural fairness), (Tyler 1990; Raakjær Nielsen 2003). The study of *sasi* in Maluku (see Chapter 5 and Novaczek *et al.* 2001) shows that village leaders or management authorities who lose legitimacy as a consequence of political strife or unfair elections, open the way for disobedience. Government managers often do not realise how important legitimacy is and how important it is that the fishers feel heard about what they think needs to be done at the local level. The strategy thus is to establish a larger degree of convergence between

11 Norms create social pressure. Moral is established in interaction with others, but differs from norms by representing individual values based on personal reflections (Giddens 1984).

politically decided management objectives and what fishers perceive as legitimate.

2.3.6 Transaction costs

Transaction costs are defined by Williamson (1979) as the comparative costs of planning, adapting, and monitoring under alternative governance structures. In co-management transaction costs can be divided into: a) information costs, b) decision-making costs, c) operational costs, and d) the costs for monitoring, control and enforcement (Kuperan *et al.* 1997). A centralised approach to fisheries management, as formerly in Indonesia, will initially have lower design costs since it takes less time to reach decisions than under a more cooperative approach. On the longer term, however, a centralised approach will prove more costly as implementation, monitoring and enforcement costs will rise due to a lack of legitimacy. Decentralisation of management authority to local levels therefore is expected to reduce transaction costs (Ribot 2002).

The reduction of transaction costs is one of the main arguments for adopting co-management. This is especially the case in countries with an extensive coastline and vast resources, such as the Philippines and Indonesia. Co-management can be cost-effective because fishers can provide a direct source of relevant information on fishing patterns, the state of the resource and fish catches (Hanna 1995). The operational costs (the costs for undertaking the fishing activities) can be reduced through more equal access and a fair division of benefits. Through its participatory process co-management is also expected to increase legitimacy and rule compliance, which, in turn, further reduce enforcement costs. Enforcement costs can be further reduced when violations of rules can be handled effectively at local level (Jentoft *et al.* 1998).

2.4 Shortcomings of co-management

Co-management as a strategy offers a viable solution for dysfunctional resource management and over-exploitation. But even though co-management does have great potential and has gained increasing acceptance amongst government, development agencies and researchers, increasing experience and wider application have brought certain shortcomings and pitfalls to the light. The first, which is already mentioned in at the beginning of this chapter, is that the concept of co-management is not clearly defined and means a different thing to different people (Ossewijer 2001; Jentoft 2003; Raakjær Nielsen *et al.* 2004). The second shortcoming is that, in many cases, co-management has become largely instrumental, i.e. the involvement of fishing communities has been limited to the implementation phase without having been involved in development and planning (Raakjær Nielsen *et al.* 2004). For

example, the Beach Village Committees at Lake Malombe, also in Malawi,[12] felt they were doing the 'dirty work' for the Fisheries Department rather than being involved as partners (Donda 2001). This trend might eventually lead to a situation worse than before because the frustration among the fishing communities will have increased not only because of the lack of empowerment, but also because their heightened expectations about genuine participation were not met.

The study of Osseweijer (2001) on marine resource use on the Aru Islands (Indonesia) is a clear illustration of the vague application of co-management that is often seen today. In Aru, WWF decided on the establishment of a marine reserve. The process involved sensitization and awareness raising by a local NGO in order to stimulate a feeling of ownership and rule compliance. Hence the project was labelled 'co-management'. The local population, however, was not convinced of the need of a marine reserve at all and as the establishment of the marine reserve was merely imposed on people rather than the outcome of a negotiation process, it created resistance. This typical example of fitting an existing WWF project into a 'co-management jacket' has not only distorted the concept of co-management in the region, but whilst this approach may have been possible during the centralistic Suharto years, it has most probably ruled out any support for 'proper' co-management[13] in the future.

2.5 Co-management today

Globalisation[14] is a process that is increasingly affecting management of natural resources. Markets are opening up and local processes are becoming more and more tied to global issues. As the scale increases, fisheries management structures have to adapt. Local communities and socio-political processes are becoming linked to distant localities[15] and international economic forces (Giddens 1990). The preservation of biodiversity and natural resources on a global scale is important, but it is important to realise that biodiversity conservation generally concerns ecosystems rather than local com-

12 In his thesis, Donda (2001) compares two different processes of the establishment of co-management. The first, in Lake Chiuta was initiated by the local fishers. The second, in Lake Malombe was government driven and subsequently has a distinct process and outcomes from the former case.

13 'Proper' as only now, after the reformasi, the necessary foundation is in place to actually support local resource management (see chapter 10).

14 Globalisation can be understood in various ways, but is characterised by the spread and exchange of ideas, practices and technologies on a world-wide scale (Milton 1996).

15 Rights of indigenous peoples and the preservation of biodiversity on a global scale through international conventions are issues that are important, but that fall outside the scope of this thesis, which focuses on fisheries.

munities, who can become marginalized in the process (Berkes 2003; Jentoft 2004). Also in coastal fisheries, local communities can encounter a loss of control and authority as the scale increases. Industrialised high-tech fisheries require substantial financial and organisational resources and long-term access to fisheries. As local communities rarely have the means or power to counter these powerful distant stakeholders, they are likely to become disempowered (Raakjær Nielsen *et al.* 2004).

As the scale of resource management increases, a range of new issues arises as well as the number and heterogeneity of resource users. This makes decision-making and cooperation more complex. It also increases the costs of monitoring and enforcement. The question arises whether the findings and experiences of co-management on the local level can be scaled up (Costanza *et al.* 1998). Experiences from the Philippines and Bangladesh (Raakjær Nielsen *et al.* 2004) show that large-scale resource systems in fact can be handled by co-management institutions, but it is also becoming clear that different principles come into play at different scales (Young 1999). Current debates focus on which types of institutional arrangements are required and on whether the standard design principles (Ostrom 1990) can be scaled up to higher levels of social organisation. One way to deal with this is to create 'nested institutions' and through institutional interplay. This last structure is also important in dealing with uncertainty, another recurrent issue in fisheries management (Charles 2001).

Uncertainty refers to social and natural systems that are highly dynamic and with limited predictability. The challenge in fisheries management is to make decisions in relation to this uncertainty (Wilson 2002). Over the years, the problems have become progressively more complex and difficult to manage. Over-fishing, ocean disposal and spills, the destruction of coastal ecosystems, land-based contamination and climate change affect marine ecosystems and conventional management approaches based on predictability have become increasingly unworkable (Costanza 1998). One solution to deal with uncertainty is sought in adaptive fisheries management which is 'based on institutional structures which can evaluate outcomes, develop new understandings of the situation, and take corrective action both in terms of management measures and the institutional framework for management decisions' (Degnbol and Raakjær Nielsen 2002). Learning from past experiences and modification for future action is an important process to be included in co-management.

The 'nested systems' mentioned earlier refers to the fact that institutions thus work at different levels of society and institutions exist within institutions (Ostrom 1990).[16] Aside from vertical linkages, multiple horizontal linkages may exist with other institutions (Pinkerton 2003). Horizontal collaboration is called institutional interplay. Fisheries management can also be regarded as a nested system of institutions. Local management institutions, for example, are often nested within larger political institutions such as associations which deal with resource management issues at a higher level, for example, a watershed. These associations in turn may be represented at the level of the province or state. Decisions at one level are 'passed up' to the next through representative structures (Degnbol *et al.* 2003). Local level decisions are influenced by higher-level rules and regulations and vice-versa, and the successful exercise of rights on one level thus depends strongly on the exercise of rights of the other.

Linking institutions, however, is more than just delivering decisions up and down write Degnbol *et al.* (2003). Decision-makers have responsibilities vis-à-vis those they represent. Hence, accountability and transparency are important and depend much on the procedures and communication. Democratic selection[17] and the possibility to remove a representative are keys in creating accountability. It is furthermore important how information is exchanged, how conflicts are solved and how agreements or compromises are reached. A challenge for management institutions is to 'translate' certain types of information from one level to another. The transfer of information on resource management to different jurisdictional scales, is a process in which a lot of information frequently gets lost (Degnbol *et al.* 2003).

There is also often a 'language barrier' between levels of institutions. To tackle this problem, different sets of skills at different levels are needed to enhance communication and understanding (Degnbol and Raakjær Nielsen 2002). A new phenomenon mentioned to deal with communication problems at various levels are what Degnbol *et al.* (2003) call 'practitioners' or 'circuiters' who move among the nested management institutions, supporting negotiations and providing information. These practitioners need a variety of skills from decision-making processes and conflict management, to expertise in socio-cultural and biology related fields. In my view, this role is typically one of a facilitator, a person who builds bridges between parties without personal involvement. Anthropologists, used to 'translating' cultural aspects and expressions to another, could fulfil an important role here.

16 Nested systems: management institutions exist within a hierarchical structure in which decisions are made at the lowest possible appropriate scale (subsidiarity principle).

17 I will not go deeper into definitions of democracy, but in this context it refers to election procedures for representatives. Undemocratic representation, i.e. by appointment, can be highly legitimate as is the case in Indonesia (see Chapter 5).

2.6 The role of the anthropologist

Since people have been acknowledged as active participants in resource management, the contribution of social sciences – and anthropology in particular – in the study and implementation of natural resource management has increased. As is clear from the above, there is a general demand to complement the scientific knowledge of biologists and economists on fish stocks and markets, with knowledge on the socio-cultural aspects of fishers and fisheries management (Bowen and Riley 2003; Jentoft 2003). But what exactly is it that the anthropologist can contribute?

Anthropology entails a large range of activities and approaches. Milton (1996) distinguishes two major roles for anthropologists in environmentalism. The first is to study environmentalism itself as a cultural phenomenon, so more or less from an outsiders' perspective (cf Pannel 1997). The second is to come to a better understanding of the dialectical relation between humans and their environment. Osseweijer (2001), for example, sees as major activity the comparison and communication of the various environmental perceptions, for instance during the preparations of a co-management regime. A third, more applied role, is suggested by Kottak (1999) who sees the anthropologist as agent: planning policies in line with local ecological awareness and knowledge to enhance nature conservation or the advocacy of local people at risk. A fourth role could be the anthropologist as facilitator or 'translator' between parties in co-management. This role is more or less in line with what Degnbol *et al.* (2003) propose as 'practitioners' and 'circuiters'.

In co-management there is often great misunderstanding among the various parties about the use and management of resources, as well as the causes and effects of environmental problems. The insights gained from comparing the different perceptions on resource use and conceptions of the natural environment can be very valuable in the establishment of resource management regimes and co-management process in particular (Osseweijer 2001). There is an important place for anthropologists to bring the different visions of the environment and environmental problems into a critical perspective (Brosius 1999). The anthropologist, who has analysed the situation and developments in the region, as well as the dialectical relation between local people and their environment, might attain a better understanding of what Leach (1999) calls the 'messy middle ground' between community and government. The anthropologist may therefore be able to bridge the cognitive gap between both parties.

The current criticism of anthropologists working at environmental issues is that their potential contribution has been largely ignored.[18] In the 1970s, Rappaport (1968, 1971) already argued for the inclusion of people's understanding of the world in environmental management, also to determine

whether their knowledge would be ecologically sustainable. It is important to understand *how* culture mediates human-environment relationships. The absence of this knowledge seriously undermines the arguments presented in the global environmental debate (Milton 1996). This is a serious shortcoming, because by analysing the relationship between the culture of people and the ecological impacts of their activities, we would be able to understand which cultures and which cultural features are ecologically sustainable and which are not. These features can be key elements in the management of natural resources.

18 This is, as mentioned before, to a certain extent due to the preference for other scientific input (e.g. biological and economic) in management of natural resources and environmental issues. It can, however, also be attributed to anthropologists themselves who have historically focused on in-depth case studies without being able or willing to extend their focus beyond the local situation under study. Results were not extrapolated to other sites or wider debates, partly because of the ethical codes that kept anthropologist from sharing, sometimes sensitive, information (see also Persoon and Hobbes 2003).

3 Methodology

3.1 The research framework

The Fisheries Co-management Research Project has developed an analytical framework which, when applied in various research projects, enables comparisons among case-studies, country research and pilot-tested co-management models (ICLARM/IFM 1996). The model allows for systematic data analysis so that conditions that facilitate successful co-management may be discovered. Institutional analysis focuses on the rights and rules that make up the management institution. These rights and rules may be formal (written down) or informal (unwritten code of conduct). The purpose of institutional analysis is to separate these rules from the incentives and strategies of the various players (individuals and organisations) involved in the institution. A clear appreciation for what is cause and what is effect helps to understand how different management structures affect behaviour of resource users and subsequent outcomes (Fig. 3.1).

The Institutional Analysis Framework (IAF) acknowledges that the success of a management institution does not only depend on structure (i.e. the sum of constitutional, collective-choice and operational rules governing resource access and withdrawal) but is also affected by the wide range of local, regional, national as well as international and exogenous contextual variables.

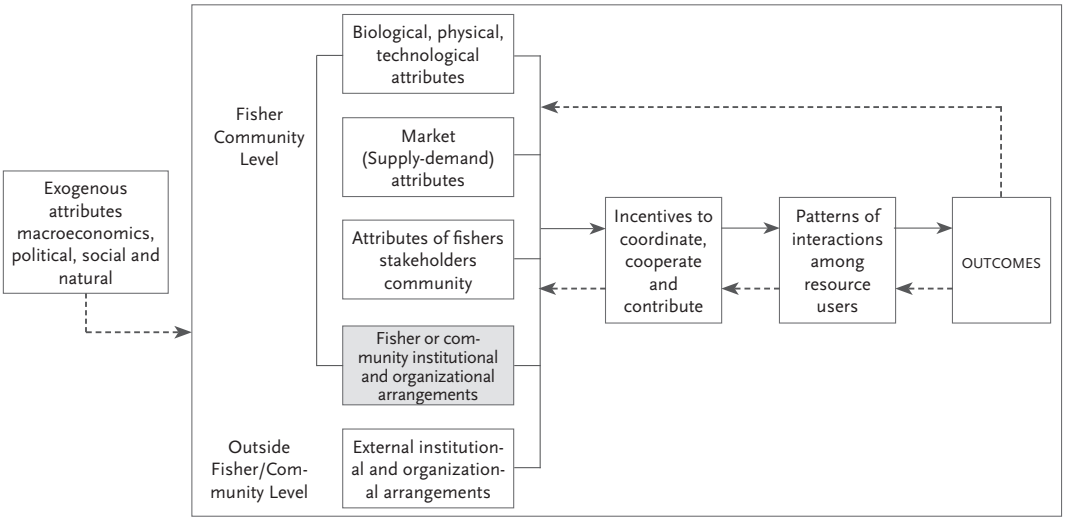

FIGURE 3.1 – Institutional analysis framework (adapted from Oakerson 1992)

There are three interrelated parts to institutional analysis: analysis of institutional arrangements, analysis of performance, and the identification of key factors affecting performance. The first aspect, institutional arrangement analysis, describes what is occurring in real life and uncovers the relationships between the institution and related organisations. Links that exist between the local management system and the sets of contextual variables are also explored. Contextual variables include the biological, physical and technological attributes, the market attributes, the stakeholder and community characteristics, community institutional and decision-making arrangements, the external institutional and organisational arrangements, and exogenous attributes. Contextual variables provide the incentives and disincentives which in turn affect patterns of interaction among stakeholders, i.e. how resource users participate in, support or comply with management institutions.

The second level of institutional analysis, institutional and organisational performance, evaluates the outcomes of the co-management institutional arrangements according to the measures of sustainability, efficiency and equity. The measuring instruments are applied to the impact of co-management arrangements on human as well as ecological systems that operate and affect the resource. The final level of analysis determines the characteristics of and underlying factors for successful co-management.

The degree and type of interactions among resource users and managers both at local and higher levels determines where an institution lies along the continuum of potential co-management arrangements (Fig. 3.2 adapted from McCay 1993 and Berkes 1994).

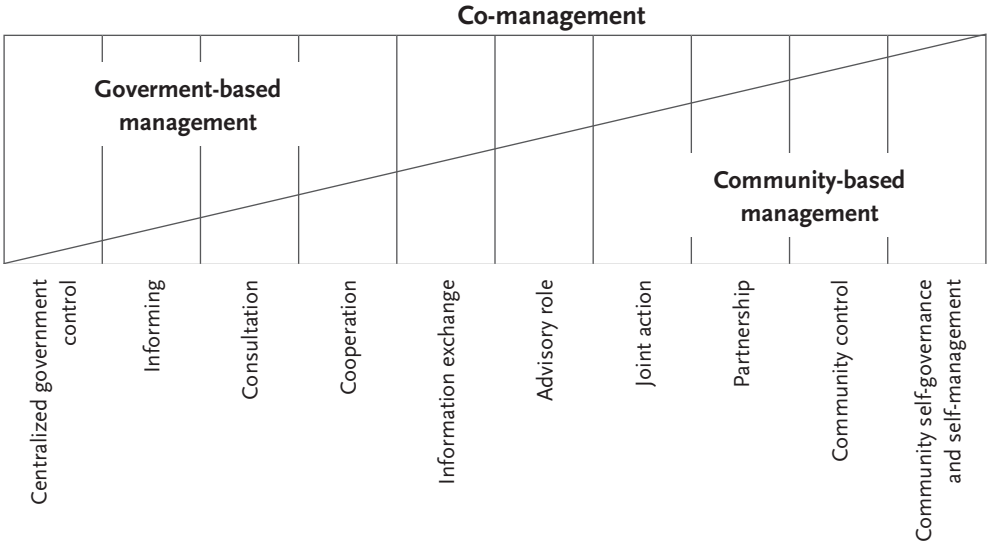

FIGURE 3.2 – The continuum of possible co-management arrangements.

3.2 Study site selection

Research was focused primarily on the islands of Ambon, Seram and the Lease Islands of Haruku, Saparua and Nusa Laut (Figure 1). To determine the extent and activity of *sasi,* every village on the three Lease Islands was included in the inventory. On Ambon Island, which has a total of 61 villages, we left out the 23 suburbs of Ambon city where the *sasi* institution has virtually disappeared. Of the 38 remaining coastal villages on the island, 50% were included in the inventory. On the large island of Seram, which has 136 rural coastal villages, we surveyed only those seven that are within easy reach of Ambon (5% of the total).

For the performance analysis, we wanted to sample villages having *sasi* on marine resources and villages with no *sasi* at all. From the inventory, however, we found that most villages on Saparua, Haruku and Nusa Laut lie along a continuum, with relatively few having either fully functional *sasi* or none at all. We extended the inventory survey to selected coastal villages on Ambon Island and southern Seram. Based on the results of this extended inventory, two groups of 11 villages could be identified as performance study sites.

In 6 case study villages (two with a strong *sasi* institution, two where it was lost, and two that were in the process of revitalization) a comparative institutional analysis was carried out. We studied how local institutional arrangements interacting with the contextual variables, affect the actions of the resource users since these shape the incentives to comply to, adapt and enforce local management rules (ICLARM/IFM 1996). In each village, data were gathered on contextual variables, structure and function of institutional arrangements and management outcomes. In surrounding marine territories marine surveys were carried out.

3.3 Research methods

Structured interviews on the presence and activity of *sasi* were conducted in 63 villages. In all cases at least one of the informants was a local government official or traditional (*adat*) authority figure because they were expected to have detailed knowledge of village related issues. In addition, fishing family interviews and/or in-depth case studies were carried out in 28 of the villages and this added depth to the inventory data (see Table 3.1).

The inventory interview consisted of a standard list of questions. Respondents were asked about the presence of *sasi* and other fisheries management rules, whether *sasi* rules applied to the village, land, river or sea, the existence of *sasi* ceremonies, written rules and sanctions, activity over time, and reasons for the loss of *sasi* where it was no longer present.

Table 3.1 – Informants interviewed in the three phases of the *sasi* study

Project objective and research component	Methods	Geographic area	Type of Informant	Number
1 Inventory of *sasi* institution in central Maluku	Structured interviews	63 villages on Nusa Laut, Saparua, Haruku, Ambon and Seram Islands	Village official *Adat* leader Church minister Fisher, elder Teacher, researcher ***Total***	83 24 6 48 2 ***165*** (7 women)
2a Performance analysis of *sasi* at the district level	Structured interviews & ladder survey	22 villages on Saparua, Haruku, Ambon, and Seram	Fishers ***Total***	332 ***332*** (73 women)
2b Performance analysis of *sasi*: biological aspects	Biological survey (direct survey, informal interviews)	Saparua (Nolloth, Itawaka, Ihamahu), Haruku (Haruku) and Ambon (Toisapu, Hutumuri, Seri, Airlow)	Village officials Fishers *Adat* leaders Women ***Total***	5 2 1 1 ***9*** (1 woman)
3a Institutional analysis 6 villages: contextual variables and outcomes	Structured interviews & ladder survey	Nolloth, Haruku, Tuhaha, Hulaliu, Seri, Hutumuri-Toisapu	Fishers ***Total***	176 ***176*** (8 women)
3b Institutional analysis: Resilience of local institutions	Semi-structured interviews	Nolloth, Haruku, Tuhaha, Hulaliu, Seri, Hutumuri-Toisapu	Village officials *Adat* leaders KUD staff Elders Youth Fish traders Women's leaders Male fishers Female other Male other ***Total***	25 7 7 21 18 22 14 10 9 23 ***157*** (45 women)
		Total number of interviews		***839*** (134 women)

Sasi can be characterized as church *sasi* or *adat sasi* according to the dominant power in the institution (Imron Masyhuri 1995). Respondents were asked whether they considered their *sasi* to be *adat sasi*, church *sasi* or some other form of *sasi*, also to reveal the authority figures i.e. traditional (*adat*) leaders, the minister (church), Muslim religious leaders or others (e.g. com-

mercial harvesters). The role of the village government, and especially the village head, was also documented.

In each of the 22 villages in the performance study, 15 heads of fishing households were interviewed. The data collected from 30 heads of fishing households in each of the six case-study villages (see chapter 5 of this thesis and Novaczek *et al.* 2001) were also included. Each of the respondents provided information on current conditions, changes through time (past 15 years) and future expectations for each of the indicators (Table 3.2). For the purpose of statistical analysis, the responses were divided into two groups: those from fishers in marine *sasi* villages and those from fishers in villages lacking the *sasi* institution.

TABLE 3.2 – Performance indicators

Equity	1 Role of fishers in management	• The degree of influence that fishers have in decision-making processes regarding fisheries management
	2 Access to marine resources	• The individual access that fishers have to marine resources
	3 Fair distribution of fishing gear	• The division of (expensive) fishing gear among the fishers in the villages
	4 Economic equality	• The distribution of income (disparities) among the villagers
Efficiency	5 Communal decision-making	• The degree to which villagers are able to make decisions (on the fishery) communally
	6 Ease of entry into the fishery	• The costs and/or fees that need to be paid before people can start fishing
	7 Control over access to fishery	• The ability of people to define who is entering the water and which resources are used
	8 Compliance with fishery rules	• The degree to which people stick to the fisheries rules
Social sustainability	9 Family well-being	• Degree of well-being in terms of housing, food, and health
	10 Income	• The rise or decline in income
	11 Tradition of collective action	• The occurrence of communal activities in the village (e.g. construction of roads and houses)
	12 Discussion of village issues	• The degree to which local issues are openly discussed in the village
	13 Community harmony	• The lack or occurrence of conflicts in the village
Biological sustainability	14 Marine resource health	• The state of the resource in terms of coral health, numbers of fish, water clarity, etc.
	15 Fish catch	• The amount and size of fish caught

The resilience study is based on information from both the inventory and the comparative analysis of case studies with reference also to the contextual attributes (political, economic and socio-cultural). Key informant interviews covered questions on the objective of *sasi*, the rules and regulations, the role of the village government and traditional authorities, leadership, boundaries, compliance and enforcement, and external factors having an impact on management institutions (based on Lubis 1992; Ruddle 1993; von Benda-Beckmann *et al.* 1995; ICLARM/IFM 1996). The data from the inventory shows the process of decline; the additional information was used to explain the mechanism behind this process.

Detailed information on each of these aspects is described in Novaczek *et al.* 2001.

3.4 Inventory

We quantified the frequency and distribution of different *sasi* arrangements and also determined whether the dominant power was correlated with the attributes of the institution. The villages were grouped by three different features: dominant religion, population size, and island.

The activity of marine *sasi* was quantified by combining the scores for indicators e.g. presence of *sasi* fisheries rules, periodic closure of a marine *sasi* area, existence of written rules and active enforcement of access restrictions. Each indicator had a maximum score of 3. Scores reflected the relative degree of activity i.e. the breadth of application of a closure or the functionality of enforcers.

The number and breadth of application of marine management rules in both *sasi* and non-*sasi* villages was quantified by first assigning value to a number of indicators and then summing these values for each village. The indicators concerned gear restrictions, local fisheries rules other than the national restriction on blast and poison fishing, area closures and active enforcement of rules. A value was also assigned according to the number of species groups affected by local management rules. Differences in average marine management score for villages grouped by presence or absence of *sasi*, geographical location, population size and religion were determined statistically using analysis of variance (SPSS 1997).

3.5 Performance

Indicators used to measure equity, efficiency, biological and social sustainability are presented in Table 3.2. Comparisons were made between the average condition in the past in *sasi* and non-*sasi* sites, between past and present in each type of village, and between average change through time in *sasi* and non-*sasi* villages. The same series of comparisons were made for present and future conditions.

In each of the 22 villages in the performance study, 15 heads of fishing households were interviewed. The data collected from 30 heads of fishing households in each of the six case-study villages (see chapter 5 of this thesis and Novaczek *et al.* 2001) were also included. Each of the respondents provided information on current conditions, changes through time (past 15 years) and future expectations for each of the indicators (Table 3.2). For the purpose of statistical analysis, the responses were divided into two groups: those from fishers in marine *sasi* villages and those from fishers in villages lacking the *sasi* institution.

The values for each indicator are based on the perceptions of fishers using a self-anchored ladder scale (Pomeroy *et al.* 1996). This standard tool provides ordinal data, which allows statistical analysis. Fishers were asked to answer questions using a picture of a ladder with ten rungs as a visual aid. Fishers pointed to the rung that in their opinion represented past (15 years ago), present and future (15 years ahead) conditions. The aim was to record fishers' perceptions of current conditions, change through time and degree of optimism for the future. In addition, base-line data was gathered from each respondent, including people's economic status.

3.6 Institutional resilience

Aim of the study was to determine the reasons for loss or survival of *sasi*. The similarities and differences among study sites were explored to reveal the (social) mechanisms behind the process of decline of *sasi* and answer the questions: What makes *sasi* strong or weak and why do some villages want to revitalize it?

The resilience study is based on information from both the inventory and the comparative analysis of case studies with reference also to the contextual attributes (political, economic and socio-cultural). Interviews conducted for the inventory of *sasi* included questions on whether *sasi* had ever been functional in the village, when various functions had ceased and why. In addition, key informant interviews in the case study villages (Table 3.3) covered questions on the objective of *sasi*, the rules and regulations, the role of the village government and traditional authorities, leadership, boundaries, compliance and enforcement, and

external factors having an impact on management institutions (based on Ostrom 1990; Lubis 1992; Ruddle 1993; von Benda-Beckmann *et al.* 1995).[1]

TABLE 3.3 – Case study villages and presence of sasi

Village	Sasi	Island
Nolloth	Strong	Saparua
Haruku	Strong	Haruku
Tuhaha	In the process of revitalisation	Saparua
Hulaliu	In the process of revitalisation	Haruku
Toisapu-Hutumuri	Disappeared	Ambon
Seri	Disappeared	Ambon

The results of the inventory interviews were analyzed quantitatively. The results of the semi-structured interviews conducted in each case study village were analyzed in a qualitative way and compared with the trends evident from the inventory. The data from the inventory shows the process of decline; the additional information was used to explain the mechanism behind this process.

3.7 Fisheries management and legal framework

The research area Central Maluku, includes two administrative districts: Kabupaten Maluku Tengah and Kotamadya Ambon. Interviews with government staff involved questions on fisheries management, control and enforcement and the responsibilities of the various (government) institutions involved (Table 3.4). They took place in 1997-98 at the district office in Ambon city and Masohi on Seram, and at two sub-district offices on Haruku and Nusa Laut. The perception of local level government staff was drawn from the interviews of the general institutional analysis. Information regarding the perception of people in coastal villages of central Maluku was drawn from interviews of village government officials, traditional leaders and fishing families that were conducted as part of the larger study on *sasi* (see Novaczek *et al.* 2001). In addition, published documents detailing law and policy were reviewed.

After the social upheaval and changes in government law as part of the decentralisation process, major revisions have been made in the legal framework, including authority structures at the local and district level. An updated version of the legal framework was derived from a literature survey. These changes up to January 2005 are briefly presented in Chapter 9.

1 Detailed information on each of these aspects is described in the individual case studies (see Chapter 5 and Novaczek *et al.* 2001).

TABLE 3.4 – Respondents interviewed to gather information on fisheries management in central Maluku in 1997-98.

Topic	Method	Place	Department	Number of interviews per department
Government management structure at provincial, district and sub-district levels	Semi-structured interviews	Ambon city (provincial capital); Masohi (District capital); Saparua Island, Haruku Island (sub-district offices)	BAPPEDA (Planning)	4
			Dept. Forestry	2
			Dept. Fisheries	
			Provincial	1
			(Sub-) District	8
			Dept. Transport	4
			Law Bureau	1
			Environment Bureau	1
			Police	3
			Navy	2
			Total	***26***

3.8 Decentralisation

The description of the process of decentralisation and its implications in the Philippines and Indonesia is based on a literature survey, internet news and updates. Information was also obtained from several experts working in both countries through e-mail and telephone conversations. The cases in the Philippines were selected as they provide current examples of decentralised systems.

3.9 Conditions for success of co-management

Data for this chapter came from project partners working at the various (research) sites of the Fisheries Co-management Research Project in the Philippines, Indonesia, Vietnam, Thailand, Malaysia, and Bangladesh. Over forty-five individual research projects and activities were undertaken during the life of the project. These research projects and activities include: reviews of community-based and co-management projects, case study analyses, impact evaluations, the testing of hypotheses on the benefits and outcomes of co-management, analysis of legal and policy documents, and information exchanged at meetings and workshops (see Table 3.5).

Aside from the write-up, my contribution to this chapter/article was mainly in providing the key conditions for success from the Indonesian cases and comparative analysis with the material from the other countries in order to find consistency and define the degree of importance or relevance of the various indicators and conditions.

TABLE 3.5 – Sources of information

Activity	Sources
Reviews of community-based coastal resource management and co-management experiences:	Vietnam (Ministry of Fisheries Vietnam 1995; Thong *et al.* 1996; Thong and Thieu 1998) Philippines (Carlos and Pomeroy 1996) Indonesia (Nikijuluw 1996a) Thailand (Tokrisna *et al.* 1998) Asia (Pomeroy 1995) Worldwide (Sen and Raakjær Nielsen 1996)
Case study analysis:	Bangladesh (Khan and Apu 1998; Thompson *et al.* 1998) Thailand (Masae 1998) Indonesia (Nikijuluw 1996b; Novaczek *et al.* 2001) Vietnam (Pham and Phung 1999) Philippines (Pomeroy and Pido 1995; Villavicencio and Baling 1995; Agbayani and Babol 1997; ICLARM *et al.* 1997; Katon *et al.* 1997; Baticados and Agbayani 1998; Garces and Done 1998; Katon *et al.* 1998; van Mulekom and Tria 1999)
Impact evaluation of co-management arrangements:	(Pomeroy *et al.* 1996)
Hypothesis testing of advantages or benefits of co-management:	(Kuperan *et al.* 1996; Kuperan *et al.* 1997; Kuperan *et al.* 1998; Susilowati 1998; Murshed-e-Jahan 1999)
Government legal, institutional and policy analysis:	(Susilowati 1996; University of the Philippines 1996; Fellizar *et al.* 1997; Pomeroy and Berkes 1997; Torell 1998; Ehsanul 1999; La Vina 1999; Purwaka 1999)
Meetings and workshops:	(Pomeroy 1994; Pomeroy and Williams 1994; IFM 1995; Foltz *et al.* 1996; ICARM 1996; Pido 1996; Middendorp *et al.* 1999)

3.10 Measuring of project success

The study on the measurement of project success was based on a literature survey and closer analysis of project documents. Pomeroy *et al.* (1996) describe over a hundred community-based resource management (CBRM) projects in the Philippines that were carried out over a period of 10 years. A later study by Pomeroy and Carlos (1997) evaluated the success of these projects, which was not very high (less than 20%). A literature study on perceptions, a closer analysis of what people in fact *did* find positive about the projects, and a study on why these perceptions can be different, revealed some keys in explaining the difference in views on project success. From this information and making use of various participatory techniques (PRA), a method was developed to measure people's development as well as the project's outcomes in different points in time.

4 Description of the research area

Maluku province in eastern Indonesia is known as the province of a thousand islands. In fact there are 1,027 islands, covering about 10% of the entire area of the province and occupied by about 1.8 million people (1990 census). Central Maluku, includes two administrative districts, Kabupaten Maluku Tengah and Kotamadya Ambon. It is located at 2°50'-3°50' South Latitude and 126°55'-128°45' East Longitude. The total area of central Maluku is 284,308 km^2, consisting of 255,090 km^2 of sea and 29,218 km^2 of land. The major islands of the area are Seram, Buru, Ambon, the Lease Islands (Haruku, Saparua and Nusa Laut) and the Bandas.

Many of these islands are very small and surrounded by productive coral reefs. The productive base on the islands is limited by geomorphologic factors (steep slopes) and most settlements and farming activities are concentrated along the strip of relatively flat coastal land. The majority of families living in the small Maluku coastal communities gain at least a portion of their living from exploitation of marine resources such as reef fish, pelagic fish, shellfish and sea cucumbers (Hualopu 1996). Fisheries resources are exploited throughout the islands, but exploitation in some places is regulated through *sasi*, a traditional local resource management system.

4.1 Socio-political history of central Maluku

Villages organized under local government are believed to have formed in the Neolithic approximately 4500 years ago (de Jonge and van Dijk 1995). From this period archaeologists have determined that canoes, gardening tools and simple stone axes were in use. Evidence of the building of a *Baileo*, the traditional community house, familiar in *adat* culture, dates back to the first century A.D. (see also Cooley 1962). At this time there was already trade between central Maluku and China and other areas of Southeast Asia. The local religion was animist (Holleman 1923).

Trade heralded the introduction of iron and bronze in Maluku approximately 2500 years ago (de Jonge and van Dijk 1995). It was in this time that labour specialisation led to a hierarchical social structure with leaders, free people and slaves. Art from this period is called Dongson style, but recent findings suggest it might originate from even before the Iron Age.

The political structure of Central Maluku over the period of 1000-1500 A.D. has been characterized as 'patrician republican' with an aristocratic ruling class. The original inhabitants generally referred to as Alifuru lived in mountain villages. Organized in tribal groups (*uku*) consisting of clans (*lumah tau* or *soa*), the most important leaders were the chieftain or king (*latu*), the heads of the *uku*, and the *mauwin*, a shaman mediating between the people, nature and the world of ancestors and spirits (von Benda-Beckmann *et al*. 1995). Each village was occupied by a number of clans with a patrilineal descent system. The village-based groups of clans related by geographical proximity or kinship, were grouped together as *soa* under a leader called the *kepala soa* (see also Holleman 1923). The *soa* were in turn organized into small kingdoms (*negeri lama*) led by a great leader (*tamaela umi haha*).

In Maluku, the period between the 15th and 17th century was full of turmoil and dramatic political, economic and religious change (von Benda-Beckmann *et al*. 1995). Around 1500 the traditional economy of Maluku was based on subsistence agriculture and fishing. Sago was important both as food and as a trade item. The clove trade in Maluku was mainly in hands of the Hindu-Javanese Majapahit kingdom, but soon Maluku was to be the battlefield where foreign powers struggled for control over the region's natural resources, particularly spices (Knaap 1981).

FIGURE 4.1 – Cloves drying on the street in Maluku.

At this time Muslim Arab traders arrived in northern Maluku. Their influence led to the establishment of Islamic kingdoms in the 15th century. Islamic laws were incorporated into *adat* law and Arabic words were incorporated

into local language. As the Majapahit hegemony declined, four powerful Islamic kingdoms emerged in north Maluku. Islam moved south into central Maluku, in particular to Hitu, a seaport on the north of Ambon Island. On Ambon, a union of nine *negeri* (*patasiwa*) dominated the Leitimur peninsula, while a union of five *negeri* (*patalima*) was established in the Leihitu section of the island. On Haruku Island, Saparua and Nusa Laut powerful *negeri* also emerged to dominate island life and establish kingdoms that competed with one another.

In the course of the expansion of clove production from Ternate, via Hoamoal on Seram to the central Maluku islands in the early 16th century, immigrant groups, coming from the northern Maluku islands and Java settled along the coast (von Benda-Beckmann *et al.* 1995), (see also Fig. 1). The 16th century saw Portuguese traders entering Maluku and engaging in the political rivalries of the native kingdoms. They built a fortress at Hitu on Ambon in 1515. In this period Catholic missionaries made Ambon the centre of Catholic evangelical activity. The Portuguese were followed by the Dutch who dominated and eventually defeated the Ambonese kingdoms.

By the 17th century the Dutch were firmly established as a trading power in Maluku, with their Dutch East Indies Company (VOC) backed up by naval fleets. After the Dutch defeated the Portuguese a period followed of warfare among Dutch, British and the Maluku population, wherein the Dutch ultimately prevailed. Yet, the 'spice wars' punctuated by local uprisings continued off and on into the 20th century. With the defeat of the Portuguese, Roman Catholicism disappeared and the settlements and villages in central Maluku eventually became either Islamic or Protestant (von Benda-Beckmann *et al.* 1995).

The Dutch colonial rule led to poverty and social disruption, and when in 1796 the British reappeared, complete lack of local support forced the Dutch to give up their ruling power (Riedel 1886). The early 1800s was a period of relative isolation for Maluku and inter-island contact was mostly via Buginese and Makassar traders from Sulawesi and Java (Fox 1996). At this time the Chinese also began to play a major role in local trade. However, in 1817 the British were again defeated and the Dutch established their provincial capital in Ambon.

The creation of an economic monopoly on clove production in Maluku entailed enforced production quotas, the imposition of population relocations, and radical interventions into existing patterns of social and political structure. Villagers were forcibly relocated on the coast and settled within newly created territorial units managed by individuals occupying Dutch created administrative roles (Chauvel 1990 in Zerner 1994b). There was serious local resistance led by Thomas Matualesi – better known as Pattimura – of Saparua Island in 1817, which ended in defeat for the local troops in 1823. Under sub-

FIGURE 4.2 – Dutch governor Dirk Fock visits Ambon in 1927 (photo: Elsevier).

sequent Dutch rule, Maluku children were schooled in the Dutch language and advances were made in converting the local population to Protestantism. The Christians then came to be favoured by the Dutch, rising to occupy administrative positions in the government.

It was not until 1920 that 'Sarekat Ambon', the first indigenous political party, was formed to advance the welfare of Ambonese people. Its leader, A.J. Patty, promoted independence. Although he himself was subsequently exiled from Maluku, his work resulted in the opening up of government to include traditional leaders in the governmental council, the 'Ambonraad'. The Sarekat Ambon party was finally banned by the Dutch in 1939.

During World War II (1942-1945), Maluku was occupied by Japanese forces and ruled by a military governor based in Ambon. People lived in fear of the brutality of Japanese occupying forces. All political parties were banned and the function of traditional (*adat*) government discouraged. Maluku was cut off from the outside world and the period is remembered as one of extreme hardship.

On 17 August 1945 the Republic of Indonesia proclaimed its independence from the Dutch colonial rule. Sukarno was the first president. In 1950, after the abolishment of the federal state and subsequent incorporation of the 'autonomous' East Indonesia into the republic of Indonesia, on the 25th of April contenders proclaimed the Republic of South Maluku (Republik Maluku Selatan – RMS) with J.H. Manuhutu as its first president. Within months an invasion of Sukarno's armed forces violently forced the government to leave. The RMS still has a government in exile in the Netherlands.

The Dutch, with a degree of local support, attempted to retain control over Maluku but this uprising was finally defeated by Indonesia's military, after a period of struggle that lasted up to 1952. In 1952, central Maluku was granted official status as an autonomous administrative regency of Indonesia, and in 1957 Maluku gained the status of a province with its own parliament. The years 1955-65 were ones of political unrest at the national level that involved a number of prominent Maluku politicians. It was also a period of rapid development and poverty alleviation as the First Long Term Development Plan covering 25 years, was implemented.

FIGURE 4.3 – The first president of the RMS, J.H. Manuhutu (Photo: Moluks Historisch Museum)

The coup d'état of 1965 resulted in the takeover by Major General Suharto, whose leadership remained intact up until 1998. The Suharto era was characterized by tight control over politics and a highly centralized form of administration, both of which had a powerful influence on political life and economic development in Maluku. The influence and power of the governing party came to be felt at all levels, right down into the smallest villages (Dauvergne 1997). In 1974, Law No. 5, was passed defining a new regional government structure. This was followed by Law No. 5, 1979 which decreed that all village governments must be redesigned to follow a defined structure which did not accommodate traditional (*adat*) institutions such as *sasi* and the *kewang* (traditional law enforcers). The indigenous people of Maluku were thrown into confusion over whether to uphold their traditional laws and institutions, conform to the new edict or seek some compromise between the two. That confusion, and the wide array of responses at the village level, is still evident in Maluku today.

The 1970s were also a time of particularly rapid economic change. Maluku experienced an average economic growth of 12.8% a year, compared to an average of 8.9% in 1983-88 and 6.7% in 1988-93 (Anonymous 1994). Much of this economic progress was the result of direct government assistance. Also, from a predominantly agricultural economy Maluku gradually shifted to an economy where industry is important. In 1970, 71% of the GDRP was from agriculture and fisheries and only 1.6% from industry. In 1993 agriculture and fisheries provided 32% of GDRP (industry 19%).

4.2 History of *sasi* in Maluku

In some Maluku communities, control over the land and marine territory (*petuanan*) and its resources is vested in a social institution with a code of conduct, rules and regulations known as *sasi* (Volker 1925, Ellen 1978, Kriekhoff 1991). *Sasi* is not simply an institution designed to regulate resource use, it also has a significant cultural role: 'It is an encompassing body of meaningful relations between people, the natural environment and gods, ancestors and spirits' (von Benda-Beckmann *et al*. 1995). Although the origins of *sasi*

are lost in the mists of time, local legend speaks of *sasi* being in place in the 14th century and perhaps earlier (Topatimasang 1997). Others maintain that *sasi* developed in the 16th century in response to the needs of clove traders (Kissya 1994), but it was almost certainly based on older *adat* tradition that aimed to protect and control exploitation of natural resources (von Benda-Beckmann *et al*. 1995).

The 'spice wars' of the 1600-1900s had the effect of stimulating militancy as well as mobility in Maluku people and fostered fierce attachment of the people to their territories (Chauvel 1981). This could have been positive in terms of reinforcing *adat*. On the other hand, however, the battles were ultimately lost, many of the bravest killed, and the sovereignty of local leaders abolished. In some cases wholesale slaughter (as happened in Banda) and forced removals, alienated people from their territories. In general, *adat* culture is believed to have reached its zenith in the mid-1600s and the pattern since then has been one of decline, although with periods of resurgence (Cooley 1962).

The introduction of the Islam and Christianity and the establishment of a trade monopoly in cloves were of decisive influence for further development of *sasi*. During the occupation and Christianization of Maluku by the Dutch, *sasi* was at first discouraged along with other 'pagan superstitions and rituals' (von Benda-Beckmann *et al*. 1995). However, the institution was subsequently revived and revised by the Dutch to control and maximize harvests of valuable spice crops, regulate land tenure and provide a means of social control (von Benda-Beckmann *et al*. 1995). In the revised form, the emphasis on spiritual aspects declined, while economic aspects of *sasi* came to the fore. During this period and into the 1900s, native Mollucans were often resentful rather than supportive of the Dutch style of *sasi* as it represented the imposition of Dutch ethics and was often a burden on poorer members of society (Zerner 1994a). Under Dutch influence, what had been purely an *adat* institution became integrated to some extent with the village leadership supported by the colonial government. At a later point, the church also came to have a role in *sasi*, changing the institution further into one in which religious, government and *adat* leaders worked together.

In the period 1880-1893 Dutch Resident Riedel attempted to abolish *sasi*. He wanted to break the power of *kewang* leaders over the spice trade and abolish the *kewang*'s rights to enforce *sasi* rules, which he considered exploitative of the local producers. In spite of his efforts, the *sasi* institution continued to survive and evolve in many villages, and in 1921 the Dutch actually supported *sasi* once more by formalizing the institution with the decree called 'Het recht van *sasi* in de Molukken' (the rights of *sasi* in Maluku).

During World War II, the period of occupation by the Japanese represented an extreme threat to all *adat* institutions. Lack of appropriate ceremonial

cloth and other goods meant that *adat* rituals could not be performed according to tradition, so that in this period many substitutions were made (Cooley 1962). Indonesian independence involved civil war in Maluku, a time when many leaders were lost and clans scattered. Integration into the new nation of Indonesia meant a further blow to local indigenous language and culture because Indonesian Malay became the language of compulsory schooling. Subsequent decades of civil strife and political turmoil at local and national levels doubtless continued to challenge the strength of local culture. In more recent decades, cultural change has intensified as economic development proceeded. By the 1960s there was a confident prediction (Cooley 1962) that *sasi* was doomed to disappear 'in the very near future'. But although weakened over time, *sasi* never disappeared.

The aim of *sasi* and its function in resource management and conservation has been debated (Pannell 1997). Zerner (1994a) argues that, although there may be spin-off benefits in terms of resource sustainability, *sasi* is essentially an institution for managing social interactions and mediating tenure disputes or maximizing economic returns, rather than a resource conservation and management institution *per se*. On the other hand, *sasi* clearly was performing a conservation function in the 1920s when the use of poisons in the fishery was banned under *sasi* rules (Volker 1925). In the 1990s, *sasi* again underwent change, with a renewed emphasis on conservation aspects (Zerner 1994a).

The application of *sasi* to marine resources may have never been as widespread as *sasi* on land crops. Zerner and Thorburn (*forthcoming*) have speculated that in its original form, marine *sasi* was applied only to pelagic fish, with the objective of protecting migratory fish from disturbance so as to maximize harvests for local consumption. In the decades following the 1930s, the emerging international markets for top shell and sea cucumber appear to have prompted the development of additional types of marine access prohibitions and related ceremonies in places such as the Kei Islands in southern Maluku (Zerner and Thorburn, forthcoming). Similar rules are evident in central Maluku today and appear to date back at least to the 1960s.

There is another *adat* institution linked to *sasi*, the *Latupati*, a traditional gathering of leaders at the island-wide level. The *Latupati* in the Lease Islands (i.e. Saparua, Nusa Laut and Haruku) has been effectively dormant since the passage of the legislation on village governments in 1979. However, a revitalized *Latupati* may have potential as a regional resource management body. In 1996 the first Haruku Island *Latupati* meeting in 20 years was held as a consequence of the efforts of NGOs interested in developing marine resource management capacity at the island and regional levels. Subsequently, NGO interventions have also led to the revival of the *Latupati* on Nusa Laut Island in 1998. On Saparua, there is also a *Latupati* but it was used only as a

venue for planning of annual social events. In resource management under *adat sasi*, there is close collaboration among the *Tiga Tungku*, i.e. *adat* leaders, village government and religious leaders.

4.3 Village level socio-political context

The following general overview of the socio-political context in rural, coastal villages of central Maluku is based on the results of the six case studies carried out on Saparua, Haruku and Ambon Islands and described in our research report (Novaczek *et al.* 2001). Of these cases, Nolloth village is presented in the following chapter. All study sites were Christian villages. Therefore some of the findings, especially the role of the church in society, do not pertain to social structure in Muslim villages.

4.3.1 Traditional village government structure

Prior to the enactment of the local government law (Law No.5, 1979) villages in Maluku were led by a hereditary chief or *raja*. Although now considered part of the 'traditional' structure, the position of *raja* was in fact not part of the indigenous *adat* social structure, but a construction of Dutch colonial leaders. When the Dutch consolidated their power in Maluku and forced the hill-dwelling people to settle in coastal villages, they appointed the village leader, i.e. the *raja*. Previous to this, the clan groups living in the hills were led by warrior chiefs (*kapitan*).

The *raja* governed together with administrative and legislative councils (*saniri*) whose members were the clan leaders. The *raja*'s powers under this system were not absolute. He (or occasionally she) was obliged to consult with the village council. Other hereditary functionaries included a war leader (*kapitan*), persons responsible for communicating government decisions to the people (*marinyo*), keepers of sacred knowledge (*tuan negeri*) and other adat leaders (*tuan tanah*). There were also the hereditary leaders (*kepala kewang*) of groups responsible for enforcing social and resource management regulations called the *kewang*. The *kewang* applied and enforced *sasi* rules on both land and sea within the village territory.

4.3.2 Modern village government structure

Each of Indonesia's provinces is administered by a provincial government, which in turn is divided into districts called either *Kabupaten* or, if urban, *Kotamadya*. Below the districts are the sub-district government offices or *Kecamatan*. Government decrees, guidelines and programs are passed down through this structure to the local administrative units which are called *desa*. Each *desa* is governed by a *kepala desa* or village head, together with his staff, and may comprise one or several villages. Villages that are smaller than 2000 inhabitants are usually not independent but have the status of *dusun* under

the larger unit (*desa*). The village head and his government office may therefore be many kilometres away. *Dusun*s are represented in the *desa* government through their local leaders (*kepala dusun*).

Through the issuing of Law No. 5, 1974, provincial government structures throughout Indonesia were redesigned following the above national model. The same was done for village governments through Law No. 5, 1979. In the implementation of the latter law, traditional political structures in the villages were abolished. The hereditary *raja* was replaced by an elected village head, the *kepala desa*. Smaller villages lost their independent status and became *dusuns* of larger *desas*. The village councils were replaced by bodies known as the LMD and LKMD (see below). An RT group (*Rumah Tangga*), the lowest level in the government structure, consists of a cluster of neighbouring households. There was no place in the new structure for the *kewang*, nor was any replacement developed to take over the function of resource management.

The LMD (*Lembaga Masyarakat Desa*) is the formal village legislative body occupied with decision-making and development of regulations. It has 10 to 15 members presided over by the village head and the village secretary and is divided into sections, i.e. village development, government administration and community affairs, each of which has a chief. The LMD reports to the sub-district government level. The decisions and regulations of the LMD are executed by the LKMD (*Lembaga Ketahanan Masyarakat Desa*), which is the administrative body of the village government. As we found out from our interviews, in many cases LMD members are in fact selected from among traditional authorities (i.e. *adat* and clan leaders). The extent to which the current government overlaps with the previous, traditional village council varies, yet, there was no village where traditional authorities were not represented at all.

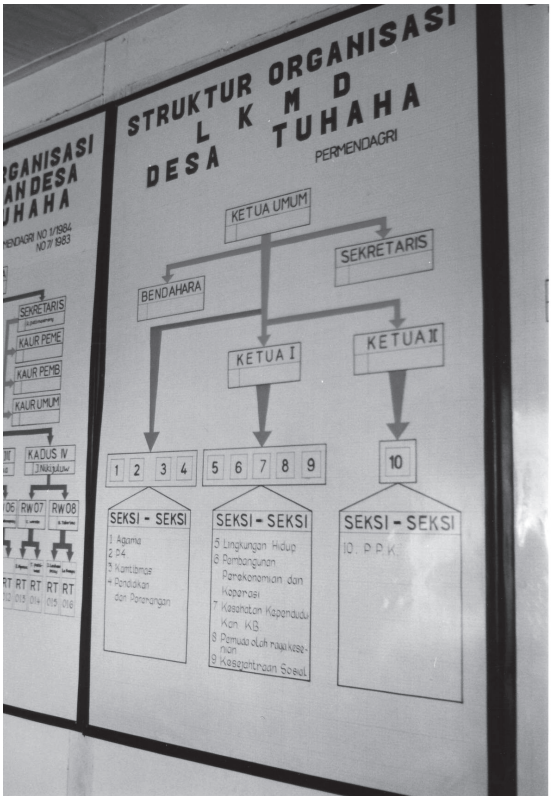

FIGURE 4.4 – Village government structure Tuhaha

Although a dominant force, the formal village government is only one of three key elements generally rec-

ognized in Maluku villages. These three key institutions are called the *Tiga Tungku*, or three hearthstones: the government, the church (or in Muslim villages the mosque) and *adat* or traditional authorities. In some villages, teachers are also important and may displace *adat* leaders in the *Tiga Tungku*.

4.3.3 Government related organisations

Every village has a number of government related organisations. The most relevant one with regard to the fishery is the village cooperative or KUD (*Kooperasi Unit Desa*). There are three types of KUD depending on their activities and level of autonomy, ranging from externally controlled to totally self-supporting. The KUD operates independently from the village government, but is under supervision of a head office in Ambon. Although separate from local government, the KUD is influenced by village politics. The main trade products of many KUDs are clove and to a lesser extent nutmeg. Other enterprises such as speedboats and mini-buses and small shops are also often in the hands of the KUD. For its members, the KUD has a savings and credit system and may provide access to machinery such as coconut grinders. In Nolloth the KUD plays an important role in organizing the top shell harvest and selling the yields.

FIGURE 4.5 – Announcement of PKK village program

The PKK is an abbreviation for *Pendidikan Kesejahteraan Keluarga* which means literally 'Education for the Prosperity of the Household'. It is a vehicle for the wives of the village (government) leaders to improve family life in the spheres of economy and peace through various activities, such as skill training (baking, cooking, sewing), saving money, growing medicinal plants, chicken breeding, cultivation of vegetables, dried fish and fruit trade, child-care, and the promotion of the state ideology (*Pancasila*). Membership is open but generally includes mainly teachers and civil servants. Common village women often have no time to attend or feel unwelcome in the presence of higher positioned, wealthy women.

The TAKESRA groups are small saving groups (±10 people) that particularly target low-income women. It is an initiative of the National Coordinating Agency for Family Planning (BKKBN) and is usually carried out by the village head. The members save a weekly amount and when a certain sum is reached, the group can get an additional government loan to start small businesses (chicken breeding, restaurant, etc.). Another (informal) saving program is called ARISAN. It is initiated by villagers from the lower social classes who feel disconnected from the mainstream and do not expect the government to take care of their problems. Therefore they use a revolving fund system to provide the members with some capital.

The Social Service Department of the government has set up various economic development groups including IDT and KEP. Farmers, fishers and other small business people may be assisted through the IDT, which is a national program to alleviate poverty. Each qualifying village receives a Rp 20 million loan from the government to subsidize small-scale development. Each member has to pay back the amount to the government or to the group's treasury within a year. Participants are the poor fishermen who cannot afford fishing gear. This was a pilot program in 1997 with the prospect of involving more groups over the years to come.

4.3.4 The church

Protestant Christianity was introduced to Maluku during the Dutch colonial time and the role of the Protestant Church of Maluku (GPM) is still prominent. Executives who control programs and funding form the *Synod* in Ambon. Below this is the *Klasis* office in Saparua, which covers the Lease Islands. The *Klasis* instructs the congregation level and they communicate with the local church branches. Communication from one level to the other is through meetings. To obtain funding, the village church submits a yearly program proposal to the *Synod*. In predominantly Christian villages the GPM has a strong influence on the people as well as on the government. The church generally has representatives in the LMD and thus can influence decision-making. In some cases the church motivates people to support government economic programs. There are church groups for men, women and youngsters, respectively the Pelpri, Pelwatan and Youth Wing.

4.3.5 Other organisations

The remaining *adat* organisation found in some villages is the *kewang*, which enforces *sasi* regulations. Only Haruku village has a *kewang* spun off a youth organisation (mini-*kewang*). *Kewang* structure and function is discussed together with the description of the *sasi* institution in the the case-study village Nolloth (see Chapter 5). Another social group on village level is the *Muhabet* which coordinates communal action for house construction and funerals.[1]

1 Holleman (1923) describes a similar custom of mutual help in the construction of houses and processing of sago called *Masohi*.

Outside of the above-mentioned organisations, there are no informal meetings where women could discuss problems and/or other village related issues. Problems are discussed and if possible resolved within the family. As a result, women are not united outside the family structure and are not critically aware of political issues in the village.

4.4 The fishery and biological context

Sir Alfred Wallace, on his expedition to Ambon Bay in the 1850s, marvelled at the incredible diversity of coral and fish. Eastern Indonesia, including Central Maluku, is part of the global centre for coral reef biodiversity. Endangered species inhabiting this area include dolphins and whales, turtles, giant clams and some other types of molluscs including top shell *(Trochus niloticus*). A MREP survey (PSL-Unpatti 1996) revealed diverse biological communities in the intertidal, inshore reef flats and reef slopes. Except for some sheltered estuaries where mangrove forests are quite extensive, mangroves are mostly confined to narrow coastal strips. Conversion of coastal land, including mangroves, for shrimp pond development is just beginning in central Maluku (northern Seram) but conversion for housing development is already widespread.

Extensive sea-grass beds are common in central Maluku. In sea-grass beds around Saparua Island fishes sighted numbered 62 species (Wouthuyzen *et al.* in LIPI 1994a, 1994b; PSL-Unpatti 1994). Surveyors in 1991 (de Iongh *et al.* 1994) found dugong feeding tracks in sea-grass beds around the Lease island. The sea-grass beds are also a feeding ground for various turtles. Coral species diversity in the Lease region is described as high; researchers found 110 species at Pulau Pombo and 85 at Ihamahu (Antariksa *et al.* 1993; PSL-UNPATTI 1994). Surveys documenting hard coral cover (LIPI 1996) in Central Maluku locations on Seram, Ambon and the Lease Islands show that healthy coral was rare due the use of bombs and other destructive fishing methods. A more elaborate description of the biological features of Central Maluku can be found in Novaczek *et al.* (2001).

4.5 Characteristics of the fishery

In Central Maluku agricultural capacity is limited and the fisheries sector is regarded as the opportunity for economic development. Over recent years fishing efforts have been escalating. The prediction is that fishing effort will increase while, at the same time, stock assessments and data on catches are inadequate. If this continues, over-exploitation of commercially harvested resources is likely (Nikijuluw 1995).

The tiny Lease Islands hold 12.5% of the population of Maluku province and are 9-10 times more densely populated than the rest of Maluku. In general, the settlements and farming activities are concentrated along the narrow strip of relatively flat coastal land. Artisanal and small-scale commercial fisheries contribute significantly to village economies in terms of employment and income but villagers are also active in the agriculture sector. Because good farmland is limited and the population relatively dense, the fisheries sector is seen as an opportunity for economic development. The sea is a source of income as well as a source of family food (Ruhunlela *et al.* 1994a, 1994b; LIPI 1996). On average, income from fisheries in a typical village ranges from about 12 – 28% of the total income.

The fishery of Maluku mirrors that of Indonesia as a whole in that the labour force is dominated numerically by the artisanal sector. In 1991, for example, it was estimated that out of all fishing units operating in Indonesia, 92% were tiny canoes powered by paddle and/or sail. Another 6% of boats employed outboard motors and the rest were large, motorized ships (Agriculture Statistics 1993, Dept. of Agriculture, Jakarta). In Maluku province, with a population of about 2 million people, 104,600 are considered to be fishers (CBS 1995). Many more are fisher-farmers who actually show up in the government statistics as farmers.

FIGURE 4.6 – Fisherman throwing out a cast net in Hulaliu village

Artisanal fishers using fishing lines, spears, traps, hand-nets and set-nets target a mixture of reef and pelagic species (for details see Novaczek *et al.* 2001). Women in fishing families supplement catches by harvesting octopus

and shellfish from intertidal and upper subtidal areas. Utilization of coastal resources in the nearshore areas is intensive. For instance in Ameth on Nusa Laut, fishers using 21 types of fishing gear collect 73 different species of fish and shellfish from the reef flat, reef slope and inshore waters. An additional 19 species are harvested from the intertidal zone (Hualopu 1996).

4.5.1 The commercial fishery

Upwelling in the Banda Sea makes the central Maluku fishery a highly productive one. The resources of Central Maluku are exploited not only by the local population, but also by boats based in the city of Ambon as well as boats from Sulawesi and Java and foreign fishing vessels. Key commercial species include tuna, skipjack and a variety of small pelagics (anchovies, mackerel, sardines). The commercial lift nets (*bagan*) and seiners target the small pelagics, whereas pole and line boats typically harvest skipjack. Other commercial operators employ longlines and various sizes of gill-nets and drift nets. Live reef fish harvesters commonly employ divers using potassium cyanide.

The use of potassium cyanide as a fishing method is stimulated by the high prices offered for grouper, ornamental fish and lobster and very common in Central Maluku waters (Abrahamsz and Hetarie 1994; Geser *et al.* 1997). Blast fishing is also common, both for reef and pelagic fishes, and causes widespread damage to coral habitat (I. Novaczek *pers. obs.*). Smaller and smaller mesh sizes are also a problem and leading to conflicts between the lift net fishers who are using these nets and the hand-line sector (J. Sohouwat, Hutumuri village, *pers. comm.* 1996). Other destructive fishing methods are fish traps which are either anchored with coral or set out on top of living coral, the use of iron bars to break up corals during the low tide and *muro-ami*, in which fishers use rocks to smash coral and chase the reef fish out into a net.

Fisheries production figures over the past decades show an increase in exploitation from 59,485 tonnes in 1974 to 189,081 tonnes of fish in 1993. In 1997, total recorded landings had reached 329,147 tonnes (Anonymous 1993, 1994, and 1995). In addition, a great deal of fish catch goes unrecorded because it is trans-shipped at sea and taken directly to distant markets. Actual records of landings and local research results are at odds with the official federal optimism regarding potential for further development.

Coral reef fish are believed to be already over-fished throughout Indonesia (Anonymous 1993, 1994, 1995). A 1995 assessment estimated that small pelagic (baitfish) catches in central Maluku were already at 80-90% of the maximum sustainable yield (MSY) (Pulitbangkan 1995) and in 1998, the government research facility (LIPI) stated that both shrimp and baitfish were overfished. Because of a shortage of baitfish, the catches of larger pelagics such as skipjack have been static or declining in recent years, but even at the

reduced catch rates, skipjack are now considered to also be overfished (Nikijuluw 1995; M.S. Latukonsina, Governor of Maluku, *pers. comm.* November 1998). Policy-makers are looking to expand fish and shellfish aquaculture in an attempt to compensate for declining wild stocks.

Although there is a small minority of commercial gears in the hands of village fishers, the majority of capital-intensive gears such as lift nets, fish aggregating devices (FAD), pole and line vessels, long-liners and seiners, are in the hands of urban businessmen and large companies. For example, in 1998 the fish processing company P.T. Sumber Aneka Tata Bahari owned a fleet of 12 pole and line boats and three long-liners, plus five deep-sea FADs. They exported 250-700 tonnes of fish a month (M. Siahay, boat captain, *pers. comm.* 1998). Owners of these industrial enterprises are mostly urban Chinese Indonesians, some are from the western islands of Sulawesi or Java, and a few are foreign (from the Philippines or Japan).

FIGURE 4.7 – *Bagan* near Tuhaha village

4.5.2 Top shell and sea cucumbers

The commercial trade in top shells (*Trochus niloticus*) has been carried on since at least the 1960s and is a trade that expanded rapidly (Zerner and Thorburn, forthcoming). For example, recorded shell exports from Maluku province went from under 80,000 kg in 1987 to over 256,000 kg in 1988. Because rapid exploitation led to a crash in wild stocks, this species has subsequently been declared protected and is therefore illegal to harvest outside of aquaculture areas. In reality, however, harvesting and trade in wild shells continues.

Sea cucumbers (Class Holothuroidea) have been a trade commodity for centuries ever since Chinese, Makassar, Buginese and other wandering traders first came to Maluku (Fox 1996). Older fishers can remember when inshore sandy bottoms were thick with sea cucumbers. Today, however, the traders rarely bother to visit many of their traditional harvesting areas because the stocks have been largely fished out.

5 Case-study: Desa Nolloth, Saparua Island*

This chapter describes the situation in Nolloth, one of the 6 case-study villages in the period 1997-98. This case was selected as it is most illustrative for a fully functioning *sasi* system. The description of the case conforms to the Institutional Analysis Framework (see Chapter 2) and provides an elaborate description of the local marine management system including the contextual variables.

5.1 Physical, biological and technical attributes

Nolloth village is situated on northeastern Saparua Island, one of the Lease Islands (Figure 1 and 5.1). Before the Dutch colonization, the people of Nolloth originally lived in the hills, organised in a clan structure (*marga*). Two groups of *margas* (*uku lua* with two clans and *uku lima* with five) descended from the hills and settled on the coast where the village of Nolloth lies today.

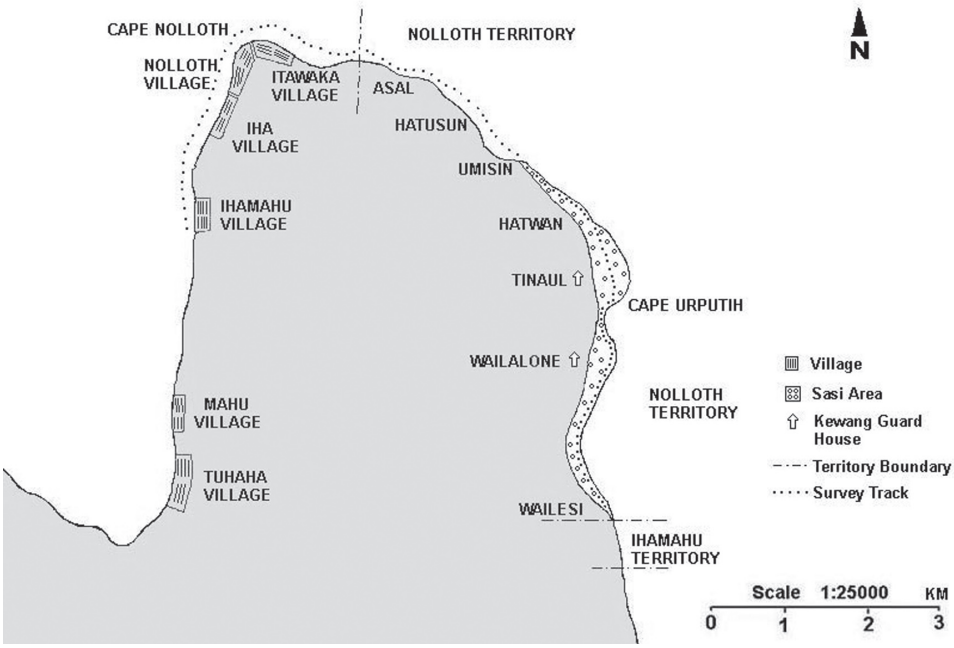

FIGURE 5.1 – Sketch map marine territory Nolloth (features not necessarily to scale)

*Based on: Novaczek, I., I.H.T. Harkes, J. Sopacua, and M.D.D. Tatuhey (2001). *An Institutional Analysis of Sasi Laut in Maluku, Indonesia*. Technical Report No. 59, Chp 10. ICLARM, Manila.

5.1.1 Physical environment

Nolloth has a relatively large (27 ha) land and sea territory (*petuanan*) compared to other villages (Antariksa *et al.* 1993). Stories vary, but it seems that at one time the reigning *raja* of Nolloth collaborated with the Dutch and in return acquired more extensive marine and land rights than other villages. The land is divided among the *uku lua* and *uku lima*. Each of the two groups maintains its identity and each has traditional leaders who mediate land disputes and manage certain natural resources in their territories.

The forest garden area straddles the northeastern cape of Saparua Island (Figure 5.1), south of the village of Itawaka. The main marine territory lies along a 6-7 km stretch on the eastern side of the cape. South of Nolloth's village territory lies the shore claimed by Ihamahu (just a few hundred meters), then a stretch claimed by Itawaka and finally the village marine territories of Ulath and Ouw. The villages of Iha and Tuhaha have no claims on this coast.

The marine *sasi* area is about 2.5 km long, lying on the east side of the island, approximately one hour by small boat from the village. The area is wave exposed and fringed by a narrow reef dominated by massive and soft corals and interspersed with sandy patches (Andamari *et al.* 1993).

5.1.2 Biological characteristics

In 1997-98, the majority of fishers (60%) targeted pelagic fish only, others both reef and pelagics (33%). Fourteen fish species were recorded as commonly caught, i.e. eight pelagic and six reef fish. In addition, men collected several large shellfish species, while women collected mainly small shellfish. The fishers preferred the more profitable pelagic fishery to coral reef fishing because inshore reefs were already depleted.

Most fishing took place in the open sea and not in the *sasi* area. Fishers perceived that the general condition of the marine environment had drastically declined over the past 15 years, and they expected resources to decline further in the future (for more details see Table 5.4). In Nolloth, the main causes for resource decline identified were household waste and industrial pollution. The number of motorboats has also increased and subsequently, more oil spills into the sea.

Nearly all fishers also perceived significantly reduced fish catches. Blamed for resource depletion were the increasing numbers of vessels from outside of Lease and the use of modern gear, such as Fish Aggregating Devices (FADs or *rumpons*), fine mesh lift nets (*bagans*), nylon gill nets, and blast fishing. Since the 1980s, the number of motorized boats, modern gears, FADs and lift nets had increased markedly around the Lease Islands. Fishers complained that pelagics no longer came to the shore because FADs in offshore waters had disturbed their migratory routes.

Most fishers agreed that fishing was different compared to the past. They had to paddle further and further in trying to keep their fish-catches stable. Nearly all fishers (93%) reported reduced catches and a subsequent decline in income. In the late 1990s, the prices of fish had become so high, that lower yields still provided an acceptable income. But the price increases were not expected to make up for the increased input of time and labour for long. In current times with increased financial needs for education and 'luxury' commodities such as TVs, in combination with increasing prices for boats, engines and nets, fishers found it more and more difficult to cover their expenses and make a living.

5.1.3 Attributes of the sasi area

Under marine *sasi* the harvest of top shells (*Trochus niloticus*) and sea cucumbers was regulated within a specific part of the sea. In the *sasi* area different zones were recognized (Fig. 5.1). The stretch called Tinaul (between Wailalone and Hatwan) was the richest fishing area for top shells, while sandy patches were key sea cucumber areas. A seaward fringe is where a restriction on the use of gill nets was enforced. These three zones in the *sasi* area were open and closed at the same time. The *sasi* products were harvested only during open season, which was proclaimed at intervals as short as a few months or as long as three years. In the *sasi* area spear fishing, the use of nets, swimming and diving were not allowed during the closed season. Only fishers who were village residents were allowed to fish using hook and line.

Sea cucumbers caught include *Teripang nanas* (green coloured sea-cucumber) and *Teripang susu* (black and white ones). The latter attain huge sizes and are taken from deep water (>30m). In the past they were harvested by Madurese compressor divers from Java, but over the years are being collected more and more by local divers.

The top shells are found around 1-5 m deep at low tide, among the corals and rocks. Depending on the size and abundance of the top shells, *sasi* could be closed for up to several years. The optimal closure is three years. In three years the animal matures and its shell reaches prime condition (Zerner and Thorburn, *forthcoming*). The minimum size for harvested top shells in Nolloth was four fingers (6 cm) and after the harvest the remaining small shells were left to grow.

Biological surveys indicated that Nolloth had better than average living coral cover compared to other areas in Saparua. During the opening of *sasi*, spear-fishers had access to the *sasi* area and fishers reported that the fishing in the *sasi* area was better than elsewhere. They believed that the ban on gill netting and destructive gears in the *sasi* area helped to preserve the living coral reef and allowed the fish to grow. In fact, the *sasi* areas of Nolloth and Ihamahu were the only places surveyed by the research team in 1997 where top

shells could be found at all. Top shell yields dropped precipitously through the 1980s (Evans *et al.* 1997). The 1998 harvest of almost 500 kg of top shell from the *sasi* area revealed that management under the new village head, who was committed to waiting at least two years between harvests, had allowed the resource to recover.

5.1.4 Fisheries technology

In 1997, there were an estimated 400 fishers in Nolloth. Most fishers were involved in the pelagic fishery in the open sea using their small outrigger boats (*perahus*) or they worked as crew on pole and line boats. The majority (70%) of fishers in our sample owned their own small boats; only a few (7%) had a motorboat. The fishers in Nolloth mainly used hand-lines and nets that were 50-150 m long. Most common was a type of net called *giob*, which has quarter inch mesh and catches *tuing-tuing* (*Cypselurus* spp.). Also very common were very fine mesh nets called *siru* and *tanggu* (1-2 mm mesh) and *komu* nets (4.5 cm mesh). Relatively few fishers had other types of nets, such as *lalosi* nets (4 cm mesh), *lema* nets (6 cm mesh), and 'sardine' nets. Of our sample, 23% of the fishers interviewed owned no gear at all. Often they leased, borrowed or rented equipment, or they worked on the boats of other fishermen. According to the people, whether a fisher owned gear and the type of gear reflected a person's willingness to make an effort. The coast near Nolloth is wave-exposed and not fit for lift nets. Therefore, in contrast to the non-*sasi* villages in our study (see Novaczek *et al.* 2001), lift nets had a relatively small impact on the local inshore fishery.

5.1.5 Artisanal and small commercial fishers

The artisanal and small scale fishing grounds include the village marine territory of Nolloth and neighbouring villages of Itawaka, Ouw and Ulath, as well as waters as far away as Nusa Laut, southern Seram and the Banda Islands (see Figure 1). Fishers did not necessarily go to sea every day; it depended on weather and what other work was to be done on land. If fishing close to home, fishers went to sea several times a day to spend a couple of hours fishing each trip. If heading further out, they could be gone for 24 hours or more.

Catches varied greatly depending on gear type, species, weather and season. For the inshore pelagic fishery, the year went like this: Jan-April moderate seas and catches small; May-Sept huge waves, can hardly fish at all; October-December seas calm, catches large. On a good trip, a small-scale net fisher working with several helpers could bring two to four baskets of fish to shore. Depending on the species and size, a basket could hold 50-150 fish. The catch was divided up according to long established tradition, with one third going to the owner of the boat and net, and two thirds going to the other crew of up to four fishers. If the fish was landed at Nolloth each man got his share of fresh fish. If landed elsewhere and sold, they split the money. The boat/gear

owner covered any expenses (gas for the motor, repairs). His profit was in the order of 30,000-50,000 Rp per fishing trip (12-20 USD, early 1997 rate).

Costs for net fishers rose dramatically in the late 1990s. The price of some types of netting, nylon line and buoys increased two to five-fold. Nets can last ten years but must be repaired three to four times a year. Before the currency crisis pushed prices up in 1998, a longboat suitable for net fishing cost 5.5 million Rp (± 2200 USD) and a motor 1.3 million Rp (± 520 USD).

In spite of the increased difficulty in catching fish, most fishers saw no reason for concern. The trend in fishing was still towards intensification and fishing techniques increased both in number and in effectiveness (smaller mesh sizes, change to nylon nets). Rather than limiting their fishing, fishers competed over the fish and had a wish to have faster boats. The younger generation was still optimistic and interested to take up fishing. They explained that they would fish using the same techniques as used by older people from whom they learned it, but 'with some improvements towards the modern methods.'

5.1.6 Large-scale commercial fishers

In 1997, there were seven large-scale, motorized pole and line boats operating out of Nolloth. Each boat employed 25-30 local fishers who learned 'on the job'. Their income was significantly higher than that of the artisanal fishers who, with their small outrigger boats, would get at most 20 kg/day. Just one of the boats was owned by a family from Nolloth; the others were owned by Ambonese and Tulehu businessmen who had been active in the area since the 1980s. According to the village head, the commercial fishers preferred to operate from Nolloth because these crews were skilled and honest. The boats spent Saturday night and Sunday in Nolloth. On Sunday night they would leave again to pick up baitfish in Pia or Tuhaha, or buy them directly from the lift nets and seiners near Ambon or another island.

The economic benefits from the large-scale pole and line fishery were significant. The village did not collect any formal fees from the boats, but accepted 'voluntary' contributions. The boat owner gave one share of the total catch to the church in Nolloth, half a share to local widows and orphans, and half a share to the village government and others who had been helpful. The total added up to Rp 50,000-200,000 a month (20-80 USD, early 1997 exchange rate). All in all, the fishery brought in about Rp 50 million a month (± 20,000 USD), including the wages for about 150 fishers who worked on the boats.

5.2 Attributes of the community and fishers

As of 1997, the middle-sized village of Nolloth had 2546 inhabitants divided over 530 households. The average household size was about 5 persons. The village was 100% Christian with no recent history of in or out-migration. There was no tourism; the visitors that did arrive usually visited relatives or came to observe the *sasi* rituals.

Village facilities included electricity, three elementary schools, two gas stations, a food market, a drug store, and a banking service from the KUD. Many residents had a television. The village also had an open storm drain system and there were both private and community wells with some water being brought in from a spring in Itawaka. Additional water-wells were being developed. The nearest health centre was in Ihamahu, a neighbouring village within walking distance.

Transportation to the village was good. The village had hard top roads and there were frequent public minibuses connecting Nolloth with Saparua Kota, the largest town centre on the island. Also speedboats took passengers and trade goods directly from Nolloth to the urban centers of Ambon, and to Masohi on Seram. Communication links were limited to a radio connection and there was no telephone.

5.2.1 Employment

The village depended mainly on agriculture and fisheries. Fishing was a full-time job for 40% of the villagers while another 30% fished part-time. There had been a slight shift from farming to fishing due to increased revenues from fishing (higher fish prices).

From 1979 to 1997, the number of small shopkeepers had increased to 18. There were a few artisans who made furniture and several who worked in housing construction. As a result of the new government structure, the number of government employees had tripled from 16 to 44 persons.

5.2.2 Village government

According to the village head, three main political bodies reigned the village: the village head himself, the village officials and the co-operative (KUD) of which the manager was an important *adat* leader – the *tuan negeri*. In Nolloth, the church minister was also a noted person. Among these authorities there was close collaboration concerning village matters and they were mutually supportive.

TABLE 5.1 – Village leaders up to 1998

Village leaders in Nolloth	
1995 –	Pieter Huliselan
1987 – 1995	Arnold Matatula
1979 – 1987	Abner Selano
1971 – 1979	Niclas Matatula
no date	Jonatan Selano
no date	Yusuf Huliselan

In Nolloth there was a large overlap between traditional and modern village institutions. The LMD consisted mainly of clan leaders (*kepala soas*) from the former *saniri negeri*. After the installation of the formal village structure in 1979, it became possible to elect a village head not from the *raja* clan. This sometimes led to problems. For example, in 1987 Arnold Matatula became the new village head (Table 5.1). He was also the treasurer and when problems arose with village finances, he lost people's trust. Therefore, people were glad that in November 1995, Pieter Huliselan returned from Ambon to become the new village head. Being from the *raja* clan he had a legitimate claim on this position. Yet, after his 'election' he did not automatically have the traditional authority connected with *adat*. To also acknowledge him as the *kepala adat* (head of the *adat*), the *tuan negeri* of the village had to perform

FIGURE 5.2 – The mother of the village headman Oma Huliselan with Semmy Littik of the research team

a traditional ceremony. Because of his high legitimacy, Huliselan had a very strong position in the village.

5.2.3 Village finances

The village was financially supported through a national government program administered by the sub-district office (*Kecamatan*). After submission of an annual proposal, the village would get a Rp 6.5 million grant (± 2600 USD, early 1997 exchange rate). One part of the grant was given to the PKK (women's group), a second part was reserved for additional livelihood projects, but the largest share was used for village development such as a fresh water supply, the rehabilitation of the village market and renovation of the village museum. The schools were supported mostly by community effort. The village economy received additional support from relatives who lived elsewhere (e.g. the Netherlands) and from renting out marine resource harvesting rights (*sasi*).

5.2.4 Village organisations

In Nolloth the usual village organisations were installed and to a more or less extent active. In 1997, the PKK was awaiting the arrival of village head's wife before they would start any activities. The church organisations were also in place, but the *Pelwata* was only attended by a small number of women because the program did not meet the needs of ordinary women (who were also too busy to attend). As with the PKK, the women were not actively recruited and most village women did not know what the organisations actually did, so interest to join was low. On the other hand, the youth organisation of the church was relatively well attended and active in the village, e.g. cleaning up, helping the *kewang* etc. All organisations were quite conscientious in carrying out their programs.

Some women organized themselves in the ARISAN saving-group which was said to act independently from the village government. Savings were used for small-scale trade (bread, sago) or to buy food. The 22 members of another saving group, TAKESRA, were saving Rp 1000 monthly to gain capital for a kiosk or sago trade. The village had an IDT program and from 1996-1997 about 60 people had benefited from this project that granted subsidies to, amongst others, process and sell sago. Compared to the PKK and church organisations, the ARISAN, TAKESRA and IDT groups were more relevant to the poorer villagers because they provided economic benefits.

The village cooperative (KUD) in Nolloth was a *Manderinti* (highest level) and primarily occupied with the clove and nutmeg trade. Roughly a third of the adults in the village were members. They got a monthly payment from the KUD and a yearly bonus. The amount depended on the profitability of KUD enterprises (several shops and a speedboat). The annual turnover was Rp 70

million per year (± 30,000 USD, 1996 rate). Of this, the KUD donated Rp 1 to 2 million yearly to the church and the village government.

5.2.5 Role of women

Some women were working in the village organisations, often as treasurer or in other 'female related tasks', but they were not found in the LMD or LKMD. So, despite their active role in income generating activities, women were excluded from most village affairs: 10% of our survey respondents considered women to be completely outside of decision-making processes. Women's public activities in the village were usually related to what they do in the household, i.e. they provided the refreshments at village meetings and traditional ceremonies. Women expressed reluctance to take concerns directly to village leaders. They would be more inclined to deal with their clan leader or try to approach government through the PKK or the village head's wife.

Many women were involved in cottage-scale businesses related to food processing (sago,[1] bread, smoked fish) and the trade of fish and agricultural products. In the 1990s, when the clove monopoly caused a severe reduction in income from cloves, pressure on marine resources and the number of women involved in fish trading[2] increased tremendously. The women also harvested shellfish, small fish, and octopus from intertidal and shallow inshore waters. This was strictly a food fishery. The shellfishery intensified over the years and for the women it was becoming harder to find large shellfish as well as certain species.

The women were worried about the decline in marine resources because they depended on shellfish for food, and on the fishery for household income. To the women, *sasi* – just like most village matter – was a 'government affair'. They had no voice in decision-making around *sasi*, nor did they attend the *sasi* rituals. Women interviewed did express the need to be involved in decision-making around marine resource management. Yet, they thought that since their fishery was for food and not profit, the men in charge would not take their concerns seriously.

5.2.6 Fisher profile

Of the 30 fishers surveyed, 93% were born in Nolloth and the same percentage had only elementary education. On average fishers in the sample were 47 years old. The respondents had an average of 6.6 household members, i.e. more than the overall village average. No women were interviewed.

1 The sago processed in Nolloth is imported from Seram, and the end product is sold in Ambon.
2 The women involved in the fish trade are usually those living next to the shore in Nolloth and Itawaka where fish are landed.

On an average, fishers had been active in this profession for 27 years. They generally spent more than 8 hours per day at sea (most common was 7-10 hrs daily), which was second highest from our sample villages. The fishers expressed great personal satisfaction in their chosen career, but only 18% (still twice as high as the other villages) wanted their children to become fishers. Most (61%) wanted them to be government staff. Only three of our respondents belonged to a fishers' group and membership in other village organisations was also low. All of them said that *sasi* was very important.

The principal part of their income (81%) was from fishing. Other income came from land crops (peanuts, coconuts, spices etc.). About a third (27%) had income that was sent from a distant family member. Children who left Nolloth to find work elsewhere would often provide the family with an external income of on average Rp 264,000 per year (105 USD, early 1997 rate).

The economic indicator of the fishers sample was made up of adding scores for land ownership, boat ownership, type of house and fishing gear. Most fishers (83%) were landowners and almost half (47%) had permanent housing (cement with zinc roof). For Nolloth the average economic score was 8.1 (with a standard error of 0.35), which was in the lower third of the 27 villages investigated. When TV ownership was factored in, the economic score became 8.5 – the lowest of the case-study villages (see Appendix 3 in Novaczek *et al.* 2001).

5.3 Market attributes

Most artisanal fishers in Nolloth sold their catches directly to consumers or to small traders; a few (17% of sample) dealt with wholesalers. Most fishers (97%) said it was them or their wives who set the sale price. The majority (70%) sold their fish in Nolloth or elsewhere on Saparua Island (17%). The key factor in choosing point of sale was the price. Prices varied, but in 1997, mid-sized fish (*komu, lema*) would sell for 1000-2000 Rp each, while smaller species (sardines) could fetch 250 Rp.

Compared to fishers in other case study villages, Nolloth fishers sold a relatively high percentage of their catch; only 13% was used for family consumption. Eight fishers said they did not eat any of the fish they caught, and none ate more than half of their catch. The shellfish and fish gathered by women, in contrast, were not sold but used for family consumption.

The small-scale fish trade was mainly in hands of village women, called *papalele*, many of whom were wives of fishermen. The female fish vendors bought and sold all kinds and sizes of fish, both in fresh and smoked form. Post harvest processing of fish was limited to smoking. None of the vendors

had access to ice. The price of fish depended on various factors: weather conditions, the amount of fish in the market, the size of the trader network, and the auction price of fish set by the fish brokers who handled the commercial catches. The profit of the retailer could approach 150-200%.

The fish vendors sold mostly in the local village market or in other villages on Saparua Island, including Saparua town. The remainder ended up in urban centres like Masohi, Tulehu and Ambon city. Fish were taken to the market using public transportation. The women never travelled to or from a market empty handed and often dealt in sago and vegetables as well as fish. Fish that could not be sold fresh before noon that day was smoked and either went into the stock needed for a long distance trading trip or was peddled door-to-door in the village in the late afternoon.

Compared to the other case study villages on Saparua and Haruku, the wide range of markets enjoyed by Nolloth traders was exceptional. The fish vendors used their long experience and a strategy of flexibility to find the best place to sell fish for the best price. They gathered information on city market prices from bus and speedboat drivers and from people freshly arrived home from the city. The ones that chose a district or provincial market for their sales did this because: 1) the price was higher than on the local markets, 2) they were easily accessible, and 3) they could sell fish together with other commodities.

5.3.1 Commercial large-scale fish trade

Financial control over the pole and line fish trade was mainly in the hands of Chinese Indonesians. The pole and line boats typically went out twice a week on 3-day trips, unloading fish at cold stores in Tulehu and Masohi.

The pole and line boats targeted pelagic fish, especially skipjack. Fishing took place throughout central and northern Maluku. Prices of fish were increasing: in February 1998 the price given to Nolloth fishers for export quality fish almost doubled. These trends were directly related to the availability of fish and to market structures. More details on the commercial fishery and on the commercial fish trade can be found in Chapter 5 of Novaczek *et al.* (2001).

5.3.2 Trade in top shell and sea cucumber

Under village head Huliselan, there was a harvest of sea cucumbers and top shells from the *sasi* area every two years. There was a large market demand for sea cucumbers by Chinese traders as well as by Butonese and Javanese fishers who travelled around the Maluku seas. The KUD, which paid for the harvesting rights, sold both sea cucumbers and top shells to Chinese-Indonesian traders in Ambon.

Trochus niloticus is a protected species under national law and trade in top shells is therefore illegal. As a result, all shells must be sold to certain traders who have government permits to handle cultivated top shells and use this as a cover for trading wild shells. The profits enjoyed by those in control of this trade monopoly are significant (see also Zerner and Thorburn, *forthcoming*). On the international market the price is paid in US dollars. The traders however, paid the villagers in Indonesian rupiahs and so benefited from the plunging exchange rates. Profits at the village level were therefore far below what they could have been if the controlled harvest of top shells in *sasi* areas had been legal and villagers had direct access to the foreign market.

5.4 *Sasi* institutional and organisational arrangements

Nolloth was one of the villages where *sasi* was still strong. Here, the practice of *sasi* dates back at least to the colonial period (Huliselan 1996, *pers. comm.*). The two main objectives of *sasi* were said to be protection of the harvest and theft control. *Sasi* rules in Nolloth, whether implemented by *kewang*, church or the village government, are based on *adat* or customary law. In the absence of a formal and legal mandate to manage the marine village territory, *adat* provides village authorities with the legitimacy to undertake resource management and collect resource rents, both within and outside of *sasi* (Hualopu 1991). The *adat* rules are in effect the constitutional rules of the *sasi* institution. Under *adat* law, the rights, authority and obligations of the *kewang* are defined, as well as the boundaries of the village territory and the marine *sasi* area. The rights of villagers to enter common property areas and utilize natural resources are recognized and supported. Some of these *de facto* rules and customs were written down, while others were not like the decision-making process (see for Nolloth *sasi* rules Appendix 6, in Novaczek *et al.* 2001).

In Nolloth, the traditional *sasi* institution (*sasi adat*) was complemented with a type of *sasi* controlled by the church (*sasi gereja*) that was applied on coconuts. These arrangements too were not written down.

On land, *sasi* defines what areas belong to which families and thus manages the resources as a private property system under constitutional rules. The sea, on the other hand, by its nature is seen as a common property resource with defined access rights in the *sasi* area. Within the village territory, local residents and their non-resident children have rights of access and withdrawal for all living marine resources except those under *sasi* or other village regulation (see Table 5.2). *Adat* allows *sasi* authorities (the *kewang* and village government) to exclude outsiders from fishing in the village territory, or at least require that they ask permission and/or pay for access rights.

Collective-choice rules under *sasi* concern what types of activities may be controlled in the village, define a process and confer authority on certain leaders to resolve land and resource disputes. These rules also define the structure of marine *sasi* as an institution that regulates access and withdrawal rights in the marine *sasi* area. Examples of collective-choice rules are that the responsibility for patrolling the *sasi* area lies with the *kewang*, or that sanctions for stealing *sasi* resources are applied by the village head and the police.

TABLE 5.2 – Products whose harvest times are determined under land sasi

Land sasi operational rules
During closed *sasi* it is prohibited to: • Harvest coconuts (*kelapa*), pineapple, mango, durian, jackfruit, banana, nutmeg, areca nuts, and kanari nuts; • Cut sugar palm, and to cut sago leaves for roof construction; and • Cut fruit trees and harvest young fruits.

Various sets of operational *sasi* regulations control the harvest of certain commercially important marine resources and terrestrial crops. These operational *sasi* rules were written down.

TABLE 5.3 – Operational rules on marine products

Marine sasi operational rules
During closed *sasi* it is prohibited to: • Harvest sea cucumber, top shell (*Trochus niloticus*), *Turbo* spp, and *caping-caping* shells in the *sasi* area; • Swim in the *sasi* area (except when given permission); • Use gillnets and poisons in the *sasi* area at any time; and • Take sand, coral and rocks (except when given permission).
Non-sasi fisheries rules in the village territory
• Outsiders (non-residents) must have permission to fish in the village territory. • The harvest of sea cucumbers and top shells outside the *sasi* area is regulated. • Gillnets can be used only with a permit from the village head. • Blast-fishing and the use of poisons is prohibited in the village territory.

Some rules were rather specific: The harvest of coral and large rocks was limited to what is needed to build a house, with a maximum of 2m³ per person. However, even though most people knew that these rules existed, there was confusion over exactly where the rules were applicable. Some rules were embedded in formal government rules. For example, for larger amounts of coral, according to the village government, a permit from the sub-district level was required. However, when asked about coral harvesting, the sub-district office declared that they would never grant a permit because officially it was prohibited to harvest any coral at all (!).

In other cases the operational rules could be overruled by the village head, who has the authority to make decisions based on constitutional rules (*adat*). In emergencies, when individuals asked to open *sasi* on their own land, permission was usually granted to harvest some products. For marine *sasi*, a communal resource, individuals could not be granted access rights. However, in exceptional cases the prohibitions on diving and harvesting were lifted. Two occasions may illustrate this. First, in 1997, a research team from the Department of Fisheries in Jakarta was allowed to harvest top shells for an aquaculture project. Later, an ICLARM-Hualopu research team was allowed to enter the *sasi* area to carry out a biological survey. However, this was only possible under the supervision of the *kewang* and after permission from the village head.

In addition to the official *sasi* area, a part of the village marine territory north of Umisini (Figure 5.1) was also managed for top shells and sea cucumber. The ban on net fishing, diving and swimming was not exercised here. After the *sasi* harvest was complete and if the KUD had agreed to it, Butonese or Madurese divers were usually permitted to enter after having paid a fee to the village head.

Aside from the *sasi* rules, other formal operational rules existed. Gill net fishing, for example, was allowed only after explicit permission from the village head and the payment of a Rp 100,000 fee. Blast fishing and the use of poisons were banned. These regulations were applied to all villagers and outsiders.

5.4.1 Marine *sasi*: the players

Decision-making was carried out by those who according to *adat* had the mandate to do this i.e. the *raja* (who was also village head), the *tuan negeri* (who also happened to be the head of the KUD) and the *kewang*. Marine *sasi* was operationalised by the *kewang* in close collaboration with the village government. Both the *kewang* and the government were recognized by villagers as fundamentally *adat*-based organisations.

Because marine *sasi* in Nolloth had evolved into an institution for collecting resource rents for the village government, it was the village head who held the key decision-making role. Although he conferred with other authorities, it was really he who decided when and how often the *sasi* area would be opened. Also, if thieves were apprehended it was the village head who imposed and collected the fine and who decided whether to turn the offender over to the police.

The *kewang*'s main role was to patrol the area but they did not have the mandate to punish offenders (see below). The *kewang* also monitored the size of the shellfish and sea cucumbers in the *sasi* area. When the products under *sasi* were big enough to be harvested, the *kewang* members informed the

head of the *kewang* who reported to the village head. In a meeting with the harvesters (in this case the KUD), the traditional authorities, and the church minister, a date was set to open the season.

Although the church played a part in land *sasi* and prayers accompanied marine *sasi* ceremonies, the minister was not among the decision-makers or enforcers for marine *sasi*. As villagers explained, fish is too important to be under church *sasi* because an infringement of the rules would be punished by God and this would be too hard on people who are dependent on fish for food.

The KUD had no decision-making role, but had an economic interest, especially when it organized the harvest and division of the catch. The KUD officials and the members (to a lesser extent) shared in the catch/revenues. The common villagers played no active role in *sasi* and were merely recipients of the indirect benefits derived from *sasi*.

Sasi was clearly a village-based institution. Outside organisations were not involved in *sasi* or decision-making. The police only interfered on request of the village head.

5.4.2 Ceremonies for marine *sasi*

The decision to close *sasi* was made by the village head and the head of the *kewang*. To close *sasi*, the *kewang* gathered in the house of the *pakter* (*kewang* leader), then they went to the village head's house and from there to the *Baileo* or community house. At each street corner, a *kewang* member blew the sea-shell, while the head of the *kewang* announced the *sasi* regulations (specific products and places). After the *sasi* signs (palm fronds tied to a stick) were put up, the ceremony was proclaimed over and *sasi* was closed.

When *sasi* was opened, there was a communal prayer in the office of the village government where they awaited the arrival of the attendants for '*buka sasi*'. The real ceremony to open marine *sasi* took place at the sea-shore near the *sasi* area. With the village officials and *kewang* in attendance, the *tuan negeri* made a speech explaining how important *sasi* is and how the *kewang* are responsible for guarding the area. This was followed by a prayer by the minister. All the players (village government, traditional and religious leaders, and the *kewang*) then went out to sea, where the minister prayed again for a rich harvest. The village head uttered an invocation in the traditional language and then sprinkled fresh water over the sea as a symbolic gesture. *Sasi* was declared open. Skin-divers, hired through the village cooperative, harvested at least three top shells and there was a break during which everyone rested and ate a traditional feast (*patita*) provided by whomever had won the auction for harvest rights. Then the divers continued their work (see Figure 5.3-5.14).

FIGURE 5.3 – Traditional authorities and kewang members go to the *sasi* area for the opening ritual

FIGURE 5.4 – People arrive at the *sasi* area (see fig. 5.1 for situation)

FIGURE 5.5 – People gather on the beach

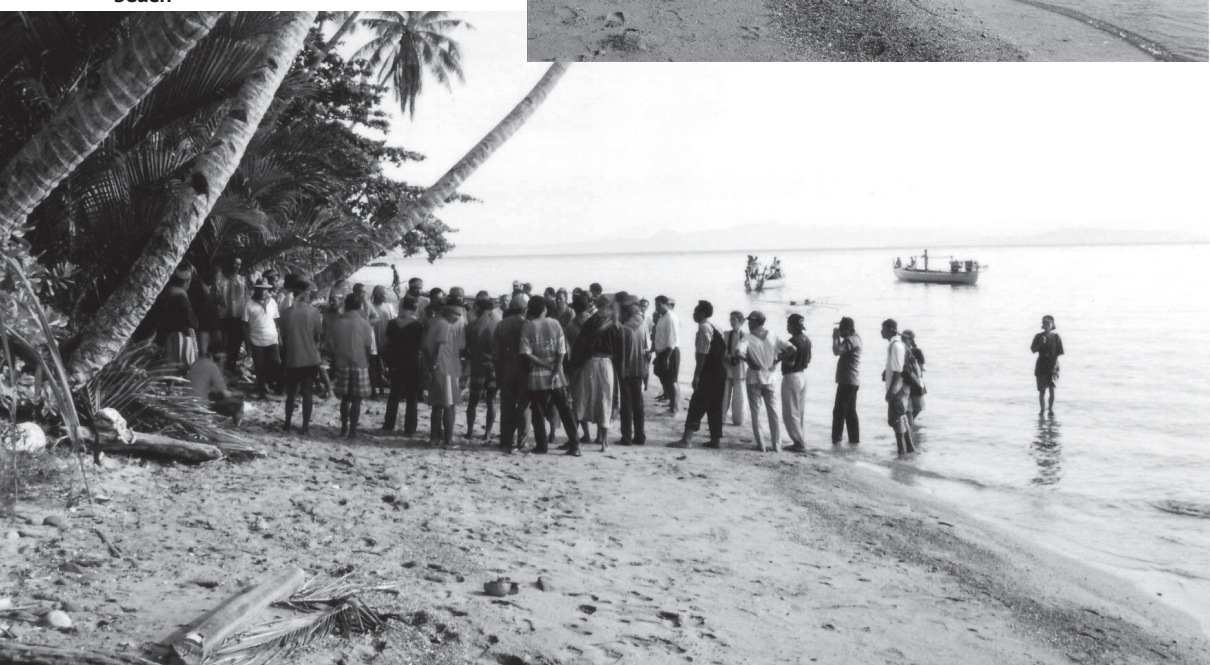

FIGURE 5.6 – Kewang members await the ritual

FIGURE 5.7 – The traditional authorities pronounce the opening of *sasi*

FIGURE 5.8 – Then there are prayers

FIGURE 5.9 – The village head utters ceremonial words and sprinkles water over the sea

FIGURE 5.10 – The first diver enters the water and comes up with the first Trochus shell

FIGURE 5.11 – Then other divers may enter the water

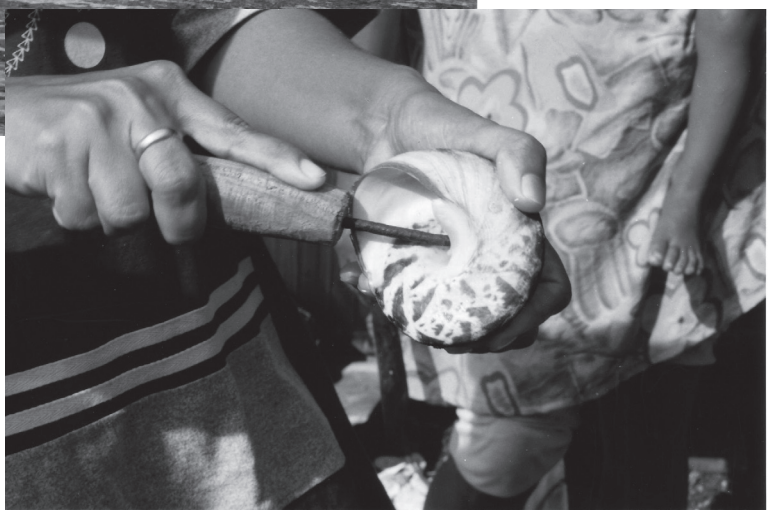

FIGURE 5.12 – Processing of the Trochus shells

FIGURE 5.13 – People gather on the beach where the food is prepared

FIGURE 5.14 – The ritual ends with a feast

5.4.3 The harvest

In the past, *sasi* on top shells was opened every three years and all villagers who wanted to could participate in the harvest. Top shell was valued as a food source. In the late 1960s, top shells became a commercially interesting commodity and in 1968, the harvest was brought under government control. Later, in 1978, the village government, with consent of the people, decided to sell the right to the *sasi* harvest to outsiders in order support the village administration. The result was that common villagers saw their rights of access and extraction being exchanged for a system where they would get only indirect benefits.

Profits from top shell and sea cucumber can be attractive. However, during the 1980s, a former village head opened *sasi* every six months. The result was that the harvest dropped dramatically from 1200 kg in 1988, to only 50 kg in 1994 (Evans *et al.*1997). In 1995, with the new village head Huliselan, they went back to a longer closed season (appr. 2 years). *Sasi* was closed throughout 1995 and opened near the end of 1996 and again in January 1998.

Formerly, the right to harvest in the *sasi* area was sold to the highest bidder. This could be an outsider (e.g. Chinese traders from Ambon) or a local who hired clan-members and friends to dive for the top shells. It also happened that a villager was 'sponsored' by a Chinese trader to buy the rights. Common villagers without connections were excluded from the harvest. However, resistance against this style of business grew and the villagers objected to the sale of harvest rights to outsiders. To have more control over the harvest and more benefits for the villagers, in 1995 after his installation, village head Huliselan decided to arrange the harvest and sale of top shell through the village cooperative (KUD).

The harvesting was done by selected KUD members (skin divers). In 1998, they received Rp 5000 per kg of shells, which is about third of the final sale price. Once the harvesters and other expenses had been paid, the profits were split evenly between the village government and the KUD. The village head then contributed a part to the church and the *kewang*. The money for the village treasury was meant to redistribute the benefits to the village population in the form of development projects.

The total revenues from marine *sasi* can be considerable. The price per kilo (3-5 large shells) in 1996 was Rp 14,000 (6 USD, 1996 rate) and in 1997 Rp17,000 (7 USD, early 1997 rate). Before the currency crisis, that meant that a 1000 kg harvest could yield about Rp 14 million or up to 6000 USD gross returns. In January 1998, *sasi* was officially opened again. The total catch of 460 kg of top shells and 67 kg of sea cucumber was larger than in former years, but lower than expected. Previously, the divers had reckoned that a harvest of over a 1000 kg was feasible, but when they entered the shal-

lows, most of the large shells were gone. Villagers believe the top shells were probably stolen during the Christmas activities in the village. The catch was sold for Rp 19,500/kg for the high quality shells (300kg) and Rp 9,500/kg for the rest. The total yield was approximately 7.3 million Rupiah, which was with the 1998 exchange rate only 730 USD.

Since trade in sea cucumber had proven lucrative as well, the village head was studying the feasibility of sea-cucumber culture at Tinauw in the *sasi* area. The villagers were planning to have a holding area of stakes, planks and nets, feed the young ones with mangrove leaves and harvest every six months.

5.4.4 Enforcement

Enforcement of *sasi* on land crops has traditionally been in hands of the *kewang*. Traditionally, Nolloth had two *kewangs* (one from each clan group). Each had a leader – or head of the *kewang* – and both were under the authority of a man called the *pakter*. The 40 *kewang* members were selected from particular families. The *kewang* had one secretary, one treasurer, and two *marinyo* (news-bearers).

When informed of an offence, the *kewang* would immediately go and try to make an arrest. They tried to be fair in their approach and not cause bad feelings (and so maintain their legitimate position). When a thief was caught, the fine money went to the *kewang*. Every villager was obliged to report *sasi* violations to the elders or the *kewang*. However, cases that concerned family and friends were complicated matters and often went unreported. Villagers themselves played no role in enforcement.

Where there was a difficult problem with a persistent violator of land *sasi*, the *kewang* would ask the village head to help with enforcement or punishment. In the past, people were publicly sentenced and would serve as an example. For instance, they could be made to wear a sign around their neck that said 'Do not do what I did'. Later, offenders could be forced to work in the village (road construction, cleaning of the village) or would face corporal punishment at the hands of the village head. Serious offenders and especially outsiders were not prosecuted locally, but reported to the police in Saparua Kota.

The marine *sasi* area was guarded by the *kewang* members who stayed in their two guardhouses. They took turns in guarding the area. Armed with knives and bamboo sticks they patrolled along the beach. However, the *kewang* lacked equipment such as motorboats, communication devices and modern weapons. Also, the remoteness of the *sasi* area made it hard to control. In the case of thefts of top shells from the *sasi* area, the village head imposed large cash fines directly. Since the proceeds of *sasi* went to the village, the village head felt this was his responsibility although it was the *kewang* who guarded

the area. Just before the time of our study, Butonese intruders were caught in the marine *sasi* area and punished to serve as an example.

Enforcement based on *adat* was supplemented by the power of the church. The role of the church was mainly to perform the prayers for *sasi* to facilitate religious sanctions. In the past, thieves have been known to give themselves up to the church when overcome with fear of spiritual sanctions.

Where, as in Nolloth, the village head plays a key role in enforcement of marine *sasi*, his legitimacy is crucial. If the person is not trustworthy or not from the royal clan (*raja*), his position as enforcer is weak. Such was the case with a former village head. During his term, intrusion into the *sasi* area was more common than was the case under Huliselan. This was in part because he himself neglected the rules. When he opened *sasi* too often, depleting the resource for what appeared to be personal gain, he undermined the *kewang* and, thus, *sasi*. However, before *sasi* could collapse, this leader was replaced by Huliselan, a *raja* who had a strong position in the village and was very strict. His legitimacy allowed him to enforce the regulations and he passed the news to neighbouring villages that he was determined to deal with offenders vigorously.

5.4.5 Compliance

Every month the *kewang* caught one or two locals who were stealing coconuts from the village gardens. These were usually poorer villagers or people that indulged in greed. As income was said to depend for a large part on the personal efforts of people, those who steal were usually considered 'just lazy'. Thefts from the marine *sasi* area also occurred. Within six months there had been two cases of intercepted thefts of top shells from the *sasi* area by outsiders (none by Nolloth villagers). In addition, there was the unconfirmed suspicion of a major theft of top shells over the Christmas holidays of 1997, just before *sasi* was opened. It is likely that such thefts were most common in the six months leading up to a harvest, when the top shells were relatively large and plentiful.

5.4.6 Significance of sasi and local knowledge

At the time of our study, the *sasi* knowledge base shared by the head of the *kewang* and village elders was still strong. Common villagers had general knowledge of *sasi* and conformed to the regulations, but detailed knowledge was exclusive to *adat* elders. Village head Huliselan, who grew up in Ambon, was initiated into the *sasi* rituals by his predecessor and the head of the *kewang*. The latter shared only such knowledge as was appropriate. He was very careful to guard his knowledge because it was sacred. At the same time, the head of the *kewang* and other village elders expressed concern that they would not live long enough to pass on the knowledge to suitable descendents. The son of the head of the *kewang*, for instance, seemed not interested in the in-

formation and thus was not ready to receive it. To keep the tradition alive, it is essential that knowledge is passed on to the younger generation.

Most villagers had little practical knowledge about *sasi*. To them, *sasi* was part of the tradition and people just 'did what the ancestors did.' What was clear to them though, is that *sasi* did have certain benefits. For example, it was mentioned that *sasi* protected the reef from being damaged by blast fishing and nets. Otniel Patty, a Nolloth fisherman explained: '*Sasi* helps to protect the area from people' and 'to keep the fish big and many'. Most villagers and all fishers interviewed agreed that *sasi* was important because it prevented people from stealing or destroying the resources. *Sasi* thus not only ensured that the products were ripe when harvested, but also that the yield was maximal. This worked for forest products and certain marine products, but was not applied to fish because 'people have to live' and a prohibition on catching fish would have been unacceptable (Otniel Patty, *pers. comm.*). In the sea, conservation in the form of *sasi* regulations was only applied on resources that were *not* essential for people's livelihood and that had a considerable market value, i.e. top shells and sea cucumbers.

To most women, marine *sasi* was less relevant than land *sasi*. The women gathered shells in the *sasi* area but there were no *sasi* rules that directly applied to the species that they harvested. Apart from the share of the top shell yield, which they got if they were KUD members, the women, since they could not work as harvesters, got no direct benefits from marine *sasi*.

From our interviews it appeared that younger respondents generally valued *sasi* and they believed that traditional village leaders should protect it. They explained that as long as the relationship between the village government and the people is good, and as long as everybody collaborates in the management and implementation of *sasi*, it would be continued. However, to keep young people involved in *sasi*, it is necessary that they understand the purpose of *sasi* and get benefits from it.

5.5 External institutional and organisational arrangements

The external institutional and organisational arrangements are the linkages between the village (government) and outside political organisations or government structures, and other external agencies.

5.5.1 Link with higher government bodies

The link with external government agencies was tenuous. Apart from the family visits from a sub-district representative, government officials were rarely encountered in the village. Neither have there been any meetings nor workshops related to marine resource management organized by higher gov-

ernment levels. The village head was meeting every three months in Saparua Kota with other village authorities to exchange information. Fisheries issues however were not discussed here. Fisheries regulations were not high priority in the village; people were more concerned about developing the fishery. Besides, there was no government assistance for monitoring and there was no patrol boat for enforcement. For the village head, the most reliable sources of information on fisheries regulations besides the radio and TV, were the Ambon-based NGO Yayasan Hualopu and friends in the university.

5.5.2 Links between the community and government fisheries management

The regional Fisheries Agency (*Dinas Perikanan Tingkat II Maluku Tengah*) was involved only in licensing the pole and line boats, which were licensed for two years at a time. The fisheries officers dealt only with the boat owners. They had no contact with the crew and did not give out information to them or make inquiries concerning the fishery.

5.5.3 Collaboration with other institutions

Yayasan Hualopu has carried out an extension program in Nolloth that aimed to inform people on customary laws and sustainable resource use. They also assisted with the evaluation of management activities. Before, information on marine issues and on marketing possibilities of other marine products was provided through their publication 'Marinyo'.

5.5.4 External economic influences

The decline in clove prices in the 1990s had a negative influence on the village economy. Consequently, fishery and the trade in top shell and sea cucumber became more important. When in February 1998 the governments' monopoly on clove was lifted, it initially had a positive impact on the clove price but later in the year this was nullified by low harvests due to a drought. In 1998, the monetary crisis played an important role of which, at the time of our research, the full effects were not yet known.

5.5.5 Infrastructure and development projects

There were no major constructions in or around the village. Within the village, there were small-scale development projects (infrastructure, small-enterprises). In the sea, there were plans to establish sea cucumber aquaculture.

5.6 Incentives to cooperate

The keys to resource management were enforcement of and compliance with fisheries rules and regulations. However, various contextual variables affected the individual's inclination to participate in and be governed by *sasi*.

5.6.1 Spiritual significance of sasi

Compliance and legitimacy were closely related to respect for the ancestral spirits and God. People in Nolloth believed that neglecting traditional rules or pledges resulted in illness or even death. Ceremonies were essential to win the ancestor's approval and to keep harmony, and they needed to be carried out in the proper, prescribed way and by the appropriate people. Fear and respect for the ancestor's powers therefore were profound. '*Sasi* is something from the ancestors, it needs to be followed.' (Otniel Patty, *pers. comm.*).

5.6.2 Legitimacy

The *sasi* rules in Nolloth were the result of a collective process nested in *adat* and therefore highly legitimate. *Adat*, the traditional customary law, provided the constitutional basis of *sasi* as an institution. The village officials explained: '*Adat* is important, and *adat* cannot be changed. People acknowledge *adat* and this is their incentive to accept the rules and regulations that come with it.'

The overlap between formal and traditional village authorities in Nolloth was very high compared to other villages. The village government was therefore seen to be highly legitimate. The legitimacy conferred upon the village head through his association with *sasi* and *adat* was an incentive for him to support and participate in *sasi*.

Sasi could and did evolve through time, as seen in Nolloth. With the increasing involvement of the church, the *sasi* institution became both more complex and even more legitimate in the eyes of the people. On the other hand, the minister also came to share the legitimacy and respect of *adat* through his association with *sasi*.

5.6.3 Status

There was no clear answer to the question why Nolloth still had *sasi* while it had been lost in many other villages. But although the villagers could not give an explanation for the strength of *sasi*, they felt it was important to have *sasi*. They were proud to be a *sasi* village and not in the least because of the attention of researchers, NGOs, and tourists that are attracted to the village. This pride and status accrued to all the (traditional) village officials and *kewang* members.

5.6.4 Economic benefits

Village leaders made decisions concerning the harvest and sale of *sasi* resources: a position that was not only prestigious, but also allowed them certain power and economic benefits. The *kewang* members earned little in the way of economic benefits, but for them the status made up for their efforts and the time they had spent guarding the *sasi* area and village.

Whereas land *sasi* benefited the individual landowners because they could keep their harvest, the profits from marine *sasi* were for the whole community and disappeared into the village treasury. The KUD, harvesters, the *kewang* and church got direct shares, but the other villagers only benefited indirectly (through village development). The money was spent at the discretion of the village government and the villagers had neither knowledge of nor control over the expenditures. However, because the village head was well respected people did not complain about the lack of transparency. Like most Mollucan villagers, Nolloth people believed that their leaders would act for the common good. This belief was an incentive to cooperate.

Most fishers interviewed, however, thought that the people should benefit from *sasi* directly. They argued that the revenues from *sasi* ought to be shared among those who are excluded from the fishery. Several respondents (Catharina Huliselan, Frederik Matatula, Augustina Lohenapessy) indicated that under the arrangement in place 'the rich benefited more than the poor.' From this it is clear that if the people do not feel they benefit, they will have less incentive to support *sasi*.

In our survey of 30 fishers, the majority (53%) disagreed with the sale of resource harvest rights to outsiders. Therefore the move by the village head to sell the harvest rights to the local KUD rather than to outsiders was politically wise. At that moment, the enforcement of *sasi* regulations was strong and compliance was high. However, if in the future the people would not support *sasi* any longer because they perceive it to be too unfair, some might encroach the area as soon as the power of the *kewang* declines.

Individual incentives to comply with *sasi* rules depended on well-being, income, fish catches and agricultural yields, in relation to economic needs. These needs included food and housing, school fees for children's education and capital to invest in alternative, additional or improved livelihood activities. In the case of fishing, fishers saw the need for new boats, engines and modern fishing gear. At moments when these needs were difficult to meet (start of school, monetary crisis, etc.), the temptation to trespass the *sasi* area increased.

5.6.5 Sanctions

The sanctions and enforcement by the village head and *kewang* were an important incentive for people to comply. The *kewang* was impartial and vigorous in applying the rules, and therefore respected. The *kewang*'s authority and the fear of social or religious sanctions was amplified by the involvement of the church in *sasi*. 'Even if the *kewang* is strong, the people are very clever and escape. God however is everywhere, and the presence of the church helps the people to obey the rules' (Otniel Patty, *pers. comm.*).

5.6.6 Social Pressure

In a small village like Nolloth it is difficult to move unseen. The 40 *kewang* members lived all around the village, the government and church representatives kept an eye on their fellow villagers, and besides, there was peer group pressure from within the church organisations. It was thus hard to commit an offence without being spotted, and the social pressure to comply with the rules was likewise strong.

5.6.7 Conservation of scarce and valuable resources

Nolloth has valuable resources, i.e. top shell and sea cucumber, for which there was strong market demand. These initially provided the incentive to institutionalise and then strengthen marine *sasi* as a means of collecting resource rents. The continuing success of *sasi* in providing sustainable harvests in the face of virtual extinction of these resources in other areas was an incentive to maintain the institution. Nolloth people had already experienced the dramatic decline in harvests that follows when *sasi* is opened too often, as happened under the former village head in the 1980s. This experience has helped them appreciate the importance of careful management of the *sasi* area.

5.6.8 Acknowledgement of problems in the fishery

The acknowledgement of fisheries problems differed more between young and old people than between males and females. Over-fishing was a problem particularly mentioned by older fishers. Many younger fishers had limited knowledge of management issues and were not too concerned. This was also the case with women who had a strong idea that sea resources could not be depleted because they were a 'gift from God'. Therefore, although some people thought it was important to protect the resources, the idea that marine resources are infinite was still strong, and young men especially tended to think in terms of intensifying rather than managing the fishery.

5.6.9 Attitudes

Laziness and greed were often mentioned as a reason for people to non-comply. Most offences committed by young people involved theft of coconuts, simply because they were 'greedy'. Another reason for non-compliance was the tendency towards individualism as the result of modernization. Sever-

al respondents mentioned that people need education on natural resource management and must become aware of the fact that natural resources need to be protected. This was believed to be one way of increasing compliance.

5.7 Patterns of interaction

The history of *sasi* in Nolloth shows that the system is a common property regime of which the access rights and the rights of withdrawal have changed. In the late 1960s when top shells became a commercially interesting commodity, government officials realized that the *sasi* system offered an institutional and legal means to control the top shell harvest and its profits (Zerner 1995). In Nolloth in 1968, Mr. Matatula, the village-level government head issued a proclamation declaring the existence of *sasi* on top shells within community waters and asserted control over *sasi* on behalf of the local government (Matatula in Zerner 1995). Thus, from a common pool resource where, at set times, the whole community could harvest, the rights of extraction became limited to a defined group within the community (the divers appointed by the village cooperative).

The benefits were divided amongst the appointed harvesters, the KUD, and the village government. It was stressed that the benefits were for the community as a whole in the form of village development. The villagers thus benefited indirectly and some villagers benefited more than others (e.g. KUD members). Also, common villagers no longer had the rights of extraction or the rights of access. In theory, the resource was still managed as a common property, but as soon as the benefits flew to the village government, in practice, the property rights regime changed from communal property to private property. The benefits were for the community, but it was the village leader who made the decisions on how to spend the revenues for village development.

This is an important issue in the functioning of *sasi* and compliance to the *sasi* rules. In Nolloth, compliance to *sasi* and other fisheries rules depended for a large part on the position of the village leader. At first, when the former village head controlled the benefits from *sasi*, villagers complained and compliance was said to decline. However, before *sasi* could collapse, the new village head took his seat in the village government and based on his highly traditionally legitimate position and a strong *kewang* system, the *sasi* rules then were complied with.

Compliance, however, must also be seen in the light of marine resource use in general. The *sasi* area was only a small part of the total fishing area used by the fishers. Nolloth's artisanal fishers had always ventured far to sea in their small boats to catch skipjack, tuna and other pelagic species. This re-

duced pressure on the *sasi* area and also decreased any incentive to break *sasi* rules.

In the past (20 years ago and more) most fishers targeted reef fish within the village marine territory, and fish were both abundant and cheap. However, with the introduction of nylon gill nets, the area became too crowded with nets and fish were rapidly depleted. Fishers moved increasingly into the pelagic fishery. In response, the village government instituted rules to limit the use of gill nets on the inshore reef by imposing access fees. In this case, the rule was developed outside of *sasi* and applied to the entire village territory.

There was a general agreement, especially among village elders, that the depletion of the reef fish stocks was caused by over-fishing. People were becoming more environmentally aware and *sasi* was said to be important for protection of natural resources. Even so, management in the form of a closed area and regulated harvest was applied only to several sedentary species in the *sasi* area.

For the pelagic fishery, the village government followed the general policy set out by the national government – which was to try and further expand the fishery (Budiman 1982 and Hannig 1988 in Mantjoro 1996). Nolloth fishers were involved in government programs that supplied motorboats and larger nets with fine meshes. Although the village government saw the need to address the decline in the fishery, regulations limiting the number of fishers or types of gears allowed were not part of the strategy. The importance of fish as a primary source of income and food impelled the village government to opt for intensification instead of management. The results (higher yields) were 'promising'. At a meeting, the village officials explained: 'It has already become better since they became motorized and can go further to get the fish.' It thus is clear that compliance within a limited area – whether communal property or private property – is easy when there is a state governed 'open access' area where fishers have unlimited access.

5.8 Outcomes

5.8.1 Equity

The role of fishers in management

The role of fishers in management was seen as having improved compared to the past, but was expected to remain stable in the future (Table 5.4). Some fishers mentioned education as enabling them to partake in discussions. However, the hierarchical structure in the village kept fishers from direct involvement in decision-making and this was not likely to change in the short-term. Compared to the other villages, Nolloth had the smallest proportion of

fishers (33,3%) who actually wanted to change the fisheries rules. The majority (56,7%) agreed with the current regime.

When asked about power-sharing, 60% of fishers thought the government had most or total responsibility for fisheries management, 33% thought the people shared responsibility equally with the government, and the remaining 7% felt the community had more responsibility.

Access to resources

Fishers' individual access to fisheries resources had significantly declined and they expected more restrictions in future. The respondents explained that this was caused by the fact that there were more and more regulations and the requirement of permits. Over 50% of the fishers thought it was acceptable to ask for dispensation to enter the *sasi* area. This did not mean that it would be granted (because it would not), but reflected the fishers' wish to have flexibility in the application of rules.

Distribution of means of production

The distribution of means of production among Nolloth fishers was perceived to be much fairer compared to the past, and it was expected to improve further. Ownership of fishing gear was seen to be related to personal ambition and willingness to work. Therefore, fishers argued, everybody who wanted to could work for fishing gear etc. Besides, there were the government programs that included the fishers and helped them generate money.

Income distribution

When asked about the level of economic disparities between the villagers, fishers reported that conditions had remained the same. The village women distinguished three social classes: the rich, the medium (who were just able to send their children to school in Ambon), and the poor (who lived on a subsistence level). Social status was easily recognized in the housing situation of the villagers. Fishers appeared to be mostly in the middle and lower classes. Contact between the different classes seemed limited. One fisher mentioned that the drop in clove prices had positively influenced the level of economic disparities, because, although it had had a dramatic effect on Nolloth's economy, it had levelled out the incomes of people in the village. Increasing 'individualism' was mentioned as causing people to look only for their personal advancement, resulting in competition.

Although in the minds of fishers, *sasi* appeared to provide more benefits to the rich than to the poor, it was not identified as a factor contributing to economic disparity. This was probably because *sasi* applied to a limited area, and not to the larger fishery that supported most fishing families.

5.8.2 Efficiency

Communal decision-making
The degree to which fishers have been able to communally make decisions with regard to the fishery had decreased and future expectations were negative. Many fishers (77%) saw the style of decision-making in the village as being a process of common or majority agreement. The other fishers felt that the village head with village government staff made all the decisions. In fact, whether or not the people were involved in decision-making at all depended mainly on the village leader.

A number of factors may have had an effect on decision-making. It could have been that the introduction of modern fishing gears caused divisions among harvesters Also, some fishers had seen their access and harvest rights in the *sasi* area being decreased in favour of fishers who were members of the KUD. The introduction of national fisheries rules directed to the village from Jakarta possibly added to a feeling of alienation. Finally, the *soa* system, in which the community members were represented through their clan leader, had been replaced by the *dusun* system. This could have disrupted traditional decision-making units.

All in all, only 10% of the respondents felt that local groups had no role in decision-making at all. Most respondents (87%) said that outsiders had no influence in village decision-making, but all agreed that all stakeholders should be involved in decision-making.

Ease of entry (costs)
Entry into the fishery was perceived to be on average more difficult because of rising costs. Fishers expected costs to rise even more in the future. In Nolloth, fishing had become more expensive because people could not fish in the *sasi* area. They had to go further out to reach pelagic resources and had to buy new types of gear in order to have good catches. Increasing prices of fuel and the currency devaluation made fishing and the purchase of fishing gear and engines even more expensive.

Control over access
Government control over access to the fishery had increased was expected to become stronger in the future. This was especially the case where it concerned the enforcement of *sasi*. Over 50% of the fishers felt that they should be able to ask for and get harvesting rights in the closed *sasi* area if needed. Strikingly, relatively many fishers (43%) found it no problem to sell rights to outsiders. In contrast, our key informants had stated that fishers/villagers strongly objected to the sale of harvest rights to the Chinese because they wanted to keep the benefits for themselves.

Compliance
Compliance with fisheries rules as perceived by our respondents was said to be relatively high (score 7.47) and had not changed significantly over time. This was contrary to the fishers in the key informant interviews who stated that compliance had become better now that there was a new village head who was trustworthy. There were no changes in compliance to be expected in the future.

5.8.3 Social sustainability

Family well-being
Generally, family well-being was moderate compared to other villages and had remained stable over the years. No changes were expected in the future.

Income
The actual income of people had not changed dramatically, but individuals noted an up or downward change depending on whether they had seen their catches increase (fishers with modern gear) or decline (artisanal fishers).

Tradition of collective action
Most fishers perceived the tradition of collective action in Nolloth to be stable over time. Many fishers rated past performance very high (score 9-10). The comments that some fishers made about this question indicated a perception that people's interests were shifting towards individual profits due to economic pressures. Still, the church and the village government collaborated closely in organizing the villagers. The decision to sell the *sasi* harvest rights to the KUD instead of to outsiders was a good example of cooperation between the leading village institutions.

Discussion of village issues
Discussion of village issues was perceived as being relatively high (score 8). There were no significant changes over time. From the interviews it became clear that management problems of the fishery in the village area were not publicly discussed.

Village harmony
Village harmony was highest compared to other villages (score 6.20) and had not changed significantly over time. Conflicts generally arose over land, sago and cloves. Alcohol abuse was also mentioned. On the village level conflicts were more apparent, especially in cases where outsiders tried to illegally harvest *sasi* products. Others, however, had the opinion that conflicts in the community were less compared to the past. An important role was played by the village head, who was perceived as legitimate and trusted by the people. Also the harvest rights and boundaries of the *sasi* area were generally accepted.

TABLE 6.4 – Results of performance analysis in Nolloth using chi square tests (average conditions) and paired t-tests (within group differences between past-present-future).

Indicator		Average condition in 1997-98 on scale of 1-10	Average change through time (statistical significance)		Average future expected change (statistical significance)	
Equity						
1	Role of fishers in management	7.63	1.2667**	+13%	0.1000ns	+1%
2	Access to marine resources	6.60	-1.6667***	-17%	-0.8667***	-9%
3	Fair distribution of fishing gear	7.63	1.7333***	+17%	0.4667*	+5%
4	Economic equality	6.67	-0.4333ns	-4%	-0.5667ns	-6%
Efficiency						
5	Communal decision-making	6.77	-0.8667*	-9%	-0.5333**	-5%
6	Ease of entry into the fishery	7.20	-1.0333*	-10%	-1.000***	-10%
7	Control over access to fishery	7.30	1.1667*	+12%	0.4000*	+4%
8	Compliance with fishery rules	7.47	0.4333ns	+4%	-0.5000ns	-5%
Social sustainability						
9	Family well-being	7.13	0.7333ns	+7%	0.0333ns	+0,3%
10	Income	6.23	-1.0667ns	-11%	-0.3667ns	-4%
11	Tradition of collective action	7.53	-0.8333ns	-8%	-0.4667ns	-5%
12	Discussion of village issues	8.00	0.6667ns	+7%	0.0333ns	+0.3%
13	Community harmony	6.20	-1.1667ns	-12%	-0.7667*	-8%
Biological sustainability						
14	Marine resource health	5.63	-3.1333***	-31%	-1.5333***	-15%
15	Fish catch	5.23	-3.7667***	-38%	-2.0333***	-20%

N = 30 heads of fishing households. Ns = trend not significant; * = p<0.05, ** = p<0.01, *** = P<0.001

5.8.4 Biological Sustainability

State of the marine resources and fish-catches
The general condition of the marine environment had declined drastically. In 1997-98, fishers perceived an average 31% decline over the foregoing 15 years, and they expected conditions to decline another 15% in the future (see also section 5.1).

Fish catches
Fish catches too had reduced drastically. The average drop noted was 38% and the fishers expect a further decline of 20% in future. In Nolloth, the main problems causing both general decline of the resources as well as declining fish-catches were said to be: 1) pollution, 2) intensification of the fishery and 3) the use of modern gear.

Nevertheless, biological surveys indicated that Nolloth had better than average living coral cover compared to other Saparua shores (Chapter 3). Also, fishers reported that the fishing was better in the *sasi* area than elsewhere, suggesting that the management system did have a positive effect on the state of the inshore resource.

5.9 Synthesis

Nolloth is an example of a village that has been successfully integrating traditional and formal government structures. Decisions were made by the village government, but with implicit consent of the villagers who trusted the government to make the right decisions for them. The village head had a powerful position, but he was legitimate, respected, and trusted not to abuse that power. The political structure theoretically allowed participation or open discussions, but the common villagers (women and the poor in particular) were effectively excluded from decision-making. In some cases they could work through clan leaders who were government officials to get their point to the village government.

Not everybody was selected to partake in the government programs that aimed to improve the livelihood of poor villagers. The ones not included felt that the village government did not address their concerns. These people, who represented the lower social classes in Nolloth, had less confidence in the village government and said that 'they took care of themselves.'

Women in the village were marginalized and have a dependent attitude. Communication among women seemed minimal also where it concerned village issues or problems. This was possibly a result of the village organisational structures that were hierarchical and left little space for internal discussions.

Common women had no voice and were not well represented within the women's organisations. When it came to village affairs and decision-making, the women generally showed a lack of interest.

Nolloth had a relatively strong local resource management system because it had a strong village government and an organisational structure that included traditional authorities. The village had clearly defined operational rules that were written down, executed according to accepted collective rules and based on *adat* constitutional rules. Compliance to the rules was high, not in the least because of an active and functional *kewang* system. Nolloth did face difficulties defending its territory against outsiders. In these cases the Saparua police force could be counted on to assist, but only if the *kewang* caught the offenders first.

The Nolloth form of *sasi* conferred certain economic benefits to the village in general and to the ruling elite and their associates in particular. Leaders associated with the institution were also rewarded with high social status. However, the institution cannot be said to have been inclusive or democratic. In fact, the originally common property regime had become a system with private property rights.

The village government used the financial benefits from marine *sasi* for development projects and infrastructure. The villagers thus benefited indirectly. Nevertheless, to the villagers *sasi* was meaningful, especially in regulating theft and destruction of resources. It was considered as something relevant and important to village life and 'people are used to it.' The cooperation of traditional and government authorities and the church in the context of *sasi* served as a model for cooperation in village life and contributed to social sustainability.

Fishers as a group did not participate in the development of *sasi* and other fisheries regulations, and there was mild resentment over the fact that the system of selling harvest rights seemingly benefited the rich more than the poor. The *sasi* system thus proved not very equitable, but it was still highly legitimate. On the other hand, *sasi* in Nolloth was certainly efficient: decisions were made with a minimum of fuss by a respected central authority and the rules were enforced at no cost by volunteers in the *kewang*. The biological outcomes were also positive. Despite the severe general resource degradation, the *sasi* area had relatively healthy resources. *Sasi* rules were only applied to two commercially interesting products in a small area and *sasi* therefore had little impact on the larger fishery.

Although the ladder survey indicated strongly that marine resources (and fish catches) were in decline, fishery problems in the sense of over-fishing were not generally acknowledged. Pollution and the use of modern fishing-tech-

niques were seen as having a major impact on the fishery but interventions to deal with these were not suggested. Although they needed to go further and further for their daily catch, most fishers still caught enough to cover their daily needs. The impact of the decline was also obscured by the fact that fish prices had increased and thus rewards were still good. The species caught had changed dramatically over the years. From inshore fishing on demersal fish, the fishery had become nearly fully geared towards pelagics in the open sea.

However, there were no plans for enhanced fisheries management outside of the *sasi* regulations. The sub-district, regional and provincial levels of government did not support monitoring or enforcement of fisheries regulations in Nolloth. Since *sasi* regulations were limited in scope and area of application, there was a need for more elaborate fisheries management. Collaboration between village and outside organisations such as Yaysan Hualopu were therefore deemed important. Collaborations with other institutions was found important to be developed to: 1) educate people and complement people's knowledge on the environment to facilitate resource management; 2) support a process to monitor *sasi*; and 3) to facilitate productive activities (additional income) to support *sasi*. A need was also identified for higher government levels to provide more information, suitable legislation and support.

6 Presence, performance, and institutional resilience of *sasi*

Despite its profound cultural embeddedness, *sasi* has adapted and changed under influence of trade (the spice wars), colonization (by respectively the Portuguese, the English, and the Dutch), religion (Christianity and Islam), and the imposition of nationally defined government structures in the 1970s. This chapter presents the results of a study performed in 1997-98 on the presence, performance and institutional resilience of *sasi*. The presence and functionality of *sasi* in 63 villages was determined by way of structured key informant interviews that explored the existence of *sasi* ceremonies, presence of written rules and sanctions, level and consistency of activity over time, area of application of rules, and governing authorities. Performance (expressed in terms of biological and social sustainability, efficiency and equity) was measured in 11 villages with strong *sasi* and 11 villages where it was weak. A number of factors were identified that contributed positively to the resilience of *sasi* as a local institution. The results of this study can be useful in the revitalization of traditional institutions or the establishment of new institutions in the context of decentralisation and co-management in Indonesia and elsewhere.

6.1 Inventory

6.1.1 Distribution of sasi on land crops and marine resources

In 1997, out of 63 central Maluku villages surveyed, 47 (i.e. 75%) had some form of *sasi* institution (Table 3). Ambon island villages had the least *sasi*. Two thirds of the *sasi* villages investigated on Seram had written rules and half performed *adat* ceremonies. Haruku Island had the largest proportion of existing *adat sasi* and was also unique in that every village had some form of *sasi*. Saparua, a predominantly Christian island, was exceptional in that over half of all villages had marine *sasi*, and a further four villages lost this form of *sasi* in living memory. Nusa Laut was entirely Christian, and the villages were uniformly small. Church *sasi* prevailed. *Adat sasi* persisted in only one village and marine *sasi* and village *sasi* had died out entirely.

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TABLE 6.1 – Inventory of 63 Central Maluku villages in 1997

#	Village	Island	Dominant religion	Size class	*Sasi* area				Type of *sasi*			*Sasi* river species managed
					V	L	S	R	A	C	O	
1	Nolloth	Saparua	Christian	3	+	+	+	-	+	+	-	top shell, sea cucumber, gillnet fishery on reef
2	Haruku	Haruku	Christian	3	+	+	+	+	+	+	-	pelagic fish
3	Kabau	Haruku	Muslim	3	+	-	+	-	-	-	+	pelagic fish, sea cucumber, ornamental fish
4	Pelauw	Haruku	Muslim	4	+	+	+	-	-	-	+	inshore net fishery
5	Makariki	Seram	Christian	2	+	+	+	-	-	+	-	inshore net fishery
6	Ihamahu	Saparua	Christian	2	+	+	+	+	+	+	-	inshore net fishery, corals, ornamental fish, sea cucumber, top shell, giant clam
7	Siri Sori	Saparua	Muslim	3	-	-	+	-	+	-	-	top shell, (sea cucumber?)
8	Itawaka	Saparua	Christian	3	+	+	+	-	+	-	-	mangroves, top shell, sea cucumber, *caping-caping*
9	Paperu	Saparua	Christian	3	+	+	+	-	+	+	-	sea cucumber
10	Porto	Saparua	Christian	4	+	+	+	-	+	+	-	top shell, sea cucumber, *piring* shells, giant clam, *batu laga*
11	Morela	Ambon	Muslim	3	+	+	+	-	-	-	+	top shell, sea cucumber
12	Seith	Ambon	Muslim	4	+	+	-	-	-	-	+	all species in *sasi* area
13	Tengah-Tengah	Ambon	Muslim	3	-	+	+	-	+	-	-	inshore net fishery, sea cucumbers
14	Rutah	Seram	Muslim	3	-	-	-	-	-	-	-	none
15	Soahuku	Seram	Christian	4	-	+	-	-	-	+	-	none
16	Batu Dua	Ambon	Muslim	4	-	-	-	-	-	-	-	none
17	Hitulama	Ambon	Muslim	4	-	-	-	-	-	-	-	none
18	Tiouw	Saparua	Christian	2	-	-	-	-	-	-	-	none
19	Eri	Ambon	Christian	4	-	-	-	-	-	-	-	none
20	Seilale	Ambon	Christian	4	-	+	-	-	-	+	-	none
21	Iha	Saparua	Muslim	1	-	-	-	-	-	-	-	none
22	Ouw	Saparua	Christian	1	-	-	-	-	-	-	-	none
23	Booi	Saparua	Christian	2	-	-	-	-	-	-	-	none
24	Saparua Kota	Saparua	Christian	4	-	-	-	-	-	-	-	none (lost)
25	Tuhaha	Saparua	Christian	2	-	+	-	-	-	+	-	none (lost)
26	Hulaliu	Haruku	Christian	2	-	+	-	-	-	+	-	none (lost)
27	Seri	Ambon	Christian	2	-	-	-	-	-	-	-	none (lost)

TABLE 6.1 – Inventory of 63 Central Maluku villages in 1997

Presence of sasi is indicated by +. Each institution in categorized by the area where rules are applied and the type of governing authority. Sasi area: V = village; L = land; S = sea; R = river; Type of sasi: A = adat; C = church; O = other. Size class: 1 = population <1000; 2 = 1001-2000; 3 = 2001-3000; 4 = >3000. Religion M = Muslim, C = Christian.

28	Hutumuri	Ambon	Christian	4	-	-	-	-	-	-	-	none
29	Kariu	Haruku	Christian	2	-	+	-	-	-	+	-	none
30	Kailolo	Haruku	Muslim	3	+	+	-	-	+	-	-	none
31	Rohmoni	Haruku	Muslim	3	+	+	-	-	-	-	+	none
32	Oma	Haruku	Christian	2	+	+	-	-	+	+	-	none
33	Wassu	Haruku	Christian	2	+	+	-	-	-	+	-	none
34	Aboru	Haruku	Christian	3	+	+	-	-	-	+	-	none
35	Sepa	Seram	Christian	3	+	+	+	-	+	+	-	top shell, sea cucumber, reef fish, shellfish, corals
36	Hatusua	Seram	Christian	2	-	+	+	-	+	+	-	inshore fishery (inactive)
37	Waisamu	Seram	Christian	3	+	+	-	-	-	+	-	None
38	Amahai	Seram	Christian	3	+	+	+	-	-	+	-	mangrove, corals, inshore pelagic fish, sea cucumber, top shell
39	Tial	Ambon	Muslim	3	+	+	-	-	+	-	-	none
40	Airlouw	Ambon	Christian	4	-	+	-	-	-	+	-	none
41	Amahusu	Ambon	Christian	4	-	-	-	-	-	-	-	none
42	Rutong	Ambon	Christian	1	-	+	-	-	-	+	-	none
43	Leahari	Ambon	Christian	1	-	+	-	-	-	+	-	none
44	Latuhalat	Ambon	Christian	4	-	+	-	-	-	+	-	none
45	Hila	Ambon	Muslim	4	+	-	-	-	-	-	-	none
46	Mamala	Ambon	Muslim	3	+	+	-	-	-	-	+	none
47	Haria	Saparua	Christian	4	-	+	+	-	-	+	-	mangrove, top shell, sea cucumber, ornamental fish, coral
48	Wakal	Ambon	Muslim	4	+	-	-	-	-	-	-	none
49	Ulath	Saparua	Christian	2	-	+	+	-	-	+	-	top shell, sea cucumber
50	Kulur	Saparua	Muslim	2	-	-	-	-	-	-	-	none
51	Akoon	Nusa Laut	Christian	1	-	+	-	-	-	+	-	none
52	Ameth	Nusa Laut	Christian	2	-	+	-	-	-	+	-	none
53	Abubu	Nusa Laut	Christian	1	-	+	-	-	+	+	-	none
54	Leinitu	Nusa Laut	Christian	1	-	+	-	-	-	+	-	none
55	Sila	Nusa Laut	Christian	1	-	+	-	-	-	+	-	none
56	Nalahia	Nusa Laut	Christian	1	-	+	-	-	-	+	-	none
57	Titawai	Nusa Laut	Christian	2	-	-	-	-	-	-	-	none (used to be on sea cucumber, top shell, other shells)
58	Hitu messing	Ambon	Muslim	4	-	-	-	-	-	-	-	none
59	Mamoa	Ambon	Muslim	1	+	-	-	-	-	-	-	none
60	Waitomu	Ambon	Muslim	1	+	-	-	-	-	-	-	none
61	Toisapu	Ambon	Christian	2	-	-	-	-	-	-	-	none
62	Sameth	Haruku	Christian	1	+	+	-	-	+	+	-	none
63	Sirisori Amalatu	Saparua	Christian	2	+	+	-	-	-	+	-	none

Sasi applied to land crops occurred in 41 villages and was most common in Christian villages and on Haruku and Nusa Laut. Marine *sasi* on the other hand, occurred only in 17 villages. It occurred equally in Muslim and Christian communities but its distribution varied significantly with village population. It was most common in villages with 2001-3000 people and absent from villages with fewer than 1000 people.

Occurrence of marine *sasi* also varied significantly from island to island, being most common on Seram and Saparua (over 50% of villages sampled on each of these islands had marine *sasi*). In 18 cases, villagers indicated that marine *sasi* used to be practiced but had died out in living memory. Therefore, we can say that historically, over half of the villages in the study area practiced some form of community-based marine management.

In 14 villages, informants attached to the local government expressed a desire to reintroduce or reinvigorate some form of land or marine *sasi*. In some cases, definite plans and time lines had been developed.

6.1.2 The governing authorities: adat, church and local government

The *sasi* rules and the structure of the institution vary in each village. In cases where respect for *adat* is very strong, *adat* leaders play a prominent role in developing and enforcing *sasi* rules (*sasi adat*). We found 4 villages having land *sasi* that was purely *adat*, and 3 villages with marine *sasi* that was *adat*.

In six Muslim villages people did not describe their *sasi* institution as *adat sasi*. These are tabulated under the name 'other'. Here, the role played by *adat* leaders, if any, is not clear. Funds generated from *sasi* harvests may be shared with the local mosque or Muslim leader, but religious authorities also have no defined role in decision-making or enforcement.

In church *sasi* it is the church that plays the most visible role. Prayers performed publicly by villagers at the time of the closing of an area to harvesting, function as a deterrent to potential rule-breakers. There were 22 villages that had only church *sasi* on land, and 4 villages where church *sasi* applied to marine resources. Church and *adat sasi* occurred together in 10 villages. All of these had land *sasi*, and four also had marine *sasi*. The recent history of the *sasi* institution in Central Maluku is characterized by a movement of authority from *adat* to church leaders and (since 1979) to newly defined village governments.

The type of *sasi* (*adat*, church or other) did not vary significantly with island or village size class (Chi Square test, $p>0.05$) but of course was correlated with religion, as both church and 'other' *sasi* are specific to one religious group.

6.1.3 Written rules, sanctions and ceremonies

Written rules were found in 42% of *sasi* villages and existed in villages of all sizes, on all islands and both religions. Written rules were most commonly found where *adat* and church *sasi* coexisted and in Muslim villages with 'other' *sasi*. They were least common in villages having only church *sasi*. Written rules, application of sanctions and performance of ceremonies tended to go together (i.e. all correlation coefficients were highly significant).

The use of sanctions varied with the type of *sasi*. The use of physical punishment and financial fines is the rule for *adat* and 'other' forms of *sasi*. In church *sasi*, participants make a common commitment through prayer to obey the *sasi* rules and it is God who punishes offenders. Where *adat* is still strong or where village government controls *sasi*, the role of the church is limited to providing support through a prayer at *sasi* ceremonies.

Traditionally, the opening and closing of harvest times and fishing grounds under *sasi* was accompanied by *adat* ceremonies. Now, the ceremony may be restricted to a prayer, although villagers in Haruku and Nolloth still perform more elaborate *adat* ceremonies. Regardless of their size, island or religion, roughly a third of *sasi* villages carried out ceremonies. Ceremonies were most common in villages that had both *adat sasi* and church *sasi*. In the majority (75%) of cases, however, fewer than 100 people attended.

6.1.4 Function and scope of sasi in resource management

Our study focused on *sasi* applied to marine resources. However, the strength and resilience of marine *sasi* is intimately related to and influenced by land *sasi* (Novaczek *et al*. 2001). *Sasi* as applied to land crops is generally in the form of a harvest prohibition on fruits that are unripe. Coconut is the most common crop regulated.

There is often a village *kewang* (local enforcement agents) to keep an eye on the crops under *sasi* and protect them from theft. The division of the harvest depends on the type of *sasi* implemented. Usually *sasi* is applied to village lands in general so that all people harvest at the same time (e.g. Nolloth). In other cases, groups of people harvest in rotation. In some villages the communal harvest is placed under the control of a *tuan sasi* (traditional authority) who, after paying a fee to the village government, organizes the harvest and sale of the crop.

What villagers called marine *sasi* covered a number of different types of marine management arrangements. The *sasi* rules may or may not be written down and the *kewang*, usually responsible for monitoring and enforcement, may be active or dormant. There were always rules restricting access to the village territory. There may or may not be closed seasons or closed areas. Almost all village institutions had bans on destructive gear types. In most cases

this supported the national ban on blast and poison fishing. In several cases other gears (lift nets, fine mesh nets, certain fish traps destructive to coral) were also regulated. In none of the community-controlled fishing areas was there any limit on total catch. Instead, *sasi* rules controlled harvest intensity by limiting the number of persons having access to the village territory and *sasi* area, by defining the length of the harvest period, by restricting the size of individual fish or shellfish that could be landed and by banning destructive gear types (Table 6.2).

TABLE 6.2 – Fisheries rules and marine management scores in Central Maluku: differences between villages according to the presence, absence, or history of having sasi

Attribute/activity	Marine *sasi* n=17	Lost marine *sasi* n=20	Any *sasi* (land, sea or village) n=46	No *sasi* n=17	All villages n=63
Local fisheries rules other than ban on bombs and poisons	17 100%	8 40%	33 72%	3 18%	36 59%
Avg # species affected by local rules (*sasi, lelang* or other rule)	4.3	1.4	2.6	0.9	2.1
Non-*sasi* auction of harvesting rights	0 0%	3 15%	3 7%	0 0%	3 5%
Non-*sasi* fees for resource access rights	4 24%	8 40%	13 28%	3 18%	16 25%
Gear ban	16 94%	13 72%	37 83%	11 65%	48 77%
Management score (± standard error)	7.35 ±0.30	3.05 ±0.55	4.95 ±0.45	1.83 ±0.41	3.97 ±0.38

Every village regulated different species, and in many cases, only one or two. The most common species managed under *sasi* were top shell (*Trochus niloticus*), sea cucumbers and small pelagic fishes. On average, a *sasi* village had rules affecting four of the following groups of marine organisms: corals, mangroves, pelagic fish, ornamental fish, reef (food) fish, sea cucumbers or shellfish. Over half of the *sasi* villages sold or auctioned harvesting rights for one or more species.

When there is an access restriction and the time comes when *sasi* is declared open, the resources may be harvested in a number of ways: by individual fishers living in the community (e.g. Ihamahu), by the whole community in a single communal harvest (e.g. Haruku), or by individuals from within or outside the community who have paid for the privilege of access and withdrawal (e.g. Nolloth, Itawaka, Kabau, Pelauw).

In a majority of villages, the national ban on blast and poison fishing was supported, either formally (i.e. written as a legal village or *sasi* regulation) or informally (by verbal decree of the village leader). In *sasi* villages, support for this rule was particularly strong. In villages that had only land or village *sasi*, fisheries rules were still relatively common compared to villages with no *sasi* at all. Overall, the average marine management score for Central Maluku was low because some villages had few or no rules affecting the fishery. Also, because *sasi* was applied to relatively small areas and few species, there was no comprehensive area or species management in place anywhere.

From the inventory we see that in many villages marine *sasi*, land *sasi*, or both have disappeared. Interestingly, the village leaders who were interviewed for the inventory were unfailingly positive about *sasi*, even if it was no longer functional in their village. It was generally valued for economic reasons: it benefits the people by securing a maximum harvest and controlling theft. However, some respondents mentioned environmental benefits, for example a village authority in Amahai who stated: '*Sasi* has to be preserved because it is a positive force. The population is rising and people want to take everything which will ruin the resources.'

6.2 Performance

6.2.1 Equity and efficiency of management

Equity in terms of access to resources regulated under *sasi* is not a major issue for family food security or family income because *sasi* covers few species and small areas. Most income is derived from the deepwater pelagic fishery and agro-forestry, while daily protein is commonly gleaned by women targeting species not covered by *sasi*. Indeed, respondents often remarked that it would be impossible to apply *sasi* to essential food fish, because people would have to break the rules in times of need, and then would suffer grievous consequences out of proportion to the crime. Where marine resources under *sasi* are harvested as a communal crop and distributed equitably among the population (for example, in Haruku) fishers accept this as fair and do not complain about restrictions to their individual rights of withdrawal.

However, fishers do have concerns about equity in cases where harvest rights are sold or auctioned, whether this happens under *sasi* or by any other arrangement. Fishers prefer a system where direct benefits of a management arrangement are shared and they find the sale of harvest rights to people outside the village to be particularly objectionable. If benefits are not seen to be fairly distributed or if they accrue to outsiders, this can lead to non-compliance to management rules. On the other hand, where the decision-makers are respected, a rental, auction or purchase arrangement can be very efficient

and also reasonably equitable in that the profits are used for the benefit of all through community development.

Although *sasi* has no measureable effect on distribution of fishing gears or on the degree of perceived economic disparity within a village, control over resource management is perceived by fishers to be tighter in *sasi* villages, and compliance to fisheries rules is perceived to be greater. The communal decision-making process is also perceived to be stronger and more stable. That said, western concepts of what constitutes a legitimate consensual process do not necessarily pertain.

Although the level of representation of interest groups varies from village to village, our research reveals *sasi* to be fundamentally male dominated and paternalistic. Although decisions affecting the marine village territory, for instance gear type restrictions, are said to be made 'by the community', the voices of fishers may or may not be heeded, and women are excluded from decision-making. *Sasi* is therefore not equitable in this sense. On the other hand, the hierarchical structure and minimal bureaucracy makes decision-making very efficient. Where the leadership is seen to be legitimate, the general populace does not question that all is being arranged for the greater public good and according to traditional law and culture. Therefore, even though they may play no active role in the decision-making, villagers in a *sasi* village that has stable and respected leadership will report that decisions are arrived at by general consensus.

6.2.2 Social sustainability

Sasi has significant positive impacts on social sustainability. *Sasi* villages have higher levels of interaction around community issues, a stronger tradition of collective action and less conflict. Fishers in villages practicing *sasi* enjoy the same standard of living as fishers in other villages. There is no demonstrable economic benefit to them but neither do they suffer economically from *sasi*.

6.2.3 Biological sustainability

Sasi rules that restrict access and limit harvest times clearly have the potential to provide ecological as well as social and economic benefits. Limited biological surveys performed inside and outside of *sasi* areas suggest biological benefits to certain managed species (Novaczek *et al.* 2001). Also, grazing areas of dugong (*Dugong Dugon*) along the coast of the Lease Islands coincide with those areas that are actively managed under *sasi* (H. de Iongh, pers. comm. 1998). However, problems such as poaching and blast fishing, do occur even in villages where the *kewang* is active, as in Haruku and Ihamahu. Protection efforts and in particular efforts to control fishers from outside the village, are hampered by the *kewang*'s lack of legal status, equipment and financial support.

The possible impact of *sasi* on the broader (pelagic) fisheries resource is not clear. In seeking to document the impact of the *sasi* institution on fisheries, one significant problem is the general lack of 'fit' between the *sasi* institution and the modern fishery that is geared to deep-water pelagics. Fishers' perceptions of declining stocks pertain to the impact of all forms of resource management as it exists in Maluku and not specifically to *sasi*. Fish catches of artisanal and small scale fishers are in decline throughout the study area, signaling the failure of centralized fisheries management regulations (Novaczek *et al*. 2001), to conserve resources and fairly allocate resource withdrawal rights in Maluku.

It is unlikely that, through protecting small areas of coral reef and sea grass bed, the *sasi* institution provides even an incremental and indirect benefit to the larger fishery, unless these inshore areas happen to be critical spawning or nursery habitat for pelagics. However, the ethic underlying *adat* and *sasi*, and the example of management provided by functional marine *sasi* may well have positive psychological impacts on fishers. Through their familiarity with *sasi*, villagers are led to embrace fundamental and important management concepts packaged in a culturally acceptable way.

6.3 Institutional resilience

The 1970s, at the eve of the introduction of the new formal government structure, was one period of decline of *sasi* (Table 6.3 and 6.4). This decade was one of rapid economic growth, poverty alleviation programs in the villages and social change. A fundamental factor in the loss of *sasi* was confusion or conflict in the village or between village authorities. Political instability and a dysfunctional *kewang* invited non-compliance and led to abandonment of operational rules. *Sasi* being taken over by the church, either because of such conflicts or in an attempt to improve compliance, was a common scenario. The church, interested only in land *sasi* on coconuts, did not get involved in marine *sasi*, which in some cases then declined.

TABLE 6.3 – Attrition of *sasi* institution (i.e. total loss of all forms) on each island. Note: one village in Ambon never had *sasi*

***Sasi* institution lost in percentages (n=19)**	**Ambon (n=11)**	**Seram (n=1)**	**Haruku (n=0)**	**Saparua (n=6)**	**Nusa Laut (n=1)**	**Total (n=19)**
lost in 1990s	16	5	0	16	5	42
lost in 1980s	11	0	0	0	0	11
lost in1970s	16	0	0	5	0	21
lost earlier	16	0	0	10	0	26
Total	***58***	***5***	***0***	***32***	***5***	***100***

The 1980s was a period of relative stability. Villages where *sasi* was alive and functioning remained stable. In some villages there was a tendency to revitalize *sasi*. The 1990s is a period of further decline of *sasi*. The period between the 1970s and 1990s covers one generation. Modernization and commercialization as a result of improved communication infrastructure and education and the expansion of market relations, influence the local culture and especially younger generations. The generational change, together with the rapid rate of social, economic and political change in Maluku in the 1990s is most likely the reason why *sasi* is now suffering such relatively rapid losses.

TABLE 6.4 – Attrition of sasi institution in villages of various sizes and religion. Note: the village that never had *sasi* is a village of Butonese immigrants, size class 4 (>3000 people)

Sasi institution lost in percentages (n=19)	Size class ≤1000 (n=5)	Size class 1001-2000 (n=5)	Size class 2001-3000 (n=1)	Size class >3000 (n=8)	Muslim (n=9)	Christian (n=10)
lost in 1990s	11	16	5	10	21	21
1980s	5	5	0	0	5	5
1970s	5	0	0	16	5	16
Earlier	5	5	0	16	16	11
Total	26	26	5	42	47	53

The case studies underscore the inventory evidence that contemporary decline of *sasi* stems often from conflicts (see Novaczek *et al.* 2001). Conflicts can in some cases be related to the social change that resulted from the introduction of the new village structure by the national government. Also, the election system has opened up possibilities for opportunists with vested interests to take the position of village leader. On the other hand, where traditional authorities merged into the new government, *adat* and *sasi* have remained a significant aspect of village life. Overlap between the traditional and formal governments proved to be essential in the prolongation of *sasi*.

The continuing presence of *sasi* is affected by village size and proximity to a large urban center. This is clearly illustrated by the early and rapid losses of *sasi* recorded on Ambon Island, which historically has been the government center and most densely populated island in the study area (Table 6.4). Ostrom (1990) writes that the likelihood of users designing successful common property institutions will be improved if the group is relatively small and stable, and if it is relatively homogeneous. Our research confirms this, for *sasi* is most resilient in homogeneous villages of fewer than 3000 people. Villages close to the capital, where *sasi* no longer functions, have exceeded a critical size, become heterogeneous and shifted from subsistence fishing and farming to large-scale fishing and urban employment.

Of all the forms of *sasi*, marine *sasi*, though less generally prevalent, appears to be relatively robust. Whereas *sasi* generally has suffered severe losses in recent years, marine *sasi* has been relatively stable and even shows signs of revitalization in the 1990s. This revival comes basically out of the heartfelt attachment of people to *adat* in general and *sasi* in particular, but also the commercial value of marine products such as *Trochus niloticus*, other shellfish and sea-cucumber for foreign markets is an important incentive to keep or reinstitutionalize *sasi*. The process is further being facilitated and reinforced by intervening NGOs, government and academic supporters who see the potential value of *sasi* as a resource management system.

Where the people do not expect to benefit directly, they seem not interested in revitalization of *sasi*. A lack of transparency in distribution of benefits further hampers the process. There is a risk that in villages where *sasi* is being used as a tool to extract resource rents that *sasi* then turns into 'a government thing' controlled by local elites. This is a disincentive for fishers to follow the new *sasi* rules.

Church *sasi* is the most common type of land *sasi* in Christian villages. The church also has the potential to play an important role in marine *sasi*. Church *sasi* derives it strength from the strong religious beliefs of rural villagers. The church is more stable than ever-changing village governments. Church *sasi*, when applied to coconuts, provides direct individual benefits to the people and so is valued. Past shifts of authority over land *sasi* from *adat* to the church helped to shore up the effectiveness of the institution when the *kewang* lost enforcement capacity. In many cases, villagers believe that the threat of sanction by God is a more powerful deterrent than the sanctions imposed by the *kewang*. As seen from the inventory, where *sasi* is taken over by the church, *adat sasi* as well as marine *sasi* may be lost. However, Haruku and Nolloth provide examples where introduction of church *sasi* actually strengthened the local institution. Therefore, in *sasi* systems that are being revitalized, the church can play an important supporting role.

In some Muslim villages, *sasi* has evolved away from *adat*. Ceremonies and inherited positions have been abandoned, and religious leaders also have not developed a direct role in the institution. *Sasi* has become more of a commercial transaction between the village government and whoever wins the auction for resource harvesting rights. Nevertheless, this also appears to be a stable and resilient institution. The benefits and drawbacks of this form of *sasi* require further investigation, but the performance analysis did show that this sort of arrangement leads to problems in compliance when local fishers see benefits accruing only to elites.

It was clear that *sasi* flourishes where the village leader is legitimate (from the *raja* family line) and where he collaborates harmoniously and honestly with

adat leaders and the church. Ostrom (1990) mentions reciprocity and trust as important conditions for successful common property institutions. From our study we would add legitimacy as another key factor for success. Apparently, the discrepancy between the theory of formal administrative structure and the *de facto* power structure that involves traditional authorities, makes village politics susceptible to manipulation and instability. Amendment of the law on village government (No. 5, 1979) may be required to accommodate the need for legitimate *adat* authority figures in rural villages and increase stability of local government.

Because the constitutional rules of *sasi* are part of *adat*, and '*adat* is something that can not be changed' as village officials in Nolloth stated, the process of revival concerns the re-establishment and adaptation of operational rules (harvest regulations, access rules) and collective level arrangements (re-establishment of the *kewang*). *Adat* still forms the basis of *sasi*, but a redefinition of responsibilities and involvement of non-*adat* institutions, i.e. the church, the police and higher government levels, is possible. Such adaptation of the constitutional rules carries certain risks and must be advanced with care and tact.

6.4 Conclusion

Sasi, the local resource management institution in Central Maluku, has a long history. Traditionally *sasi* was governed and enforced by *adat* authorities. Nowadays, this institution can also be governed by church or local government officials or even by private individuals holding harvest rights. In Christian villages, the church is an important supporter, whereas the role of Muslim leaders in *sasi* appears to be much more limited. As an institution, *sasi* has never been static but has changed with the times and been used by different proponents for different economic and social reasons, not simply for resource management. *Sasi* and the underlying *adat* culture have waxed and waned over time, absorbing and reflecting the impacts of colonialism, war, economic development and social change (Riedel 1886; Volker 1925; von Benda-Beckmann 1995). However, despite past predictions of imminent demise (Cooley 1962) *sasi* and *adat* persist and are therefore resilient.

Berkes and Folke (1998) explain that there are social mechanisms behind social-ecological practices that deal with disturbances and so enhance institutional and ecological resilience. Various social-ecological practices they mention are found in *sasi*, e.g temporal restrictions of harvest, intergenerational knowledge, role of stewards, taboos and regulations, sanctions and ceremonies etc. However, our study shows that these mechanisms are components of the institution itself, and as a consequence apt to change. What makes the institution, including all these components, strong (and thus resilient) is that

which links these components i.e. legitimacy, trust, collaboration, transparency, etc. Additionally, relations between those who benefit from the institution and those who manage it need to be sincere and transparent.

The majority of central Maluku villages still retain some form of local *sasi* institution. Within living memory, half of the villages covered by the inventory had local marine management rules. Yet, by 1997-98, only a quarter of them had rules pertaining to marine management. The traditional *sasi* style of resource management, involving ceremony, volunteerism and inherited status, is most common in homogeneous villages in the 1000-3000 population range. Marine *sasi* is most common in villages of 2000-3000 people and is most usually administered by *adat* or local government leaders, with the church playing only a supporting role. Marine *sasi* is least evident on Ambon Island, close to the largest regional urban center and a rapidly developing consumer culture.

The *sasi* institution thus is in decline and in many villages has disappeared (for more details see Chapter 7), but the need for effective conservation and management is more urgent than ever. In the study area there are overall declines in social interaction and cooperation, compliance to fisheries rules, fish catches, and environmental health. Yet, the majority of villagers are still directly or indirectly dependent on the fishery. Collapsing inshore fish catches have driven subsistence fishers ever farther out to sea. Their fishing grounds now overlap the area utilized by commercial and industrial fishers and conflict between the sectors is inevitable if management and conflict resolution arrangements are not set in place.

The existence of *sasi* means that certain important management concepts are widely known and valued as part of local culture. Village leaders' perceptions of *sasi* are that it is a useful institution. From this we can see that using *sasi* as the basis for development of a modern management institution can be considered to be efficient because through *sasi* these core concepts are generally known and seen to be legitimate. This reduces potential costs of public education and enforcement.

Additionally, the promulgation of non-*sasi* fisheries rules at the village level has clearly been influenced by the *sasi* institution. Not only do active marine *sasi* villages have the most rules in place, the villages where marine *sasi* has been lost or where land or village *sasi* persists, are more active in managing local marine resources compared to villages that have no *sasi* at all. The presence of *sasi* (active or not) thus positively influences the potential for development of modern marine management institutions.

Application of *sasi* to marine resources has always been limited in scope and some modern forms of marine management date back only a few decades

(Zerner 1994a). *Sasi* practices vary from village to village. In no case is management under *sasi* comprehensive; only small areas of shallow water and few species are regulated. Nevertheless, the existence of *sasi* means that certain important management and consevation concepts are widely known and valued as part of local culture. These include:

- The concept of open and closed areas / open and closed seasons.
- The concept of community tenure rights over a marine area.
- The concept of limiting access to resources.
- Controlled harvest and distribution of benefits.
- Locally developed and agreed upon regulations. These may be specific to the village (limitation of gear types, size of fish or shellfish harvestable) or may reinforce national laws (prohibition of blast fishing, use of poison).
- Local wardens or enforcers (the *kewang*) who have defined rules of process as well as prescribed sanctions to impose.
- A responsibility shared by all residents to report violations of *sasi* rules.
- Methods in place for advising all residents at regular intervals of the substance of *sasi* rules.
- An overall goal of improving or maintaining community welfare which, being rooted in *adat* or the concept of the unity of man with nature, is consistent with modern concepts of sustainable use.
- A hierarchical institutional structure wherein various tasks are divided among clearly defined bodies (i.e. the village government, the *kewang*, or the church).
- Low or no financial cost to formal government i.e. *kewang* members and church leaders involved are not paid wages, although they may receive a share of harvests. Local government offices may also receive income from the sale of harvesting rights for communal resources.
- Resiliency and the ability to evolve.

Sasi thus offers a solid foundation for resource management in the region. It provides a structure that is culturally embedded, a functional enforcement mechanism, and a set of rules and regulations that are acceptable to most. The familiarity with management concepts, the acknowledgement of a need to protect natural resources, perceived benefits and general appreciation of *sasi* makes it highly legitimate. With a formally acknowledged *kewang* who have access to funds, training and a network, enforcement of regulations can be carried out locally in a legitimate way. With the assistance of NGOs, scientists and government, (co-) management structures could be established that include the principles and components of *sasi*.

From our study we identified the following factors that contribute positively to the resilience of *sasi* as a local institution and therefore should be considered during the process of revitalizing and modernizing the institution:

1 A legitimate village leader, descending from the traditional royal *raja* line or being a traditional authority. Legitimacy contributes positively to the execution of his authority with regard to *sasi*.
2 A village head elected with a large majority. Fragile leadership and political instability hampers *sasi*.
3 A large overlap between the traditional and formal authorities in the village government leads to prolongation of traditional structures including *sasi*.
4 Critical for the process of revitalization is acknowledgement of the traditional village authorities within the new structure.
5 Retain traditional titles and structures as well as elements of ceremony, to provide a strong spiritual and cultural basis for resource management, but not alienate new generations of fishers.
6 Acknowledgement of institutions such as the *kewang* leads to effective enforcement of *sasi* regulations. Rights and mandates between informal and formal structures (police) should be clearly defined.
7 Collaboration between management institutions and stable religious authorities (church and Muslim institutions) lead to higher resilience of *sasi*.
8 The support and participation of the younger generation for *sasi* as part of a value system (*adat*) that needs to be adaptive to modern times.
9 Direct (equitable) benefits for villagers and control over revenues of resource management. This also leads to incentives to comply with the regulations.
10 Acknowledgement of powers and responsibilities within the framework of provincial and national legislation. This would provide local institutions with more capacity to deal with external threats and allow them to be involved in the planning, execution and evaluation of fisheries development projects and formal fisheries laws.

Collaboration, trust and legitimacy are a function of a village size and homogeneity. When the population exceeds 3000 people and/or the village becomes heterogeneous, the cohesive mechanisms break down. In these villages another type of management institution i.e. not traditional *sasi*, needs to be established.

In conclusion, we find that *sasi* has demonstrable benefits to society, embodies important principles that are recognized in modern fisheries management and, although limited in scope and application, has the potential to protect and conserve valuable commercial species and coastal habitats. In order for it to fulfill its potential, however, this traditional institution and the communal tenure rights on which it is based, need to be formally recognized by the government of Indonesia because in the absence of government support the institution is in danger of disappearing.

Other researchers and policy makers have suggested that *sasi* could be the basis for decentralized regional management bodies (Zerner 1994; Nikijuluw and Susilowati 2000; Thorburn 2000). Our findings suggest that this could indeed be a fruitful approach to the development of a more effective, adaptive and culturally embedded system for fisheries and coastal zone management in eastern Indonesia. However, it is also recognized that *sasi* has its limitations, that it is neither a homogeneous nor comprehensive institution, and that the relative roles of traditional and religious leaders, local governing elites and other participants in some future co-management arrangement have yet to be defined. This will not be a simple task.

7 Institutional resilience of marine *sasi*

Even though *sasi* has been in place over 400 years, in some parts of Central Maluku it is disappearing. While in many villages on the Lease Islands, Ambon and Seram *sasi*, or remnants of it, are still present, entirely functioning systems are becoming rare. S*asi* is dynamic through time and has adapted and changed under influence of trade (the spice wars), colonisation (by respectively the Portuguese, the English, and the Dutch), religion (Christianity and Islam), and the imposition of nationally defined government structures in the 1970s. Current threats to the system are commercialisation, modernisation and a general loss of traditional values. Interestingly, some villages have been able to maintain a strong and functional *sasi* system both on land (*sasi darat*) and water (*sasi laut*). In 1996-98 a study was carried out to study the presence of *sasi*, the degree of activity and the reasons for loss or survival of *sasi*. The results of this study can be useful in the revitalisation of traditional institutions or in the process of institution building in the context of co-management.

7.1 Introduction

People refer to s*asi* as fundamentally *adat, gereja* (church) or 'other'. In the past, the distinction of church sasi (*sasi gereja*) from *adat sasi* referred to the dominant governing authority in the local institution, but in modern times the partnership of local government with these authorities is implicit. In cases where respect for *adat* is very strong, *adat* leaders play a prominent role in developing and enforcing *sasi* rules (*sasi adat*). In church *sasi* it is the church that plays the most visible role. In general, a shift in authority from *adat* leaders to church leaders and to newly defined village governments (since 1979) characterizes the recent history of the *sasi* institution in Central Maluku. In several Muslim villages people did not describe their *sasi* institution as *adat sasi*; these are tabulated under the name 'other'. The role played by *adat* leaders, if any, is not clear. In these villages, where *sasi* is applied to marine resources it is a commercial agreement between local government and a harvester who pays a fee for harvesting rights (*sasi lelang*).

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Various scientists have studied *sasi* (Zerner 1994; von Benda-Beckmann *et al.* 1995; Nikijuluw 1995; Thorburn 2000). Yet, the existence of *sasi* and its dynamics have never been studied on an overall scale. Our research project covered most islands and villages in Central Maluku. The results are described in this paper which tries to analyse where and when *sasi* – or aspects of *sasi* – disappeared, which factors caused it to decline, but also which factors made it endure over time and/or stimulated villages to re-establish *sasi*. Understanding this process and the factors behind it will help to develop, maintain, or revitalize *sasi* and other fisheries management systems.

The first part of this paper presents the general patterns of decline of *sasi* in the region and marine *sasi* in particular. The second part goes deeper and based on case studies tries to uncover the changes and reasons for breakdown or strengthening of *sasi*. In the conclusion the results of the two studies are synthesized and factors identified that play a role in the continued existence of *sasi*.

7.2 Institutional resilience defined

A social institution consists of all the structural components of a society (e.g. patterns of behaviour) through which the main concerns and activities are organized and social needs are met (Goddijn *et al.* 1980, Marshall 1994). This general definition can be narrowed down when we look specifically at resource management systems. Berkes and Folke (1998) distinguish two major functions of a resource management institution: 1) to control access to the resource to exclude outsiders; and 2) institute rules among users to solve conflicts between individual and collective interests in order to divide the resource benefits. The first is called the exclusion problem, the second the subtractability problem. A useful definition then is the one by North (1993) who describes an institution as the formal and informal constraints or rights and rules and their enforcement characteristics. Examples of formal constraints are rules, laws and constitutions, while informal constraints can be norms of behaviour, conventions and codes of conduct.

Resilience can be defined as the degree to which an institution or system can cope with change without collapsing, or, the ability of a system to absorb perturbations by actively adapting to an ever changing environment (Folke and Berkes 1995). Reduced resilience means that vulnerability increases, with the risk that the system crosses a threshold and collapses (Folke and Berkes 1995). Community management institutions should be understood as dynamic social interventions, shaped by local experience and influenced by external factors (Bailey and Zerner 1992). Change is inherent to such institutions. Yet, if adaptability of response to changing conditions is insufficient, management institutions can break down, leaving the resource unregulated.

Important attributes that relate to institutional resilience are the enforcement mechanisms for the regulations and the changes that result from internal and external influences.

7.3 PATTERNS OF LOSS OF *SASI* SINCE THE 1940S

The villages surveyed were not expected to be homogenous. Therefore, to display the information, the villages have been grouped by: dominant religion (Muslim and Christian), population size (class 1 = ≤1000 people, class 2 = 1001-2000, class 3 = 2001-3000, and class 4 = >3000) and island (to indicate the distance to the urban centre, Ambon city).

7.3.1 Loss of the entire sasi institution

Of the 63 villages studied, 19 had lost their entire *sasi* institution (Table 7.1). Most losses occurred in the 1990s and on Ambon and Saparua. On Haruku Island, by contrast, some form of *sasi* has survived in every village.

TABLE 7.1 – Attrition of *sasi* institution (i.e. total loss of all forms) on each island. Note, one village in Ambon never had *sasi*.

***Sasi* institution lost**	**Seram**	**Ambon**	**Haruku**	**Saparua**	**Nusa Laut**	**Total**
lost in 1990s	1	3	0	3	1	8 (42%)
lost in 1980s	0	2	0	0	0	2 (11%)
lost in1970s	0	3	0	1	0	4 (21%)
lost earlier	0	3	0	2	0	5 (26%)
Total	***1***	***11***	***0***	***6***	***0***	***19 (100%)***

TABLE 7.2 – Attrition of *sasi* institution in villages of various sizes and religion. Note, the village that never had *sasi* is a village of Butonese immigrants, size class 4 (>3000 people).

***Sasi* institution lost**	**Size class 1 (≤1000)**	**Size class 2 (1001-2000)**	**Size class 3 (2001-3000)**	**Size class 4 (>3000)**	**Muslim**	**Christian**
lost in 1990s	2	3	1	2	4	4
1980s	1	1	0	0	1	1
1970s	1	0	0	3	1	3
Earlier	1	1	0	3	3	2
Total	5	5	1	8	9	10

Losses have been steady in both Muslim and Christian villages (Table 7.2), but there is a clear difference when you consider village size. Losses have been greatest in size class 4 (>3000 people) and much less in size class 3 (2001-3000). Apparently, there is an optimum size for villages with regard to *sasi*.

7.3.2 The erosion and loss of marine sasi

Active marine *sasi* institutions are hard to find. Out of 63 villages, only 17 had some form of marine *sasi* and a number of these were not functioning (Novaczek *et al.* 2001). Before, marine *sasi* was much more prevalent. We documented 18 villages that lost marine *sasi* in living memory (Table 7.3) meaning that at one time at least 35 villages (56%) had this institution. In four villages (Seith, Ouw, Seri, and Rutah) information was contradictory; while the survey did not indicate presence of marine *sasi*, one or more fishers interviewed thought *sasi* was either in force or had been in place at one time. Nevertheless, these villages were added to the 24 villages where either marine *sasi* never existed or had been forgotten.

In over half the cases where marine *sasi* has been lost, the loss occurred prior to 1970 (Table 7.3, 7.4). Since then, marine *sasi* has been relatively stable compared to land *sasi*. Most losses in the 1970s to 1990s have been in either size class 1 (≤1000) or size class 4 (>3000) villages (Table 7.3), and in the 1990s the only recorded loss was on Ambon Island (Table 7.4).

TABLE 7.3 – Attrition of marine sasi in relation to village size and religion

Marine *sasi* lost	Size class 1 (≤1000)	Size class 2 (1001-2000)	Size class 3 (2001-3000)	Size class 4 (>3000)	Muslim	Christian	Total
1990s	0	0	0	1	1	0	1
1980s	3	0	0	0	0	3	3
1970s	2	1	0	1	0	4	4
Lost earlier	2	4	1	3	3	7	10
Subtotal: lost	7	5	1	5	4	14	18
Number still existing	0	4	10	3	5	12	17
Never had marine *sasi*	6	7	6	9	11	17	28
Total	***13***	***16***	***17***	***17***	***20***	***43***	***63***

TABLE 7.4 – Attrition of marine sasi per island

Marine *sasi* lost	Seram	Ambon	Haruku	Saparua	Nusa Laut	Total
1990s	0	1	0	0	0	1 (6%)
1980s	0	2	0	0	1	3 (17%)
1970s	0	1	0	2	1	4 (22%)
Earlier	1	2	2	2	3	10 (56%)
Total	***1***	***6***	***2***	***4***	***5***	***18 (100%)***

7.4 FACTORS INFLUENCING ACTIVITY OF *SASI*

The level of activity of marine *sasi* was measured in every village using indicators for the presence of *sasi* (rules), closures (open and closed season), consistency of application (frequency over previous 3 years) and local effort (signage and enforcement). The maximum activity score is 12. Using this system we find that land s*asi* is significantly more active in villages with a population size between 2001-3000 (ANOVA, $p \leq 0.01$).

In Maluku, fishing villages are most often overwhelmingly Christian or Muslim. The seven villages where marine *sasi* was most active (score 10-12, see Table 7.5) were all homogeneously Christian or Muslim, i.e. with at least 95% of the population being of the dominant religion. Out of 17 cases of marine *sasi,* three were inactive (score 3) and another three were weak (score 6-7). One of the cases of inactive marine *sasi* occurred in a relatively non-homogeneous village and a second case was in a Christian *dusun* (hamlet) of a predominantly Muslim *desa* (village). Cultural homogeneity can thus be important to the resilience of this traditional institution.

TABLE 7.5 – Factors related to activity of marine sasi in central Maluku

Village	Dominant religion	Homo-geneity	Administrative status	Size class	Activity score for marine *sasi*	
					Land	Marine
Nolloth	Christian	1	Desa	3	12	12
Haruku	Christian	1	Desa	3	11	12
Pelau	Muslim	1	Desa	4	12	12
Siri Sori	Muslim	1	Desa	3	n.a.	12
Morela	Muslim	1	Desa	3	11	12
Itawaka	Christian	1	Desa	3	11	10
Amahai	Christian	1	Desa	3	12	10
Kabau	Muslim	1	Desa	3	n.a.	9
Ihamahu	Christian	1	Desa	2	12	9
Tengah-Tengah	Muslim	1	Desa	3	12	9
Hatusua	Christian	2	Desa	2	9	9
Porto	Christian	1	Desa	4	10	7
Paperu	Christian	1	Desa	3	9	6
Ulath	Christian	1	Desa	2	6*	6*
Makariki	Christian	2	Desa	2	12	3
Rohua	Christian	1	Dusun in a Muslim desa	3	12	3
Haria	Christian	1	Desa	4	8**	3**

Homogeneity status: 1 = 95-100% is of dominant religion, 2 = 60-80% is of dominant religion. * Sasi moved to church in 1992; ** Sasi moved to church in 1995.

The persistence of marine *sasi* appeared to be linked to the presence of other types of *sasi*; villages with marine *sasi*, for example, usually have active land *sasi*. Resilience of marine *sasi* depends also on the interplay among governing authorities. It has been stable in the Muslim villages where the institution is governed neither by *adat* authorities nor religious leaders (Table 7.6). In a number of cases *sasi* on marine resources was abandoned (e.g. Akoon, Ameth, Leinitu) or weakened (e.g. Haria, Ulath) when *adat sasi* was taken over by the church. Compared to marine *sasi* that is of the *adat* or 'other' type, marine *sasi* in villages with church *sasi* is less active. Where *adat sasi* has survived, losses of marine *sasi* are fewer compared to villages where only church *sasi* remains (Table 7.6).

TABLE 7.6 – Type of sasi in villages that have or had or never had, marine sasi

Current status of village	Adat *sasi* village (n=15)	Church *sasi* village with no adat *sasi* (n=21)	Muslim *sasi* village (n=6)
Has marine *sasi* now	10 (67%)	4 (19%)	3 (50%)
Lost marine *sasi* in living memory	2 (13%)	7 (33%)	0 (0%)
Historical occurrence of marine *sasi* (ever had it)	12 (80%)	11 (52%)	3 (50%)
Never had marine *sasi*	3 (20%)	10 (48%)	3 (50%)
Percentage of loss in relation to occurrence	17%	64%	0%

7.5 Reasons for loss of *sasi* between 1940 and 1997

During the inventory of the 63 villages, we asked whether our informants could remember when some aspect of *sasi* changed or was lost, and why this had happened. Explanations were often quite explicit and included contextual information pertaining to the evolution of socio-political systems in Maluku (see Novaczek *et al.* 2001 for details). The comments were merely applicable to villages where *sasi* actually was lost or transformed.

Weak leadership and conflicts seem to be key elements in the erosion of *sasi*. Reasons that villagers gave for the partial or complete loss of the institution were: conflicts within the village government, conflicts between the village leader and *adat* authorities, conflicts between the village leader and the *kewang*, conflicts among church organisations, and conflicts over land. Conflicts between *adat* leaders and the village government leading to erosion of *sasi* were reported only in Christian villages and never on Nusa Laut.

Confusion over land and rights was in some cases due to changes in government unit boundaries. Changes in administrative boundaries and the effects of World War II were most prevalent on Ambon and Nusa Laut. In addition, pressure from worsening economic conditions has been mounting since the collapse of the clove price in the early 1990s. Crop failure and decline of the resource were also mentioned as causing *sasi* to collapse.

The lack of effective enforcement, in combination with economic needs, political turmoil, and urbanisation provided the incentives for people to non-comply. Non-compliance and subsequent problems with the *kewang* led in several cases to breakdown of *sasi*, for example in Hulaliu. Compliance and enforcement problems were most prevalent in Christian villages, particularly

on Ambon Island. In eight cases, the village government delegated the authority over *sasi* to the church, in many cases causing *sasi adat* and marine *sasi* to decline. As of 1997, 12 of the remaining *sasi* villages were affected by political or religious conflicts. In other words, in about a quarter of remaining *sasi* villages the institution is under strain.

7.6 Results of the comparative case-study

The findings from the in-depth interviews conducted as part of the institutional analysis in the six villages, underscore the link between the different components (objectives, rules), the players and the external context of the *sasi* institution, and illustrate the interactions among these through time.

Although Nolloth and Haruku villages both have a strong *sasi* institution, the types of *sasi* are distinct. Whereas Nolloth can be described as a system designed primarily to provide resource rent for the village government, Haruku's *sasi* has more to do with fair distribution of fish resources and conservation. Nolloth is a stable village, with legitimate leadership and strong representation of traditional authorities. The *kewang* is functional and, together with the village head, serious in the prosecution of offenders. The harvest rights of *sasi* are reserved for the village cooperative (KUD) and income accrues to the village government and the harvesters. Other villagers benefit indirectly through village development. In Haruku, a more important role is ascribed to the *kewang* and relatively less to the village head, except when he is also a traditional authority. *Kewang* members feel a strong responsibility towards *sasi*. The harvest is communal and distributed among the villagers. Recently, the villagers in Haruku have become divided as a result of the installation of a new village head. This leader, elected with a slender majority, supports *sasi* but also favours mining development that threatens the resources under *sasi*. This has led to confusion and a dysfunctional village government, a situation that in turn poses a threat to *sasi*.

In Hulaliu, conflicts between the village head and *kewang*, and in particular problems with accountability for the use of resource rents in the past, lie at the root of the decline of *sasi*. The current leader is trying to revitalize *sasi*, but his position is unstable because he lacks the support of a large part of the village population. The revitalization process is thereby threatened. In Tuhaha there have been problems in the past between formal and traditional authorities. There is also a tendency to revitalize *sasi*, but the relationship between the village government and traditional authorities first needs to be restored. The village government, which is currently only partly functional, has to be reorganized before a *kewang* can be installed.

In Toisapu-Hutumuri and Seri, *sasi* is lost and fisheries management is minimal or lacking. Traditional village structures are to a large extent replaced by formal structures at the *desa* (village) level, although less so at the *dusun* (sub-village) level. Artisanal fishers have to compete directly with large-scale fishers. Both villages lie on Ambon and close to regional markets and hence are more in contact with modernization and urban processes.

In the remainder of this section we describe the various elements of *sasi* and provide an analysis of how *sasi* functions and persists under different conditions.

7.6.1 Objective of sasi

The general objective of *sasi* as articulated by villagers is to protect resources from theft and destruction. Theft is prevented through active monitoring and enforcement. In Nolloth, for example, there are lengthy closed seasons and a minimum legal size for top shells (*Trochus niloticus)* harvested. In Haruku, destructive and overly efficient gear types are banned. Thus in these cases *sasi* does have a conservation objective. In addition, *kewang* leaders in Haruku expressively identify equitable distribution of fish, particularly to support the village poor, to be an objective of their revitalized *sasi* institution. The use of *sasi* for economic purposes, which has a long history in Maluku (von Benda-Beckmann et al. 1995), is also illustrated by Nolloth. The harvest rights of top shell were being auctioned off by the village government when they became more commercially interesting in the 1960s. This was to the dismay of some villagers who saw their personal direct benefits decrease.

A shift from communal harvests to the sale of marine harvest rights has occurred in most villages where *sasi* was revitalized by a local government. Although in most villages the principles of *sasi* are valued and *sasi* is perceived as 'a good thing', many fishers we interviewed object to the auctioning of harvest rights, especially to outsiders. In both Tuhaha and Hulaliu, village heads plan to auction the harvest rights and use *sasi* revenues for village development. However, fishers declared that they would respect *sasi* only if they would get direct benefits from a communal harvest.

Villagers may be kept satisfied with village development projects, but there may be problems when village income and revenues are not transparent. For example, in Nolloth in the 1980s profits appeared to be used for the personal benefits of the village head at the time, rather than for the public good. As a result, *sasi* nearly broke down.

7.6.2 Rules and regulations

Nolloth, Haruku and Hulaliu have written *sasi* regulations. There are various types of rules. The operational rules specify the marine species under *sasi*, gear restrictions, and the timing of the harvest. These operational rules are

the base on which the fishers make their day-to-day decisions about compliance. Collective-choice rules define the decision-making process for closures, access, and enforcement. The third level, the constitutional rules, is defined through *adat*. *Adat* prescribes which persons are involved in *sasi* and what their role is, e.g. who or which clan is responsible for decision-making, conflict resolution, execution of ceremonies and enforcement (see also Ostrom 1990).

The process of decline involves non-compliance to operational rules but this in turn is directly dependent on the effectiveness of the collective-choice rules. In Hulaliu a conflict between the village head and *kewang* in which the *kewang*'s rights were neglected (i.e. a collective level problem), was the root cause for *sasi* to decline. Subsequent problems with compliance (operational level) were secondary. *Adat* as part of the village culture, however, persisted, and thus the constitutional rules remained intact.

Over the last decades operational rules have been modified. Boundaries of *sasi* areas, frequency of open and closed seasons, division of benefits, restrictions on gear use, etc. all may and do change. In practical management terms, this affects the function of *sasi*, but does not threaten its continued existence. On the other hand, where the constitutional rules were challenged, e.g. a shift of authority from the *kewang* to the church, the loss of the *kewang*, the introduction of police as enforcers, or the promulgation of national fisheries legislation, then the structure or legal basis of the *sasi* institution changed and this can lead to disappearance of part or all of a local *sasi* institution. Adaptation of constitutional rules may also, however, strengthen *sasi*. For example, in Haruku where marine *sasi* is enforced by the *kewang*, the people requested the church to become involved in land *sasi* in a period when theft was significant. Since that time, the church functions complementary to the *kewang*, who are still mainly responsible for marine resources.

Because operational and collective-choice rules seem to break down more easily, they, as particular entities, are less resilient than constitutional rules. However, the fact that operational rules, and to a lesser extent the collective-choice rules, can be changed or abandoned and then revived is an important feature contributing to the adaptiveness and resilience of the larger institution.

7.6.3 Role of traditional institutions

In 1979, a new government structure was introduced (Law No. 5, 1979) through which authority shifted from traditional leaders to a formally elected village head and government. Even though the implementation of this law was expected to have caused confusion in the village, in the perception of ordinary villagers it had no dramatic and immediate impact. In all villages there is some degree of overlap between formal and traditional authorities.

Apparently, the requirements of the law, i.e. replacement of the traditional government structure by a formal one, were often implemented at a pace and in a manner suited to the local situation. In most cases the local government basically incorporated the traditional structure into the formal structure, and thus change was not clearly visible.

Our study shows that the degree of overlap is decisive for the continuation and stability of *sasi*. However, some villages have been more successful in combining the formal and traditional government structures (i.e. Nolloth) than others where traditional authorities became marginalized (i.e. Tuhaha). Where newcomers entered the village government through elections, villages became politically unstable. The villages where *sasi* ceased to function had problems with village leaders who did not successfully collaborate with traditional authorities. In Nolloth, where the traditional authorities function within the new system, the *sasi* institution is strong.

The rituals and knowledge of *sasi* are traditionally passed on from father to son within certain lineages, for example, through that of the head of the *kewang*. The rituals are secret and involve an almost extinct indigenous language (*bahasa tana*). In order to preserve traditional *sasi*, it is imperative that the process of passing down of knowledge is perpetuated. Many youngsters, however, have lost interest in *sasi*. The process of 'modernisation' accelerates as the younger generations leave to study in Ambon city where *adat* is regarded as a superstitious belief. There is a risk that when 'the keepers of *sasi* knowledge' die, they will take their knowledge with them. The support and participation of the younger generation, therefore, is necessary for the success of *sasi* as a viable management institution.

7.6.4 Leadership

Before 1979 the position of village leader was hereditary; nowadays the village head is elected by the people. Where government officials lack knowledge and are poorly informed about village issues, decision-making may rest almost exclusively with the village head. In principle, the village head is elected for four years. Yet, elections can be subject to manipulation and in other cases the people automatically 'elect' the legitimate (traditional) village head. The modern village head may therefore hold a very powerful and authoritarian position and as such he is also a key decision-maker in the *sasi* institution.

Our results support those of Riedel (1886) and Volker (1921) who maintained that compliance to *sasi* rules depended largely on strong and tactful leadership. The village head must be honest and respected or *sasi* is undermined. Local legitimacy is very important and this still stems largely from being part of the *raja* family line. In Haruku, for instance, the village head is not a long-term resident of the village and suspected to represent the interests of the

pro-mining lobby (see section 7.7). Hence, although he is formally elected, he lacks the legitimacy to play a leading role in *sasi*. Nolloth, on the other hand, is a fine example of a situation where the village head was elected because he *is* the *raja*. This allows him to lead the formal village government and to also be fully and legitimately involved in traditional ceremonies.

External interests may influence the election of a village head, as was reported in Haruku and Hutumuri. Elections can be manipulated either in favour of or against traditional leaders. Under the Indonesian system, all candidates must be screened and approved by the government. At this stage, popular candidates may be disqualified, or some votes may simply be neglected during the election process. So, on one hand lingering *adat* structures may make nonsense of the concept of democratic elections, while on the other traditional leaders with broad popular support may also be vulnerable.

7.6.5 Boundaries

Marine *sasi* is generally applied to shallow inshore areas. Outside the *sasi* area, other parts of the village territory, including deep water beyond the fringing reef, may be rented out to outsiders. Generally, boundaries of the *sasi* and other rented areas are clearly defined, have remained largely the same over the years, and are generally acknowledged. Fishers may accept areas of restricted access without complaint, but they do have reservations. For some non-*sasi* rented areas, the lack of legitimacy is compensated by a strong enforcement mechanism. Crucial in acceptance of boundaries of restricted areas are legitimacy of the leaders, direct benefits for the excluded users and the presence of a *kewang* (local enforcers).

7.6.6 Enforcement and compliance

Enforcement of *sasi* regulations is carried out by the *kewang*, the police, and/or the village government. In Nolloth and Haruku the *kewang* is strong and plays an important role in the enforcement of regulations. In coastal villages there is still a firm belief that ancestral spirits and God guard the *sasi* regulations and even in cases where the village government is responsible for enforcement, traditional sanctions can still play a role. 'The offender can be lucky and escape from the *kewang* or the police, but he still may get sick. Before long, he will seek the church minister or *tuan negeri* [in more traditional villages] to confess his mischief, because only a prayer or ceremony can relieve him from his burden (Abraham Pattypelu, fisherman from Tuhaha).

The traditional *kewang* is highly legitimate and not in the least because they enforce the law without showing favouritism. The police have the formal authority to implement the rules, but they are felt to act arbitrarily and therefore not trusted by the people. The effectiveness of the police is also hampered by the fact that they reside far from the village and when needed, they take too long to arrive. In villages that have no active *kewang* enforcement is difficult.

Formally, enforcement authority has shifted from the traditional enforcers to the village government. In some Christian villages they sought support from the church. In Nolloth, for example, the village head and the *kewang* closely collaborate with the church minister who is present at *adat* ceremonies including those of marine *sasi*. In non-*sasi* villages the church was not seen to play a role in supporting enforcement of fisheries rules.

Where *sasi* is functional, compliance with fishing rules in general is higher than in non-*sasi* villages (Novaczek *et al*. 2001). Non-compliance by local villagers is not usually a threat to the *sasi* institution, but is a sign of decline which is likely based in problems at the collective-choice or constitutional levels. Non-compliance may also be directed at an authority figure rather than at the *sasi* institution *per se*. Non-compliance by either locals or outsiders and which is not effectively controlled by the *kewang* is a threat to *sasi* because it is an incentive for people to abandon local management. Although usually intrusion in *sasi* areas is low, in times of economic and political stress the rate of non-compliance can increase.

7.6.7 Externalities

In and out-migration and (limited) tourism have no impact on village demography and appear to pose no threat to traditional institutions. Tourism in Haruku, stimulated by *sasi* ceremonies, may even help support the institution. Compared to the villages on Ambon, the communication and transportation links of the villages on Haruku and Saparua are limited. By contrast, Ambon Island villages (Seri and Hutumuri) are heavily influenced by their proximity to Ambon city. It is here that the loss of *adat* ideology and tradition is largest and appreciation of *sasi* the least. Apparently, the greater involvement of people in the process of modernisation and globalisation affect the appreciation that people have for *sasi* and traditional structures. This is an important aspect to take into account when reinstitutionalising *sasi* or developing a comparable management institution that must be widely applicable.

Pollution and resource degradation resulting from modern development also pose a challenge to local resource management. The villages on Ambon see their resources decline due to pollution from fish processing and plywood factories. The environmental impacts of these operations, however, are such that they would be beyond the control and influence of a traditional style village *kewang*. Revitalized local institutions require information management, networking skills and links to government departments that have jurisdiction in environmental protection.

An example of the impact of large-scale development is Haruku, a village that is influenced by mining exploration for copper, silver and gold. This enterprise seriously affects the political stability in the village and also emphasizes the limits of a village-based management institution that is not linked

to higher levels of government. The *sasi* institution does not offer villagers the ability to intervene in regional development planning and licensing of mining operations. The *kewang* is powerless to prevent pollution from mining activities affecting *sasi* resources, and there is no provincial or national management body to which they can appeal.

National laws and programmes are implemented through the provincial, district and sub-district government offices, but information on fisheries and environmental law rarely reaches the village level. Knowledge of fisheries regulations is fragmented and generally fisheries regulations are poorly implemented. There are no government patrol boats in the area, and where it comes to protection of fishing rights, the villages are left to their own devices. This may motivate people to work together in defence of local resources. On the other hand, if *sasi* as an institution remains disconnected from governmental power centres, people may give up local operational rules because they are ineffective against externalities.

7.7 The revival of *sasi* in Central Maluku

At this moment, fisheries management is not yet a burning issue in most villages because reduced catches are compensated by high fish prices. Few village respondents have any clear idea of what fisheries management would entail, and rather think that the answer to declining catches is to upgrade their boats and gear. Nevertheless, all fishers in *sasi* villages said that *sasi* is useful and important, as did 90% of fishers in villages where *sasi* is being revived and 70% of fishers in non-*sasi* villages (Novaczek *et al.* 2001). In 14 villages, respondents expressed their desire to reintroduce *sasi* (land, marine or both), or strengthen existing *sasi* practices. Plans for revitalization were found in villages of all sizes and on every island.

The tendency to revitalize *sasi* is fed by the appreciation of *sasi* by the people, not just as a management system, but as a cultural phenomenon. In Nolloth and Haruku, where *sasi* is still strong, people explained: '*Sasi* has a spirit, and everybody carries it because it is adat and part of our culture.' It is at the constitutional level that *sasi* as an institution has its strongest resilience. The constitutional rules of *sasi* are based on and part of *adat*, and because they cannot be separated from the local culture, it is at this level that *sasi* as an institution has its strongest resilience. The embeddedness in *adat* explains why *sasi* is still spiritually and ideologically significant, even where the practical execution of *sasi* has vanished.

In Hulaliu and Tuhaha the village elites are seriously attempting to revitalize *sasi*. In both cases the reason for revitalising *sasi* has less to do with its spiritual significance than with the possibility of controlling common property

resources to generate government income (see also von Benda-Beckmann *et al*. 1995).

In analysing the revitalisation processes, it pays to look back to what caused the loss of operational *sasi* in the first place. The main reasons for the collapse of *sasi* in both Tuhaha and Hulaliu were political problems, lack of trust among village leaders, and the subsequent withdrawal of the *kewang*. However, even though the practical execution of *sasi* was abolished, *sasi* remained part of the village ideology. The process of revitalisation builds on this cultural base and re-establishment involves reinstallation of the traditional authorities and reactivation of collective-choice and operational rules. *Kewang* members have to be chosen and inaugurated, tasks delegated between the formal and traditional authorities and operational rules designed. To be successful, however, the proponents of *sasi* renewal will have to pay attention to history and be careful to avoid past practices that led to breakdown.

In recent years local NGOs, such as Yayasan Hualopu, have been working in the Lease Islands. They provided villagers with information on sustainable fisheries development and encouraged local leaders to embark on the management of village territorial waters. In 1997, for example, Yayasan Hualopu was engaged in a program of mapping village marine territories and facilitating the development of local management plans. In this work they tried to capitalize on the basis that *sasi* provides and encouraged the reinstallation of *kewangs* and the revival of the island-level institutions (*latupati*) with an emphasis on conflict resolution and management planning. They were supported by a number of academics from Ambon-based universities, some Fisheries Agency staff, and others from the government research institute LIPI, also based in Ambon. The general plan was to promote development of a new law at the provincial level which could give legal recognition to the right of villages to enter into marine resource management and erect *kewang*-style management organisations. The aim of these supporters of *sasi* is clearly resource management and conservation.

Hence, in the process of revitalization there are three streams of thought that must be reconciled: the wish of the village fishers to preserve *adat* culture and share in the benefits from fisheries resources while protecting their territories from outsiders; the desire of local governments to extract resource rents; and the push by academics, environmentalists and managers to develop viable local fisheries conservation and management.

7.8 Conclusion

Before the 1970s a large number of villages lost *sasi* due to post World War II social, administrative and economic change, internal village conflicts and other reasons that were difficult to trace (Novaczek *et al.* 2001). The more recent breakdown of *sasi* has occurred in two distinct periods and villagers are able to articulate reasons for decline in their village.

The 1970s, at the eve of the introduction of the new formal government structure (Law No. 5, 1979), was one period of decline. A fundamental factor in the loss of *sasi* was confusion or conflict in the village or between village authorities, which undermined the legitimacy of the village leader or the institution itself. This decade was one of rapid economic growth, poverty alleviation programs in the villages and social change. Political instability and/or a dysfunctional *kewang* invited non-compliance and led to abandonment of operational rules. *Sasi* being taken over by the church, either because of such conflicts or in an attempt to improve compliance, was a common scenario. The church, interested only in land *sasi* on coconuts, did not get involved in marine *sasi*, which in some cases then declined.

The 1980s was a period of relative stability. Villages where *sasi* was alive and functioning remained stable. In some villages there was a tendency to revitalize *sasi*.

The 1990s is a period of further decline of *sasi*. The period between the 1970s and 1990s covers one generation. Modernization and commercialization as a result of improved communication infrastructure and education and the expansion of market relations, influence the local culture and especially younger generations. The generational change, together with the rapid rate of social, economic and political change in Maluku in the 1990s is most likely the reason why *sasi* is now suffering such relatively rapid losses.

The case studies underscore the inventory evidence that contemporary decline of *sasi* stems often from conflicts (see Novaczek *et al.* 2001). Conflicts can in some cases be related to the social change that resulted from the introduction of the new village structure by the national government. Also, the election system has opened up possibilities for opportunists with vested interests to take the position of village leader. On the other hand, where traditional authorities (*saniri negeri*) merged into the new government, *adat* and *sasi* have remained a significant aspect of village life. Overlap between the traditional and formal government proved to be essential in the prolongation of *sasi*.

The continuing presence of *sasi* is affected by village size and proximity to the urban center Ambon. Ostrom (1990) writes that the likelihood of users

designing successful common property institutions will be improved if the group is relatively small, stable and homogeneous. Our research confirms this, for *sasi* is most resilient in homogeneous villages of fewer than 3000 people which are found in the outer region (Seram, Saparua, Haruku and Nusa Laut). Villages close to the capital Ambon, where *sasi* no longer functions, have exceeded this critical size, become heterogeneous and shifted from subsistence fishing and farming to large-scale fishing and urban employment.

Of all the forms of *sasi*, marine *sasi*, though less generally prevalent, appears to be relatively robust. Whereas *sasi* generally has suffered severe losses in recent years, marine *sasi* has been relatively stable and even shows signs of revitalization in the 1990s. This revival comes basically out of the heartfelt attachment of people to *adat* in general and *sasi* in particular, but also the commercial value of marine products such as *Trochus niloticus*, other shellfish and sea-cucumber for foreign markets is an important incentive to keep or reinstitutionalize *sasi*. The process is further being facilitated and reinforced by intervening NGOs, government and academic supporters who see the potential value of *sasi* as a resource management system.

The church also has the potential to play an important role in marine *sasi*. Church *sasi* derives its strength from the strong religious beliefs of rural villagers. The church is more stable than ever-changing village governments. Church *sasi*, when applied to coconuts, provides direct individual benefits to the people and so is valued. Past shifts of authority over land *sasi* from *adat* to the church helped to shore up the effectiveness of the institution when the *kewang* lost enforcement capacity. In many cases, villagers believe that the threat of sanction by God is a more powerful deterrent than the sanctions imposed by the *kewang*. As seen from the inventory (Novaczek *et al*. 2001), where *sasi* is taken over by the church, *adat sasi* as well as marine *sasi* may be lost. However, Haruku and Nolloth provide examples where introduction of church *sasi* actually strengthened the local institution. Therefore, in *sasi* systems that are being revitalized, the church can play an important supporting role.

In some Muslim villages, *sasi* has evolved away from *adat* and become more of a commercial transaction between the village government and whoever wins the auction for resource harvesting rights. Ceremonies and inherited positions have been abandoned, and religious leaders also have not developed a direct role in the institution. Nevertheless, this also appears to be a stable and resilient institution. The benefits and drawbacks of this form of *sasi* require further investigation, but the performance analysis (Novaczek *et al*. 2001) did show that this sort of arrangement leads to problems in compliance when local fishers see benefits accruing only to elites.

Where the people do not expect to benefit directly, they seem not interested in revitalization of *sasi*. A lack of transparency in distribution of benefits further hampers the process. There is a risk that in villages where *sasi* is being used as a tool to extract resource rents that *sasi* then turns into 'a government thing' controlled by local elites. This is a disincentive for fishers to follow the new *sasi* rules.

Because the constitutional rules are part of *adat*, and '*adat* is something that can not be changed' as village officials in Nolloth stated, the process of revival concerns the re-establishment and adaptation of operational rules (harvest regulations, access rules) and collective level arrangements (re-establishment of the *kewang*). *Adat* still forms the basis of *sasi*, but a redefinition of responsibilities and involvement of non-*adat* institutions, i.e. the church, the police and higher government levels, is possible. Such adaptation of the constitutional rules carries certain risks and must be advanced with care and tact.

It was clear that *sasi* flourishes where the village leader is legitimate (*kepala adat*) and where he collaborates harmoniously and honestly with *adat* leaders and the church. Ostrom (1990) mentions reciprocity and trust as important conditions for successful common property institutions. From our study we would add legitimacy as another key factor for success. Apparently, the discrepancy between the theory of formal administrative structure and the *de facto* power structure that involves traditional authorities, makes village politics susceptible to manipulation and instability. Amendment of the law on village government (No. 5, 1979) may be required to accommodate the need for legitimate *adat* authority figures in rural villages and increase stability of local government.

The 1990s appear to be a critical decade, i.e. *sasi* must adapt to modern society or it may, at the operational level, cease to function. According to Ostrom (1990) well-functioning local management systems are dependent on the enforcement and protection and legal recognition of local rights by higher levels of government. As a village organisation active in enforcement, the *kewang* is more functional than the police. However, the *kewang* has never obtained formal enforcement powers. In cases where the *kewang* is being revitalized, their mandate needs to be formalized, and the *kewang* and police need to collaborate within a legal construction under provincial law. One possible model is that of Itawaka village, where as a result of a village proclamation in 1995, the *kewang* became part of the official government. On the other hand, an arms length relationship with local government also has certain advantages. Various models need further investigation. Wherever the local institution is placed, it will still require legal recognition and support from higher government levels.

A shared notion of the relevance of the institution stimulates a common objective to maintain it, in spite of external influences and in a situation where

the temptation to abuse the system for personal benefits is strong. The extent to which external factors affect the social structure in the village depends on the feedback mechanisms, i.e. the degree to which the local institution itself can mitigate the effects of external perturbations. Holling (in Berkes and Folke 1998) speaks in this context of adaptive management. *Sasi* has already outlived repeated predictions of imminent demise (Volker 1925; Cooley 1962) and is clearly both adaptive and resilient. There is therefore hope of rebuilding the institution in the form of a modern element in co-management, in which the needs and aspirations of the various proponents (fishers, local governments, *adat* leaders, environmentalists, fisheries managers) can be successfully accommodated.

8 Fisheries Management in Central Maluku*

In 1997-98, research into the status of *sasi* in Central Maluku revealed that the management institution was under stress and facing threats that could conceivably cause its demise (see Chapter 7). As part of the work of characterizing the context of and outside influences on the local management institution, data were collected concerning the activities and attitudes of government departments having jurisdiction over various aspects of fisheries management and development. At that point in time, President Suharto was still in power and formal fisheries management was primarily the domain of a highly centralized national power structure. Since then, Suharto has been removed from power and in 1999 dramatic legislative changes were set in place that in theory devolve powers of management of coastal waters to the provinces and districts (Thorburn 2000). These current changes are described in Chapter 9 of this thesis.

8.1 Formal jurisdiction over marine waters prior to the passing of Law 22/1999

Under national law, the sea and all its resources are considered to be the property of the national government of Indonesia. In 1997-98, national fisheries and coastal management consisted of rules and regulations administered by more than 20 largely uncoordinated ministries (Nikijuluw 1996c; Kusuma-Atmadja and Purwaka 1996). The consequences of poorly organized management structures at the national level could be seen in terms of confusion, lack of information, and poor motivation at provincial and regional levels. Efforts to redress the problems included the establishment of a national, multi-ministerial body (DKN) charged with coordinating marine development and conservation policy. There was pressure towards decentralisation and the national government was encouraging provinces to back up national law by developing more detailed and locally appropriate provincial legislation. Under Act No. 24/1992 on spatial planning, regional governments had been given the mandate to zone coastal areas and to establish management plans in consultation with village level governments. In 1997, policy-makers were attempting to clarify whether the zonation of territory could be extended into the sea, giving the province powers to zone marine waters for various commercial and conservation purposes, but as of 1998, consultation with the village level on coastal zonation and planning had barely begun. Also, for most

*Based on: I. Novaczek, J. Sopacua and I.H.T Harkes (2001) Fisheries Management in Central Maluku, Indonesia. *Marine Policy*, 25: 239-249.

national laws pertinent to coastal management, comprehensive operational rules at the provincial level were lacking. Yet, Maluku province had had developed some regulations, for instance those prohibiting the mining of coral, the cutting of mangroves and the capture of dolphins.

8.2 National laws affecting artisanal and small-scale fisheries

National level laws that, if enforced, affected Maluku's artisanal fishers stem largely from two pieces of legislation: Law No. 9/1985 on Fisheries and the Agriculture Minister Decree No. 607/1976 concerning fishing zonation. Consequent to these laws, the use of destructive gear types such as explosives and poisons were prohibited. An inshore fishing zone was designated for use by small-scale and artisanal fishers, and mesh sizes of nets were regulated. All meshes had to be over 25 mm, whereas seine nets for tuna and skipjack were to exceed 60 mm. Fish habitats including coral reefs, mangroves and sea-grass beds were specifically protected under the Biological Resource Conservation Act No. 5/1990. Forty eight marine mammals, birds, crabs, shellfish and coral species were declared protected species, including some that were at that time commonly harvested in Maluku, e.g. turtles, dugong, coconut crab, top shell, giant clams and a number of other edible shellfish. A few marine protected areas were also set up, including Pombo Island in Haruku Strait in Central Maluku. However, the majority were 'paper parks' with little or no effort made to manage or protect them.

8.3 Key management issues

In spite of its huge marine territory, before 1999, Indonesia had no separate Department of Fisheries. It was a division under the Department of Agriculture. The country was divided into nine fisheries resource management areas, two of which were in Maluku province. For each area there was an annual exercise of setting the Total Allowable Catch (TAC), which was in turn linked to the standard fisheries management concept of Maximum Sustainable Yield (MSY). There was also an attempt underway to determine the MEY (Maximum Economic Yield) and MSOY (Maximum Social Yield).

Officially, the Fisheries Agency was in favour of responsible fisheries, but in reality there was tremendous pressure to increase fishery-based income and employment as rapidly as possible, especially through increasing the industrial fleet targeting pelagic fish in the deep-water Exclusive Economic Zone (EEZ), (V. Nikijuluw, *pers. comm.* 1998). The 1997 MSY estimate for the nation was 6.1 million tonnes, and government statistics suggested that catches amounted to only 40% of this potential yield. Also, according to government

FIGURE 8.1 – Fishermen mending nets

statistics, Maluku province alone had a standing stock of fish and shrimp totalling 2.74 million tonnes. MSY, calculated as 50% of the stock, was therefore estimated to be 1.37 million tonnes. Total catch in 1997 was only 24.4% of the theoretical MSY leading the national government to promote expansion of the industrial fishery.

However, the reliability of the government figures at the time can be questioned. One major problem with the national expansionist policy and with the process of setting catch limits was that calculations of potential yield were extrapolations from stock assessments conducted in the early 1980s. These old data were augmented with catch statistics that were limited in their coverage and often of unknown or suspect quality (Proceedings of the National Conference on the Role of Communities in Coastal Resource Management in Indonesia, 1996).

LIPI, the national research institution, had plans to develop and introduce a system at some future time, but as of 1998 Maluku had no coherent, comprehensive and reliable system for collecting catch data (Purnomo 1996). It was widely acknowledged that fishing boats from other provinces and countries frequently failed to land their catches in Maluku, preferring to trans-ship at sea. Thus these catches would go unrecorded. Hence, despite having, in theory, a large available fish biomass, several important commercial stocks were in fact already over-fished and declining in Maluku (Governor Latukonsina, *pers. comm.* 1998).

A second key issue was the lack of enforcement power to defend Indonesia's vast EEZ from illegal fishing by foreign and domestic boats, including live fish traders using potassium cyanide. This illegal fishing also contributed to the total of unrecorded fish catches (Fox 1996).

A third key issue was one of allocation: the need to balance industrial scale fisheries serving export markets with the need for local food security and employment for coastal communities. In the Agriculture Ministry Decree No. 607/1976 Indonesian waters were divided into zones in an attempt to reserve inshore waters for the artisanal and small-scale sectors. Under this law, vessels over 5 GT were prohibited from fishing within 3 miles of shore; vessels over 25 GT had to operate over 4 miles from shore; and vessels over 100 GT had to stay 5 miles from shore. Small boats were free to enter the offshore fishing grounds at will. However, as this law was not effectively enforced, clashes between the industrial sector and coastal communities were increasingly common (Galanggajir 1996). Those behind the drive for further expansion of industrial fleets failed to acknowledge this problem.

8.4 Agencies involved in fisheries management and development in Maluku

The regional planning board, BAPPEDA, is a coordination institution below the national planning board BAPPENAS. In 1998, BAPPEDA held a strategic position for coordinating development of various sectors in the region, including fisheries, and had offices at both provincial and district levels. The

provincial office of BAPPEDA was also the governor's office. The provincial governor held two positions: he was head of the provincial government as well as the provincial representative of the Minister of Internal Affairs. BAPPEDA had a close working relationship with the Department of Internal Affairs.

BAPPEDA had to that point largely concerned itself with the expansion of fisheries rather than with management or conservation. The department was also in charge of environmental impact assessment (EIA). However, assessments that did occur were typically very narrow, not cross-sectoral.

In Maluku, attempts to rationalize fisheries development policy led BAPPEDA to develop the concept called '*Gugus Pulau* and *Laut Pulau*'. Under this scheme the province was divided up into eight clusters of islands (the *Gugus Pulau*), with the *Laut Pulau* being the areas of open sea between these clusters. In 1998, these divisions were still only poorly defined areas on paper, and were not operational management units. One problem that provincial planners faced was that administrative boundaries of districts and sub-districts did not coincide with ecological boundaries.

Among its many tasks, BAPPEDA had to oversee fisheries development project planning. However, much of BAPPEDA's energy tended to be directed to large international development projects rather than to smaller programs for fisheries development. Once the planning of a fisheries project had been completed by BAPPEDA, implementation would be left to the Fisheries Agency, which also had economic development as its first priority. So, in practice, there was no coordinating body focused on coastal and marine resources management and protection.

The various agencies and institutions involved in the fishery resource management system in Maluku could be classified into two major groups; both groups were coordinated through BAPPEDA (Table 8.1). Group I was the group of institutions directly involved in the fishery activities and dealing with the supply of skilled human resources in the marine and maritime areas; the supply of maritime facilities such as ships, harbours, and other equipment; facilitating training; and the provision of necessary funding (according to formal regulations). Group II was a group of institutions that dealt with marine and fishery problems as a subset of their duties. In addition there was the national research institute LIPI which was to provide information to policy makers. LIPI had a regional research centre in Ambon.

Twenty-six key respondents from various governmental institutions at provincial and lower levels were interviewed to identify their roles in fisheries development and management, and the strengths and weaknesses of each agency (Table 8.2). Roles were tabulated under the following management

TABLE 8.1 – Government bodies involved in fisheries management at the provincial level (1997-98)

BAPPEDA	
Group I	Group II
Fisheries Agency (*Dinas Perikanan*)	Dept. Internal Affairs (*Dep. Dalam Negeri*)
Dept. Transport (*Dep. Perhubungan & Dirgen Perhubungan Laut*)	Dept. Forestry *(Dep. Kehutanan & Dirgen PHPA*)
Navy (*TNI Angkatan Laut*)	Environment Bureau (*Biro Lingkungan Hidup*)
Police (*Polisi Republik Indonesia*)	Law Bureau (*Biro Hukum*)

functions: 1) information gathering and provision, 2) project planning, 3) project implementation, 4) evaluation of projects (physical and legal aspects), 5) enforcement of fisheries law, 6) funding of projects, 7) routine fisheries policy implementation, and 8) issuing permits and licenses and collection of taxes and fees.

The interviews revealed that information gathering and dissemination was performed by all agencies with the exception of the police. The planning of fisheries development projects involved BAPPEDA, all levels of the Fisheries Agency, the Law Bureau, and village government heads. Depending on the type of project, provincial and district levels of the Department of Transport and the resource conservation section of the Department of Forestry could also be involved. Interestingly, the Environment Bureau did not identify this as one of their areas of activity. They only became involved during the implementation of a project, along with BAPPEDA, the Department of Forestry, the Department of Transport, the Fisheries Agency, and regional, district, and village government heads. In general, the Environment Bureau was a very weak player, not least because its area of jurisdiction relative to the environment section of BAPPEDA was unclear. Most agencies (except for the Environment Bureau and Law Bureau) had responsibility for evaluating physical and legal implications of projects, but evaluation and feedback into new project planning was also an area of extreme weakness in the system.

Formally, enforcement was a shared responsibility of the police, the navy and the Fisheries Agency. The Department of Transport played a role in enforcing licensing regulations, whereas various government offices facilitated reporting of offences or, in the case of village chiefs, applied sanctions available under local government and *sasi* rules.

Funding for fisheries development came from BAPPEDA, the Fisheries Agency and Department of Forestry, or was supported out of local government coffers. Most agencies performed routine management tasks, while licensing and collection of fees and taxes were the special purview of the Fisheries Agency and Department of Transport. The Environment Bureau, Department of Forestry and provincial and district government offices were not directly involved in day-to-day fisheries management tasks. The conclusion of these findings was that there was a clear need for communication and coordination among agencies.

Key findings from the interviews of government staff were as follows:

- There was no special institution to manage coastal and fishery resources. The management aspects were divided among a range of institutions. This caused difficulties in coordination.
- Authority seemed to be an important factor in the management process. Because of the top-down approach, determination of limits of authority had to precede any decision and often nothing was done without explicit approval from a higher level.
- Limited human resources and poor motivation very much affected all levels of the management system.
- Staff persons in every agency and at every level revealed a lack of knowledge of fisheries law and management principles.
- Limited equipment, facilities and funding hindered management and enforcement functions. Budgetary problems were most critical at the lower (sub-district) levels, which greatly hindered both enforcement and the transfer of training and information to the village level.
- Sustainability of resources and habitat were low priorities compared to expansion and development of fisheries.
- Better scientific data and greater cooperation with research institutions and universities were deemed to be essential in order to support the management system.
- Technical guidelines from the national level were inadequate. For example, national instructions to collect taxes on shellfish were not accompanied by instructions on implementing such a tax.
- Since the village could carry out many fisheries resource management functions, it meant that in theory the village held an important role in the management process. However, a legal basis for the village role, and in particular for the *adat* institution *sasi*, was not explicitly provided. Government staff persons acknowledged the strategic position of local governments as implementing agents but also tended to see village chiefs as being incompetent in resource management.
- Fisheries management issues were not of central concern to village chiefs, who had heavy workloads and were mostly concerned with economic development.

- Control by the navy was difficult because they were found only at the provincial level and tended to focus on international piracy and deep-water fisheries infringements.
- Cooperation between the navy and the police as well as with the army (*Babinsa* who may be present in villages) was not optimal.
- The enforcers (police and navy) were important players. In many cases infractions that were not dealt with properly caused other problems to arise (for instance bad relations with community leaders) which hampered management.

8.5 Implementing fisheries policy

Implementing fisheries policy included two central activities: 1) the process of establishing a plan for a development project, and 2) the process of producing a fisheries law.

8.5.1 The process of establishing a development project plan

As stated in the Governmental Decree on coordination of development planning in the regions (PP No.6/1988), BAPPEDA had to integrate all of the development planning within the region so as to minimize environmental impacts and ensure sustainability of resources. In the planning process, called P5D, BAPPEDA coordinated the macro planning, whereas technical institutions established the micro plans. A proposed project that could disadvantage a community and which offered no appropriate compensation, could be rejected by the provincial or district government.

The establishment of the Regional Development Management and Planning Orientation (P5D) started with the collection of ideas from village governments and proceeded as follows:

1 *Village level*. Various village stakeholders had the chance to suggest their ideas through the Village Development Deliberation (*Musbangdes*). These could include ideas for development of fisheries.
2 *Sub-district level*. Ideas from the village were introduced to the Permanent Work Region Unit (UDKP), which would select ideas for project development.
3 *District level*. Representatives from relevant sectoral institutions (such as the Fisheries Agency) presented their planning, including suggestions for coastal development at a Development Coordination Meeting (*Rakorbang* I).
4 *Provincial level*. At a higher level, Development Coordination Meeting (*Rakorbang* II) proposals from all of the districts and from the province were reviewed to ensure that provincial and district level projects supported one another.

5 The final work programs were reviewed by the Regional House of Representatives (DPRD) and if approved, were announced as development projects.

Because the process started at the village level it seemed a bottom-up approach. In reality this was not the case. What was finally approved after the lengthy rounds of selection and project development could be far from the original proposal. Ideas from a village could even be dropped entirely. Another problem was that only formal government structures were involved and no informal ones. At the *Musbangdes* level input from local stakeholders was coordinated by the formal village structure (LKMD) assisted by a representative from the sub-district level. Traditional leaders and *kewang* members involved in a local *sasi* institution could be invited by the village government to discuss and participate in the planning process as individuals. However, even though it was the *kewang* who specifically dealt with the village resources, they could not formally represent their position as an institution.

8.5.2 The process of producing a fisheries law

The process would start with an academic draft put forward by the appropriate technical institution – which in this case was the Fisheries Agency (at the provincial or district level). To establish the draft, the Fisheries Agency consulted with other government institutions. Again, because the traditional law enforcers (the *kewang*) were not recognized by the government there was no room for them to instigate the process or draft ideas.

Once the academic draft was completed, the Fisheries Agency would propose it to the Governor, routed through the Head of the Law Bureau (Department *Dalam Negeri*) for legal examination. In the review process the Law Bureau considered higher-level regulations related to the proposal, assessed the advantages and disadvantages, and then invited the Fisheries Agency to cooperatively present the proposal. In the next stage the Law Bureau would call for a meeting with the Regional Regulations Pre-planning Reviewing Team[1] (*Tim Pembahasan Pra Rancangan Perda*) to discuss the proposal.

After several rounds of examination, the team would decree the proposal as a Regional Regulation Plan (*Rancangan Perda*) to be sent to the regional House of Representatives (DPRD) for approval. With a Letter of Introduction from the Governor the proposal was sent to the DPRD who would then form a

1 The Team was led by the Regional Secretary (*Sekwilda*) and consisted of the following members: *Sekwilda* assistants, BAPPEDA, Social Politic Directorate, Finance Bureau, Economy Bureau, Environment Bureau, Government Bureau, Fishery Agency (*Dinas Perikanan*) and other related institutions as required.

Special Committee (*Pansus*) to process the *Rancangan Perda* further into a decreed Regional Regulation (*Perda*).[2]

8.6 Licensing

Access to particular fishing grounds was arranged through fishing licenses. Foreign and domestic industrial vessels over 30 GT deployed in Eastern Indonesia could obtain fishing licenses directly from the national government in Jakarta. Vessels of 10-30 GT were licensed by the Fisheries Agency at the provincial level. Smaller boats (under 10 GT) were dealt with at the district level.

Artisanal fishers did not need a license to fish with hand-lines, spears, traps or simple nets. Commercial operators had to obtain permits from the Department of Transport. This department regulated the placement of floating lift nets (*bagan*) and fish aggregating devices (FAD or *rumpon*) and issued permits for boats to operate out of a particular harbour. Interviews with staff in the Department of Transport revealed that in general they simply stamped forms and collected fees. There was little attempt to consciously manage or control where and how commercial boats operated.

Decree No. 51/1997 of the Minister of Agriculture defined the rules for the deployment of fish aggregating devices (referring to both FADs and lift nets). FADs within 3 nautical miles from shore were regulated by the district government; devices between 3 and 12 miles offshore were regulated by the province; and deep water FADs by the national Directorate of Fisheries.

8.7 Enforcement

Because of the immensity of the coastline, the national laws as well as provincial regulations were often effectively unenforceable. This was a major problem in Maluku with its multitude of small islands. Fish and turtle traders exploiting endangered species or using prohibited gear types could easily bribe enforcement officials or simply operate in places where the patrol boats never went.

Enforcement was officially in the hands of the navy (which operated at a provincial level) and the police. There was a special water police squad to deal with fisheries offences. In theory, the police could rely on the navy for assist-

2 If the Fisheries Agency was in urgent need of a Law, they could ask the Governor (for Level I purposes) or the District Head/Bupati (for Level II Purposes) to give out a decree/statement that could be used as a law in principal for their urgent need.

ance with infrastructure (e.g. speedboats) but in practice our interviewers were told that the agencies did not work together. Problems noted were that the boundaries of jurisdiction and responsibility were not clear to the staff in district offices; the level of awareness and concern of the police regarding fisheries issues was minimal; and infrastructure and funding were extremely limited. Any action taken was reactive, not proactive.

Another problem with the police was that they were rarely present in a fishing village to patrol or to arrest offenders. Furthermore, the police were commonly perceived by villagers to be less legitimate, less impartial and thus trustworthy than local traditional enforcement agents (*kewang*) or the village government.

8.8 Communication and collaboration between village and higher levels of management

Although there appeared to be a form of co-management, in reality the government departments and village level institutions (village government, *sasi* authorities) operated in isolation from one another. Sometimes information trickled down from the national level to the village, but there was no mechanism for feedback, so communications on fisheries issues between the national and local level were limited. National prohibitions against blast fishing and the use of poisons were reasonably well known at the village level but other regulations, including the identity of endangered and prohibited species and the boundaries of marine parks and protected areas, were virtually unheard of.

Also, when it came to fisheries issues, relationships between the village, district and provincial levels were not close. The Fisheries Agency had extension staff (three on Haruku, two on Saparua, and one on Nusa Laut) whose job it was to convey information to the village level. However, they usually acted in response to a request rather than proactively. They assisted commercial operators to renew their licenses, but in our interviews with artisanal fishers we found that they were virtually invisible to this sector. Extension staff had attempted to influence fishers to stop using destructive fishing gears but in their own estimation, this program had failed to make any difference. Instead, they felt that providing gear and motors to groups of fishermen and promoting aquaculture were the ways to effect change. Their ability to deliver such assistance was, however, very limited. The extension service was strapped for funds and found it difficult even to cover transportation costs for field visits.

According to our respondents (officials), the village government and in particular the village head (*kepala desa*) should have had a formal role in manage-

ment (Table 8.2). In many cases, however, management at the local level was hampered by a lack of means, time and motivation. In a political climate of top-down decision-making, many local leaders were reluctant to be proactive, preferring to act only when directed by a higher authority. Thus, very little was likely to happen outside of the official, centrally programmed activities. At that time, in the Suharto era, there was no approval for any non-governmental, grassroots fishers' organisation or union whose activities may have filled the vacuum.

The importance of community institutions in resource management was only acknowledged in the early eighties, when environmental awards were presented to the villages of Ihamahu (1982) and Haruku (1984) in recognition of their local *sasi* institutions. However, this was not followed up by concrete action to formalize a role for community traditional institutions in resource management.

While not entrenched in formal law, the traditional management rules of *sasi* were often allowed and encouraged to flourish because fisheries staff recognized that official means were not sufficient to control Maluku's huge marine territory. Fisheries Agency personnel had positive opinions of *sasi* as an institution and wanted to see some move towards formalizing the rights and responsibilities of local management bodies through development of a provincial law (*Perda*). They also attested that in their dealings with commercial operators, they would insist that these fishers respect local *sasi* rules and pay whatever access fees were imposed by local governments.

From a government perspective, the involvement of the *kewang* would have been an efficient and cost-effective arrangement. The *kewang* had intimate knowledge of the local area and of the character of the fishers being regulated; they provided an enforcement service to the government without cost, and lived next door to the resource that was under protection or management. In addition, many of the government staff originated from coastal villages and valued the traditional ways. However, it was also true that in the opinion of Fisheries Agency staff interviewed, the competence of the average village head, in terms of education level and experience, was very limited. This apparent degree of condescension and lack of appreciation for local knowledge no doubt hindered any effective move towards power sharing.

8.9 Conclusions

When documented in 1997-98, Indonesian fisheries management was complex, multi-agency, and top-down. Ultimate power was retained at the national level and provincial and lower levels were unable either to manage resource exploitation or to conserve resources.

The national government was faced with the difficult task of controlling a vast marine area and multitudes of islands and offshore reefs. Yet, enforcement of national fisheries regulations was lax and there were serious deficiencies in government management agencies in terms of motivation, coordination, knowledge, infrastructure and funding support. At the same time, fisheries exploitation and marketing systems encouraged over-fishing and the use of destructive gears (Novaczek *et al*. 2001). There was no provincial body that focused specifically on marine resource management and conservation and that had power to coordinate the many agencies bearing management responsibility. BAPPEDA, which could have played this role, had many other sectoral responsibilities. Besides, it was focused on development rather than management and conservation; it was weak in areas of evaluation and intersectoral coordination, and it had no presence below the district level. Also, among the other agencies, limits of power and jurisdiction were often unclear.

Even though government staff generally agreed that the role of the local community in fisheries management was essential, there were no legal provisions for them to actively participate. Legal researchers pointed out that under various national laws the village heads had responsibility to ensure that local resources were managed to provide an optimal income for the community. Yet, traditional management systems (*sasi*) were not recognized. The *kewang* and other traditional authorities long involved in enforcement and management had no legal position and were effectively isolated from regional and provincial management structures and planning. The development of fisheries policy and regulations were largely controlled from the centre and passed down to provincial, district and sub-district levels. Development schemes focused on intensification of resource exploitation, not on sustainability. Suggestions for management developed on the village level (Haruku) could hardly get through to the national level.

Over-fishing of several key stocks and drastically declining artisanal catches (Novaczek *et al*. 2001) indicate a clear need for a strong management system. Otherwise, both Maluku's potentially rich fisheries as well as the village level institutions would be strained and threatened with collapse. Since 1998, conditions at the village level have become much worse, and civil strife has literally removed whole fishing villages from central Maluku. However, at the national level, advances have been made in devolving powers over management of inshore marine waters down to the provincial and district levels (Thorburn 2000; Nikijuluw 2000). It remains to be seen whether an effective co-management regime, one that respects local tenurial rights and identifies a legal space for village level institutions, can emerge from this troubled region.

TABLE 8.2 – Government agencies involved in fisheries management in Maluku province

Results of interviews with various agencies involved in marine resource management and development in Maluku. Management functions as follows: 1) information gathering and provision; 2) project planning; 3) project implementation; 4) evaluation of projects (physical and legal aspects); 5) enforcement of fisheries law; 6) funding of projects; 7) routine fisheries policy implementation and monitoring; 8) licensing and collection of taxes and fees.

Institution	Level	Management function								Strengths	Weaknesses
		1	2	3	4	5	6	7	8		
BAPPEDA (Planning Board)	Provincial	*	*	*	*		*	*		• The only coordination body at the provincial level	• Limited capacity for cross sectoral impact assessments • Focus on large development projects
	District	*	*	*	*		*	*		• The only coordination body at the district level	• Limited capacity for cross sectoral impact assessments • Focus on large development projects
Fisheries Agency (Dept. Agriculture)	Provincial	*	*	**	**	*	*	*	*	• Human resources available	• Limits of authority not clear • Means and operational budget limited • Staff not highly skilled
	District (*Kotamadya*)	*	*	**	**	*	*	*	*	• Human resources available	• Authority unclear; not autonomous from provincial office
	District (*Kabupaten*)	*	*	**	**	*	*	*	*	• Human resources available • Autonomous (in theory)	• Authority unclear • Budget and means limited • Scientific data limited
	Sub-district	*	*	*	*				*	• Close to the field programs and projects	• Authority limited • Means limited • Budget limited • Human resources limited (quantity and quality) • Top-down system • Staff motivation poor

Institution	Level	Management function								Strengths	Weaknesses
		1	2	3	4	5	6	7	8		
Police	Province and District				*	*				• The only investigation body (KUHAP) • Human resources available	• Limits of authority unclear relative to Navy • Motivation low • Means limited • Operational budget small
	Sub-district				**	*		*		• Officers available at the village level	• Authority unclear • Motivation low • Means limited • Operational budget small • Human resources limited (quantity and quality)
Navy	Provincial	*			**	*		*		• Human resources available • Full authority (SK Pangab) • Means available • Budget available • Good reputation in the community	• Operate only at the provincial level • Patrol deep water areas, not inshore • Collaboration and coordination with police weak
Dept. of Transport (*Perhubungan Laut*)	Provincial	*	*	**	**	*		*	*	• Human resources • Operational budget available • Authority (supported by law)	• Motivation poor • Supporting means limited
	District	*	*	**	**			*	*	• Authority	• Motivation poor • Means limited • Operational budget small • Human resources weak
	Sub-district	*		*	*				*	• Close to the activities	• Authority insufficient • Money and means limited • Human resources inadequate

Institution	Level	Management function								Strengths	Weakness
		1	2	3	4	5	6	7	8		
Environment Bureau	Provincial	*		*							• Human resources inadequate • Weak laws • No role in coordination • Jurisdiction and authority unclear • Relationship with environment section of BAPPEDA confused
Dept. Forestry (Resource conservation section)	Provincial	*	*	*	*		*			• Direct authority under CITES to protect endangered species	• Budget and means limited • Motivation weak • Jurisdiction unclear • Limited to protected species and national parks; no input into fishing quotas
Law Bureau	Provincial	*	*							• Works well with Fisheries Agency and other agencies	
Regional and district government head offices	Provincial (Governor); District (*Bupati*); Sub-district (*Camat*)	*		*	*	*				• Human resources available • Motivation • Close to the activity	• Authority unclear relative to provincial offices of national departments • Budget and means limited • Extremely busy
Village government offices	Village (*Kepala desa*)	*	*	*	**	*	*	*		• Motivation • Direct access to fishers • Traditional institutions in place (partial) • Social and cultural legitimacy	• Authority unclear • Budget and means limited • Heavy workload • Top down system • Adat institutions lack legal standing

9 Current legislation and policy framework for resource management in Indonesia

The previous chapter described the legislation and policy framework in Indonesia until 1998. Right after this period Indonesia, and Central Maluku in particular, was in great turmoil and economic crisis resulting in major changes during a period of reformation, or '*reformasi*' in Indonesian language. This section will explain the process after 1998, the implications for fisheries and coastal management in Indonesia and Maluku province and future prospects.

Since the fall of President Suharto in 1998 there has been a growing demand for transparency, honesty and especially autonomy from the central government (Patlis *et al.* 2001). The central government has responded with a series of laws shifting both the political power and financial control from the central government to the regional level. The demand for transparency, honesty, and autonomy was met by the enactment of new legislation against corruption, collusion, and nepotism. The result is nothing less than what Patlis *et al.* (2001) call a revolution in governance. The changes also signal a shift in the management of natural resources with profound implications for the rights and roles of local communities (Thorburn 2002). Decentralisation, however, is still in its initial stages and brings with it a host of new worries and problems which often have roots in the previous regimes (Peluso 2002; Thorburn 2002).

9.1 Decentralisation of management authority

President Suharto's 'New Order' regime (1966-1998)[1] was characterised by heavy resource extraction for economic development and a weakening of many local traditional institutions that mediated access and use of local resources (Thorburn 2002). The post-New Order period is bringing changes to many aspects of governance, including decision-making and natural resource management.

During the brief presidencies of Suharto's successor Habibie (1998-1999), the government passed a number of reform measures committing the gov-

1 Presidents of Indonesia since 1945: Sukarno (1945-1966); Suharto (1966-1998); Baharuddin Jusuf Habibie (1998-1999); Abdurrahman Wahid (1999-2001); Megawati Sukarnoputri (2001-2004); Susilo Bambang Yudhoyono (2004-...).

ernment to a course of administrative and financial decentralisation. With the enactment of Law No. 22/1999 and Law No. 25/1999[2] regional autonomy has become a fast reality as they create the legal and financial framework for governance primarily by the districts, with assistance from both provincial and central levels of government (Patlis *et al.* 2001).[3] Marine and coastal management has been boosted by the creation of the National Maritime Council (NMC)[4] and the new Ministry of Marine Affairs and Fisheries in 1999 – the DKP.[5]

The resource management implications of this new framework of government are profound. Territorial sea up to 12 nautical miles from the coastline is under the jurisdiction of the province (art. 10.2). The district may establish jurisdiction over one third of the provincial waters or 4 nautical miles from the shoreline. Two notable exceptions are (1) the seabed underneath the sea territory that still falls under the authority of the central government and, (2) that the territorial sea does not restrict traditional fishing rights (Dahuri and Dutton 1999; Patlis *et al.* 2001; Satria and Matsuda 2004). The central government also maintains direct responsibility over the maritime areas within the Exclusive Economic Zone (EEZ).

The role of the central government is primarily one of indirect action rather than direct regulation and control. Yet, the central government retains authority to develop policy regarding natural resource management and to take administrative action against a regional government that fails to implement existing laws or regulations (Law No. 25/2000, art. 7), (Patlis *et al.* 2001). The province is responsible for: (a) exploration, exploitation, conservation and management of the sea, (b) administrative affairs, and (c) law enforcement. District and municipal governments are now empowered to set resource use and spatial planning policy, and to manage revenues and budgets. District and provincial assemblies (DPRD) must issue scores of new regulations and decrees to administer these new responsibilities (Thorburn 2002).

2 Law No. 22/1999 on regional autonomy/management authorities and its implementing Regulation No. 25/2000.
Law No. 25/1999 on financial relations between the centre and regions and its implementing Regulation No. 104/2000.

3 Government levels: Province (*Propinsi*); District (*Kabupaten*); Municipal (*Kotamadya*); Sub-district (*Kecamatan*); Village (*Desa*).

4 The National Maritime Council consists of politicians, private sector representatives, NGOs and government officials. The ministry has five directorate generals: Coastal and Small-island Affairs, Research and Technology, Enforcement and Surveillance, Capture and Culture Fisheries, and Institutional and Capacity Development. The office of the secretary general provides expertise on law and governance (Dahuri 2001).

5 DKP: Departemen Kelautan dan Perikanan.

At the same time, there is an ongoing struggle to revise the decentralisation laws of 1999 (F. & K. von Benda-Beckmann 2002). After the major problems in various parts of the country and under pressure of certain groups, Wahid (1999-2001) agreed to revise Laws No. 22 and 25 in order maintain the 'unitary state'. President Megawati Sukarnoputri was pursuing the review, including the reestablishment of the government hierarchy (Down to Earth 2001). A more powerful standpoint and continuation of the decentralisation process is expected from the newly elected president, Susilo Bambang Yudhoyono. He also has got to play a pro-active role in the reduction of tension and conflicts (Jones 2004).

9.2 Financial arrangements and division of benefits

Law No. 25/1999 recognizes two basic budgets for governance: central government and regional budgets. The regional budgets consist of original revenues, loans and equilibrium funds. Part of these funds come from natural resource use. The central government gets 20% of the revenues from natural resources (forestry, mining and fishing), while the regional governments get 80%. The central government additionally allocates 25% of its budget to the regional government. Of this general allocation, 10% goes to the provinces and 90% to the district governments. A third part comes from special allocation funds from the central government. Under the decentralised scheme, central government allocations are being greatly reduced, forcing provincial and district governments to generate a larger portion of their own revenue (Thorburn 2002).

Currently it is expected that most of the regional funding will be devoted to administrative expenditures. Additional funding is needed to provide opportunities to engage in coastal management programs. The central and provincial government would also require additional funding. Possibilities are for the Ministry of Marine Affairs and Fisheries (DKP) to dedicate a portion of its own budget to coastal management or to use specific allocation funds under the equilibrium fund (Patlis *et al.* 2001).

Article 11 (Reg. No. 104) relates to revenues from the fishery. Section 2 states that the revenues 'shall be distributed in equal sums to regencies throughout Indonesia.' This is a fundamental difference compared to other natural resources of which the revenues are distributed primarily to the region of origin. It highlights the fact that fisheries are treated as true commonly owned, i.e. national resources to be shared by all (Patlis *et al.* 2003). The good thing about this arrangement is that it removes much of the financial incentives for the districts to sell of the fishing rights, as they are already doing with concessions in the forestry sector (Patlis *et al.* 2001; Tien Wahyuni pers. comm. March 2004).

9.3 Shortcomings in the current system

As much of the income is derived from natural resource use, revenue distribution will vary enormously from region to region (Brown 1999 in Patlis *et al.* 2001). In some parts of Indonesia, up to 86% will go to pay civil service salaries (MacClellan 2001 in Patlis *et al.* 2001). Very little thus will probably go to development projects and resource conservation. Besides, the districts being largely responsible for their own budget, have a strong incentive to increase resource extraction as opposed to management. In order to supplement government coffers, district and village governments rush to convert resource capital into cash. Thorburn (2002) calls this the 'local revenue obsession' (see also Pye-Smith 2001; Resosudarmo and Dermawan 2001).

Indeed, observers are beginning to question whether decentralisation could lead to even more exploitative, inegalitarian and environmentally harmful practices (Thorburn 2002). Many provincial and district governments aspire to 'develop' their territories and have as objective to increase government revenues and stimulate employment. Large-scale operations and resource extraction do require an environmental impact assessment (EIA). In Indonesia, however, an EIA assesses not only the environmental impacts but also social benefits in terms of employment. Most projects therefore are approved while the environmental impacts that occur are mitigated later. In East Kalimantan, for example, after the coal has been extracted, the open-pit mines are filled up with water and converted into lakes (Tien Wahyuni pers. comm. March 2004).

Although a lot of progress has been made, the current legal framework is not (yet) adequate to deal with resource management. The existing legal regime governing natural resources is sectoral, meaning that they are not managed as a whole, but as individual elements. At the moment, coastal resources fall under approximately 20 different acts (Putra 2001 in Patlis *et al.* 2001). To make things worse, Indonesian law is characterised by conflicts, gaps and overlaps: they are vague and broad, there is no consistent application of the laws, and the rule of interpretation of the acts is extremely weak (Diantha 2001 in Patlis *et al.* 2001). In coastal management, these issues become even more apparent. For example, there are conflicts and overlap in definitions, particularly of terms that define protected areas (Dahuri and Dutton 1999). There are also conflicting laws with respect to enforcement which thoroughly complicates its execution as well as prosecution. But a very clear illustration form the discrepancies between the laws of Fisheries and those of Conservation of Natural Resources: Act No. 9/1985 on fisheries has an extremely broad definition of 'fish' that can be harvested, including sea turtles, marine mammals, sea cucumber and corals, while Act No. 5/1990 on resource conservation explicitly states that fish and wildlife that are threatened with extinction are protected (Patlis *et al.* 2001).

The implementation of Law No. 22/1999 on regional autonomy has led to confusion. The national government has failed to communicate the meaning and implications of the law well to lower government levels. The actual implementation of the law through detailed regulations has been delayed leaving space for various interpretations of the law, especially where it concerns 'management authority'. The case of Lombok Barat described by Satria and Matsuda (2004) shows how the district government acts on the basis of 'trial and error' because guidance from the national government for fisheries management is lacking. So far, the new policies (on licenses and resource fees) seem to work satisfactory. Also the customary local institution *awig awig* (lit. a local rule) is being revitalized to combat destructive fishing practices. Nevertheless, the authority over the marine park is still in hands of the national government that seems reluctant to hand over authority. A first step would be to move it from the Ministry of Forestry to the Ministry of Marine Affairs and Fisheries.

9.4 The role of the central government

The new role of the central government under Law No. 22/1999 is to develop guidelines and policies, rather than direct management and control. The question is if the central government can require adherence to these guidelines and policies if management authority rests with the regencies? National policy has little meaning or respect in the regions and with budgetary and financial matters being exercised at regional level, national policy is likely to be given less attention (Patlis et. al. 2001). Additionally, regional interpretations of the national policy makes consistent enforcement difficult. Therefore, to increase the effectiveness of a national coastal management program, Patlis *et al*. (2001) suggest that it should be voluntary in nature as it would be more easily accepted by the communities and it would increase the chances of actually being implemented. This has already been demonstrated in Northern Sulawesi where people adopted ordinances they themselves drafted (Patlis *et al*. 2001). The other advantage of a voluntary program would be that it allows the various levels of government to delegate different responsibilities and activities among each other based on their respective strengths and weaknesses (Patlis *et al*. 2001).

To make this work, the national government would have to provide incentives to the provincial and district level governments to adopt coastal management programs through financial and technical assistance, advice and training. At the same time, the provincial and district level governments would have to meet certain standards and criteria (Patlis *et al*. 2001). Requirements would include obligations by international treaties to which Indonesia is a party and requirements that are in the public interest.

9.5 Role of the provinces

Aside from their authority in the 4-12 mile coastal zone, provinces have authority to manage cross-jurisdictional issues involving multiple districts. They are also responsible for the evaluation and analysis of environmental impact assessments (EIA or *AMDAL*). Furthermore, the province may act in place of the district if it does not yet have the capacity to carry out their new authority or where the district, in mutual agreement, hands it back to the province. This happens through a formal process.

The provinces are the wild card in the new decentralized regime. On the one hand they have got a minimum role in the new power structure with funding nearly completely bypassing them. On the other hand, since the province is responsible for any activity that involves more than two districts (and it will be hard to find an issue in natural resource management that does not cross the jurisdiction of more than one district) they potentially have a broad area of authority. Yet, to actually enjoy that authority may prove difficult as financial resources are lacking (Patlis *et al*. 2001).

As a result, the role of the provinces will, almost as a matter of default, take on a tone of guidance rather than actual management (Kaimudin 2000). On cross-boundary issues they may have a stronger hand in shaping policies, coordinating activities and settling disputes, yet it is doubtful that it will amount to more than that. As their authority under the regional autonomy laws is ambiguous, the role of the provinces would need to be defined explicitly. Patlis *et al*. (2001) therefore suggest as the main responsibilities for the provinces to:

1 Prepare guidelines and standards to elaborate on the central government guidelines.
2 Review regency plans and package them to facilitate central government approval.
3 Serve as the liaison or middleman for technical assistance to help implement the coastal management programs at the local level.
4 In addition, the province can manage the coastal resources either in lieu of or in collaboration with the regency.

In reality, it is likely that the role of the provinces will be decided on a case-to-case basis, where strong governors may very well take advantage of the law's ambiguity and try to secure significant amounts of authority, while weaker ones will not be able to resist the general push towards district-level management (Patlis *et al*. 2001).

9.6 Role of the (sub-)district government

The district government has authority for all decision-making within their jurisdiction, unless otherwise stipulated by central government regulations or where the provincial government has authority. Within the framework established by the central government, districts should develop the necessary procedural mechanisms for coordination and collaboration and ensure that the necessary substantive requirements outlined in the national guidance are satisfied (Patlis *et al.* 2001). Unless issues of national interest are violated, districts can manage coastal resources as they see fit, independent of any national program.

Compared with central and provincial governments, the district offices are best positioned to develop coastal management programs tailored to local contexts, resource supplies, public aspirations and values. District offices are close enough to the resources and its users at the local level and yet they are still large enough to coordinate among neighbouring villages (Patlis *et al.* 2001). The district can also decide to engage in a coastal management program sponsored by the central government. Once completed and approved, the program should be carried out in collaboration with sub-district (*kecamatan*) and village (*desa*) level.

Of the 332 districts in Indonesia, 245 have a coastline.[6] It is hoped that most will engage in a voluntary coastal management program. In any event, the number could potentially become enormous, which would create a tremendous logistical challenge for the national government. Here, the provincial governments may have a potentially important role (Patlis *et al.* 2001).

9.7 Role of the local community

The government has issued a number of national laws promoting traditional communities' welfare and resource rights, including community participation in spatial and land-use planning. According to Thorburn (2002) so far, these laws have been ineffective, lacking implementation of regulations or clear delegation of authority. *Adat* law and community control seem to have been drowned out in the commotion over delegation of political authority and administrative responsibility. Nowadays, a common utterance in many parts of the archipelago to describe the excessive greedy and self-serving behaviour of those in power is 'one has forgotten *adat*'. Thorburn (2002) further states: 'The silence surrounding the topic of *adat* during this critical period is all the

6 The number was 360 according to Thorburn (2002), but with the introduction of the new laws of 1999 which channel funds and resource revenues to the districts the number has gone up to more than 400 (Schulte Nordholt 2003).

more surprising given the role that *adat* plays in defining Indonesian state and nationhood [...] along with the identification of *adat* with social justice and wise resource stewardship [...].'

The lack of recognition of customary institutions and *adat* and the marginalisation of the local communities is tackled in decentralisation Law No. 22, 1999. The law grants villages so-called 'natural autonomy' and village heads are no longer civil servants. The LKMD whose primary purpose was to carry out the state mandated developments programs has been replaced by a Village Representative Board (BPD). According to the new law (Section 11, Art. 104) the function of the BPD is 'to protect local customs and traditions, make village regulations, gather and channel community aspirations, and supervise organisation of village governance.' Articles 110 and 111 stress that the district level (*kabupaten*) must involve the village government and BPD in planning and that they must acknowledge and respect village rights, customs and traditions (Thorburn 2002).

In many villages this law is leading to radical transformations of the political landscape. A positive example is Gorontalo (Sulawesi) where a fishing community has succeeded in regaining control over their traditional fishing grounds (Down to Earth 2001). In other areas, however, the process has been hijacked by the entrenched political elite. Nonetheless, the concept of autonomous village governments signals a major shift in state-village relationships in Indonesia. Particularly in areas where *adat* practices 'managed to survive three decades of force-fed development programs' the potential for developing or reviving local resource management regimes is greater now than ever (Thorburn 2002). Probably the greatest hope to conserve Indonesia's dwindling natural resource lies in individual communities' success in resuscitating and adapting customary resource management practices.

9.8 Conclusions

Law No. 22/1999 intends to enhance democracy, community participation, equitable distribution and justice while taking into account the regions' potential and diversity. In reality, however, the process is characterized by powerful centralized agencies trying to retain power and budgets, while most regional governments lack the skilled personnel or management structures to assume the new responsibilities (Thorburn 2002). Indonesia's continuing economic crisis further complicates the process.

A shortcoming in the new financial decentralisation scheme is the freedom of the regional governments to use natural resource revenues for any purpose whatsoever (Patlis *et al.* 2001). A short-sighted regional government will extract natural resources to the point that they are depleted or over-exploited,

thus destroying its future revenue stream and depriving future generations of meeting basic needs through these resources. A new requirement in the law should be that regional governments use a specific percentage of their revenues for resource conservation and management.

The establishment of the Ministry of Marine Affairs and Fisheries and the National Maritime Council are the first steps in the development towards setting up new structures (Patlis *et al.* 2001; Sinaga 2002). The new legislation encourages horizontal and vertical integration among government agencies. To further enable lower levels of government to function, authority of district and provincial governments needs to be clearly demarcated. District governments also require the provision of technical guidelines on resource management and transboundary issues in fisheries (Satria and Matsuda 2004).

To make decentralisation more effective, it is necessary to operationalise Law No. 22/1999 further and to legitimize and empower local institutions. Having lived in a centrally organized state for decades, many local communities and governments still expect the national government to manage resources. New legislation is being developed to facilitate the flow of technical assistance and resources to the communities in order to require the skills for resource management independent of the central government (Dahuri 2001).

To coordinate existing laws and resolve legal discrepancies, Patlis *et al.* (2001) identify the need for a new umbrella law in a nationwide coastal management program. This could also support the growing number of community-based natural resource management projects in Indonesia and provide formal guidance to regional governments and communities on the new approach in managing resources. While regional differences must be accommodated, basic principles relevant for coastal management in all regions can (and should be) be applied, including an ongoing adaptive process for resource management specifically addressing coordination and integration of different activities and groups (Cicin-Sain and Knecht 1998).

Another key for effective coastal resource management is the development of a procedural mechanism for coordinating management and ensuring appropriate budgetary decisions, such as an interagency council (Patlis *et al.* 2001). Successful implementation of a national coastal resource management program must also involve an interdepartmental coordinating body with a dispute resolution mechanism.[7] This will support the process of decentralisation as it enlarges accountability and transparency and supports more democratic principles (Agrawal and Ribot 1999).

7 Inter-departmental coordination on marine conservation and resources management is one of the obstacles to the implementation of the new legal framework (Dutton, draft).

10 Decentralisation and Coastal Resource Management in the Philippines and Indonesia*

In response to a call for better management of natural resources, there is a widespread move towards decentralisation of management authority to regional and local communities. Decentralisation is the way forward, but also has its setbacks. Current experiences in Indonesia show massive exploitation (especially in forestry) now that resources fall under district governments (Sudana 2004). In other countries, such as the Philippines, decentralisation has lead to more positive results (Sajise 1995). A discussion about decentralisation is relevant because there is already a tendency to turn away from it due negative experiences. This would be very unfortunate as, despite the current setbacks, decentralisation presents the highest hope for establishing the conditions for sustainable resource use and a more equitable and efficient social political system in the long-term. This chapter describes the process of decentralisation in Indonesia and the Philippines in relation to coastal and fishery resources. It reviews the process and explains how failure can be avoided or at least halted. It further describes the forms of decentralisation in both countries and its rationale. Through comparing the process within the two different contexts, we hope to distil some key factors that make decentralisation successful.

10.1 Introduction

Scientists today urge the governments of Southeast Asia to better conserve and manage their coral reefs. Throughout the region, coastal resources and coral reefs in particular are heavily degraded; an estimated 88% of the reefs are severely threatened (Burke *et al.* 1998; Burke *et al.* 2002; Amor 2002a; Clifton 2003). Most threatened are the Philippine reefs, which rank the second largest in the region and where as much as 98% is at risk (Amor 2002b). Indonesia with its 81.000 km long coastline accounts for 51% percent of the coral reefs in the whole of Southeast Asia. They support one of the largest marine fisheries in the world, generating 3.6 million tons in 1997 alone (Amor 2002c). Yet, even though Indonesia's coral reefs are among the most biologically rich in the world and contain the greatest diversity of reef fish, 86% is in a critical state.

*I.H.T. Harkes, Robert S. Pomeroy and Gerard A. Persoon (in prep.) Decentralisation and Coastal Resource Management in the Philippines and Indonesia.

World wide, among the major marine fish stocks or groups of stocks for which information is available, an estimated 26% are underexploited or moderately exploited, about 48% of stocks are fully exploited and another 16% are overexploited. The remaining 10% of stocks have been depleted or are recovering from depletion (FAO 2001). Approximately 70% of the world production of food fish is now caught or produced in developing countries (ICLARM 1999) and the increasing international trade in fishery products is raising questions about the supply of food fish for poorer people in developing countries.

In countries such as Indonesia and the Philippines, close to 50% of people's animal protein intake comes from fish consumption (FAO 2003). For many poor communities aquatic resources represent a crucial rural safety net that not only bolsters household food security, but gives families a way to earn extra cash selling on the local markets (FAO 2003). Degradation of natural resources, reduced access to markets and lack of political power to reverse these processes thus pose a severe threat to people's livelihoods (Wrong 1997).

Causes of environmental degradation are sought primarily in human activities such as over-exploitation, destructive fishing, and sedimentation and pollution from land-based sources (Amor 2002a). Increasing competition and conflicts over scarce resources further stress fisheries management systems. Over the years, centralized management systems have largely focused on fish production, while they failed to address local issues and resource management. By its nature, centralized management provided the conditions under which fishers maximized their efforts. Only where property rights are established and where fishers have the responsibility over their resources incentives are created to sustainably use resources (Charles 2001; see also Chapter 11). In response to the decrease in global fish production and a call for better management, there is a widespread move towards decentralisation of management authority to regional and local communities (Pomeroy 2001).

A discussion about decentralisation, power and potential for local management is both interesting and relevant because despite some important steps forward, there are negative developments at the local level that hamper the process. In Indonesia some places show massive exploitation now that resources are 'managed' by local authorities. This is especially the case in forestry in East Kalimantan where logging is rampant now that natural resources fall under the district government (Sudana 2004). Because of these negative experiences there is already a tendency to turn away from decentralisation (von Benda-Beckmann and von Benda-Beckmann 2002, Ribot 2002). This would be very unfortunate as despite the current setbacks, decentralisation presents the opportunities for local people and those working at lower government levels to gain the authority and therewith the incentives, institutional structure, legal and judicial powers and political will, to manage local resources. It is also a way to refine the role of the national government, both

in addressing global issues and in playing a supportive and enabling role with regard to local processes. Therefore it is important to not obscure the important changes that *are* being made towards the establishment and conditions for sustainable resource use and a more equitable and efficient social political system in the long-term.

This chapter describes the process of decentralisation in Indonesia and the Philippines in relation to coastal and fishery resources. The process is reviewed to see what is happening and how failure in terms of corruption, a non-democratic structure, rampant exploitation of resources, and the formation of elites may be avoided or at least halted. It describes the forms of decentralisation in both countries and its rationale. Decentralisation will be assessed in terms of level of authority transferred, type of power passed on, responsibilities of local actors, and the accountability structure (cf Wrong 1997). Through comparing the process within the two different contexts, we hope to distil some key factors that make decentralisation successful.

10.2 Objective and rationale of decentralisation

Since the early 1980s, decentralisation has emerged as a valued political and economic goal in many developing countries (Agrawal and Ribot 1999; Casson 2001). Decentralisation refers to the systematic and rational dispersal of power, authority and responsibility from the central government to lower or local level institutions (Pomeroy and Berkes 1997). It involves the authority to make decisions over natural resources and control over resource benefits. One of the primary arguments for decentralisation is that since local conditions vary, management approaches are required that are more closely tailored to the environmental, socio-economic, and political conditions at the local level (Lowry 2002). In co-management, which requires a clear commitment on the part of the government to the sharing of authority with local users and lower government levels, decentralisation is critical.

Agrawal and Ribot (1999, 475) write:

> 'Most justifications of decentralisation are built around the assumption that greater participation in public decision-making is a positive good in itself or that it can improve efficiency, equity, development and resource management [...].'

The assumption is that when people at the local community and local government level gain the authority – and therewith the institutional structure, legal and judicial powers to manage their resources – they will have an incentive and greater political will to manage resources in a more sustainable way. The deployment of power and resources to the community will enhance com-

munity and economic development (Pomeroy 2001). Another assumption of decentralisation is that greater participation and efficiency through more involvement of people at the lower political levels and in the decision-making processes and procedures that affect them, will ultimately lead to local autonomy and wider political participation. In this way, decentralisation gives force to democratic ideals such as greater transparency and a fairer distribution of political and economic power, i.e. equity (Pomeroy and Berkes 1997; Agrawal and Ribot 1999; Pomeroy 2001; von Benda-Beckmann and von Benda-Beckmann 2002; Ribot 2004).

In order to achieve these objectives, decentralisation requires the devolution of *real* powers, including those over the disposition of productive resources (Agrawal and Ribot 1999). Thus far, however, most decentralisation efforts seem to end up *without* increasing the powers of local communities or authorities. In many cases, people lack the authority to make decisions locally and profitable resources are still controlled by the government. Benefits are retained by the state or captured by local or outsider elites and income distribution is often uneven (Casson 2001). As a consequence, after initial enthusiasm and support for decentralisation, local communities become disillusioned and discouraged (Shakleton *et al.* 2002).

The reasons why powers are often not transferred or decentralisation is incomplete are various. First of all, there is the unwillingness of politicians to allow greater democratisation of the political system. They may be reluctant to relinquish their authority (or part of it) in order to protect their power and position. Some policy choices that have been made may actually not even constitute decentralisation (Agrawal and Ribot 1999). Secondly, there is doubt, also sometimes within the environmental agencies, about whether resource users can be trusted or are capable to manage their resources. Sometimes there *is* a lack of skills or appropriate institutions to which powers can be successfully devolved (Berkes 1989, Lowry 2002; Ribot 2004). But often, people are simply marginalised, especially where it concerns ethnic groups. Where on the one hand in Indonesia ethnic diversity is valued, on the other ethnic groups are perceived as a threat to the unity of the state. Ethnicity is therefore often turned into folklore and not into the empowerment of people (Schefold 1998; Eindhoven 2005).

Fortunately, the relevance of fishers' knowledge and the importance of their participation in management of resources is more and more acknowledged (Salim 1995). In countries such as the Philippines, decentralisation has lead to positive results and sustainable resource use (White *et al.* 1994; Sajise 1995; Katon *et al.* 1998; Katon *et al.* 1999; White *et al.* 2002; Pasicolan 2003). These cases prove that local people are willing and able to manage resources, provided property rights are in place and benefits accrue to them. This strengthens the arguments for decentralisation as an alternative to failing

government management. Especially in those places where there is a history of collective self-management, of which there are various examples in Indonesia, traditions can be effectively revived and strengthened for contemporary management (Hviding 1991, 1996; Ruddle *et al.* 1992; Novaczek *et al.* 2001; Lowry 2002, and this thesis).

10.3 Shifting power

World wide an increasing number of post-colonial states are moving from conditions of basic inequalities and centralised government systems towards more political freedom, equity and democracy (F. and K. von Benda-Beckman 2002). Positive developments fuel the high expectations that are connected with decentralisation and democracy, especially in the context of resource management. Empowered, representative authorities are seen as the hope for the future. The process to achieve this is, however, not without obstacles as is illustrated by a number of authors (Casson 2001; van Klinken 2002; Peluso 2002; Agrawal and Ribot 1999; Knight and Lowry 2003; Ribot 2004).

'Presently, insufficient and inappropriate powers turn most decentralisation reforms into charades' writes Ribot (2004). Local decision-makers rarely receive meaningful discretionary powers.[1] Responsibilities are usually accompanied by excessive oversight and most powers can easily be taken back. These insecure transfers are a formula for manipulation from above (McCarthy 2004; Ribot 2004). On the other hand, in cases where power is actually transferred, it creates new issues and challenges. If power over important resources changes hands, it sometimes falls under the authority of people who are not committed to the basic values and goals envisaged in decentralisation, leaving room for abuse. The stakes are high and so are the interests. Changes in authority pose a threat to the position of urban elites, those with commercial interests, and government administrators (Hadiz 2004). The shifts in power also undermine entrenched patronage relations previously enjoyed by the highest-level central officials, local merchants and local bureaucrats. What happens is that even in cases where significant devolution of authority was intended, local politics and power relations intervened to prevent this and obstruct more democratic control (Shakleton *et al.* 2002).

10.4 The formation of local elites

At many sites, problems occur because of local elites seizing control (Shackleton *et al*, 2002). It is, however, not right to simply associate the formation of new elites with the process of decentralisation or expect these elites to *not*

1 For more on power, see Lukes (1986).

exist or to *not* capture control. Experiences from countries like India, which has faced similar transitions, teach us that so-called identity politics can simply be viewed as an added level of complexity (van Klinken 2002). Elites have always played a role in hierarchical systems, either as essential parts of it or as parasites, depending on which view one takes. In Indonesia, the 'power-elite' just has taken a rather extreme form. If we look at history, we can learn that modernisation and democratisation are processes that were certainly not promoted by those who controlled power, but by enlightened middle class elites (van Klinken 2002).

The 'new' elites that currently play a role in Indonesia are local elites who do not necessarily aspire national leadership, but who want power at the level of the province. In order to achieve this they have to maintain relations upwards with representatives in the capital, as well as downwards with their chosen constituencies (van Klinken 2002). What is new about these elites is that they build on pre-colonial structures and claim to represent local chiefs, traditional authorities, and landlords thereby mobilising parts of the population that were not involved before. The role these local elites play can be extreme and varies from excessive resource extraction and abuse in some places to the channelling of funds to their constituents.

The process towards democratisation in Indonesia thus takes very different forms. Van Klinken (2002) suggests looking at the process of democratisation as arenas of domination and resistance. He illustrates this by comparing Central Kalimantan, where elites caused serious mayhem without Jakarta being able to intervene, to the situation in East Kalimantan where elites got enough funds from the central government to multiply district budgets. From the above it is apparent that within a country or even within a province, there are separate power arenas. Between countries the variability thus will be even larger. It is therefore important to deconstruct the process and look at these different arenas, including the political context and opportunity structure of the different political actors (van Klinken 2002). It is also clear that viable institutions are required to restrain elites in achieving their anti-democratic goals.

10.5 Getting the institutions right

Case studies from around the world indicate that the institutional arrangements necessary to bring about decentralisation are rarely established (Ribot 2004). In order to counter the power of local elites, the best candidates to receive decentralised powers are democratically elected institutions. Elections give people the opportunity to judge the performance of an institution, and if elected officials cannot justify their decisions they can be voted out of office (Dupar and Badenoch 2002). However, elections alone are not sufficient to

ensure adequate representation of local people's interests. Sometimes, candidates are selected by political parties and thus represent the interests of these parties rather than those of the local people (Agrawal and Ribot 1999). To make the councils democratic requires admitting independent candidates in local elections.

While 'getting the institutions right' probably leads to better outcomes, there are two major obstructions. The first are the groups that fear losing power and thus pose strong resistance to adequate policy making and implementation – the process we described earlier. The second is that sometimes the institutions chosen to counter the negative effects of decentralisation are inappropriate. Institutions imposed from outside, for example, even if they include democratically elected authorities and restructured political processes, may have no grounding in the local culture and lack legitimacy (Ribot 2004). It is therefore important to identify the groups of actors, to assess the power arena, and to define which local institutions are in place that actually can play a role in the decentralisation process.

Democratic participation needs to include customary authorities. However, a number of scientists have expressed apprehension about working with those institutions. Ribot (2004) writes 'When governments, donors, and NGOs arrange public inclusion through customary authorities, they subjugate local people to these authorities and their forms of belonging which are often highly unequal and usually severely gender biased.' Also Schulte Nordholt (2003) stresses the fact that many traditional systems are based on exclusion since only people of certain origins, ethnicities, lineages or religious identities are allowed to partake in the political process. In their view the legitimisation of these authorities thus undermines the formation of democratic institutions.

It is important to be aware that, in our search for democratic principles like representation and equity, we often condemn structures that are locally accepted, have a high level of legitimacy, and are functional within the political and cultural context (Shackleton *et al.* 2002). What Ribot overlooks in his analysis, for example, is the high degree of legitimacy that these traditional authorities and structures often have – legitimacy which is based on and embedded in the local culture, including the position of women. It is true that transparency and participation are not per definition characteristics of traditional decision-making processes, but again this does not necessarily have to be a problem as it can be a legitimate and accepted situation (see Chapter 6). Besides, in-depth studies in feminist anthropology show that where women are not represented directly in the public sphere, they often have indirect ways of exerting power, through informal structures (Moore 1988). Likewise, the strongly hierarchical process of decision-making in Maluku, for example,

may not be highly equitable, but it definitely makes these institutions highly effective (Novaczek *et al.* 2001).

Where efforts are made to establish (co-)management structures that hold the principles of participation and equity high, the absence of structures that allow for greater participation can become an obstruction. Yet, mistakes can also be made where governments choose to hand over power to new institutions which base inclusion on participatory processes or membership in certain organisations, such as fishing committees or fishermen's associations. Not only do these organisations pose problems on the longer term as they cannot be easily scaled up or sustained, they often lack local legitimacy. As a result these interventions are usually short-lived.

Other means that ensure that the dealings of institutions will be transparent and responsive to the public interest also need to be considered carefully before being implemented (World Bank 1999, 2001 in WRI 2003). Open elections, for example, are considered as a mechanism to ensure accountability. However, if the structures to prevent this are not in place, elections can be stage-managed (Crook and Sverrisson 2001 in WRI 2003, see also Novaczek *et al.* 2001). In order to enhance transparency and responsiveness it is important to stimulate open forums and deliberations and to have open media coverage of events. Local government performance needs to be monitored and evaluated, people need to have access to legal resources, and financial records need to be auditable (World Bank 2003 in WRI 2003). Local people should be able to challenge the rules and decisions, as well as the way they are implemented and enforced by those who hold the power (Agrawal and Ribot 1999).

10.6 Approach

Between the theory of decentralisation and its practical execution exists an immense gap. A number of case studies illustrate the process of decentralisation in various countries (Torell *et al.* 2002; Tulungen 2003; Delgado and Barriga 2003; Balgos and Ricci 2003; Wyckoff-Baird 2003). Most authors, however, do not use a structured approach to study the extent and effects of decentralisation while a cross-continent comparison would be very interesting. An interesting framework is presented by Ribot and Agrawal (1999) in their study of decentralisation in Senegal, Mali, India and Nepal. It forms an interesting basis to study the process and make comparisons. In this article, we apply the factors that Agrawal and Ribot present as well as a few others that we find relevant to the process of decentralisation in Indonesia and the Philippines. The purpose is to make structured comparisons and improve our understanding of the mechanisms at play in the process of decentralisation.

Pomeroy and Berkes (1997) distinguish various types and forms of decentralisation that coincide with categories used by various scientists working on this issue:

- *Deconcentration*: The transfer of authority and responsibility from the national government department and agencies to the regional and local offices. This is referred to as administrative decentralisation. It usually concerns a sectoral approach with upward accountability
- *Delegation:* The passing of some authority and decision-making powers to local officials, but where the central government retains the right to overturn local decisions and can, at any time, take these powers back. Accountability here is both upwards and downwards.
- *Devolution*: The transfer of power and responsibility for the performance of specific functions without reference back to central government. The nature of transfer is political (by legislation) and the approach is geographical. Those in power are accountable to the population in their jurisdiction.
- *Privatisation:* The transfer of responsibility for certain governmental functions to non-governmental organisations, voluntary organisations, community associations and private enterprises. Here accountability is downwards too.

Decentralisation thus does not necessarily imply total devolvement of all authority to local and lower government levels. Authority granted may ebb and flow over time as it is transferred to lower levels and recaptured by higher government levels. And, in reality, decentralisation often proceeds in a sequence from deconcentration to administrative delegation, then to political devolution and finally, to popular privatisation (Helmsing 1991 in Pomeroy and Berkes 1997). In a way, decentralisation can thus be seen as a continuum.

Accountability is a second important issue. For decentralisation to be equitable and efficient there must be a clear line of accountability from decision-makers to the local population (Ribot 2004). Only when empowered local actors are downwardly accountable will the presumed benefits become available to local populations (Agrawal and Ribot 1999). Perceived benefits as well as initial benefits are important in enhancing involvement of the local population and participation (Pollnac and Pomeroy 2005; this thesis). Therefore accountability is an essential element in evaluating the effectiveness of decentralisation.

A third aspect to take into account are the actors, defined as those who exercise powers over public resources. This can be traditional leaders, the local government, NGOs, donors, the private sector, or people's organisations. Actors may be differentiated from each other by their beliefs and objectives,

the internal structure of their organisation, and the laws to which they are subject (Agrawal and Ribot 1999; Shakleton *et al.* 2002). Each actor is positioned in particular relations of accountability depending on the historical, socio-economic and political constitutions of the powers of each actor. As each actor is positioned at a different level of social action and is part of a playing field including within-community interests and power relations, it is relevant to describe the so-called actors' field.

Power is a fourth important aspect to analyse as the transfer of power is one of the principles that makes decentralisation effective. In understanding decentralisation, four powers of decision-making are crucial (Agrawal and Ribot 1999):

1 The power to create rules or modify old ones (legislative).
2 The power to make decisions about how a particular resource or opportunity is to be used (executive).
3 The power to implement and ensure compliance to the rules (executive).
4 The power to adjudicate disputes that arise in an effort to create rules and ensure compliance (judicial).

The four case studies on forestry of Agrawal and Ribot (1999) show that rarely all types of power are decentralised to the local level. In forestry, decentralisation to the local actors included only the transfer of authority over forest products that are important for subsistence, while the Forest Departments retained significant control over the commercial benefits from the sale of timber. In Mali, for example, it is through its influence over forest management plans and the quota fixing process the Forest Service can set *how much*, *where*, *when*, *how*, and *with which management obligations* exploitation will take place. In other words, operational rules are delegated to the local level, while decisions on the collective-choice level remain in the hands of the government.

Also, the powers to enforce are transferred to administrative branches of the state rather than to representative local governments at the same level. Yet, without the transfer of powers to enforce them, the devolution of authority to make decisions and rules is virtually meaningless (Agrawal and Ribot 1999). Whether such a transfer of power still leads to effective decentralisation depends on the nature of accountability relations, as well as on the mix of powers a certain actor holds, and horizontal relations among actors at the same level.

The last important dimension of decentralisation is accountability. Downward accountability broadens participation and enhances the responsiveness of empowered actors. Agrawal and Ribot (1999) suggest that if powers are decentralised to actors who are not accountable to their constituents, or who

are accountable only to themselves or to superior authorities within the structure of the government, then decentralisation is not likely to accomplish its stated aims. It is only when constituents come to exercise accountability as a countervailing power, that decentralisation is likely to be effective.

Vertical and horizontal ties among branches of government can shape the relation of accountability between local government actors and their constituencies (Agrawal and Ribot 1999). Similarly, relations between customary authorities and their administrative superiors can shape their downward accountability. Actors can be held downwardly accountable to local constituencies by, for example, electoral processes. However, often elections are not sufficient. Other mechanisms to increase downward accountability are hearings, procedures for recall, referenda, advisory groups, third party monitoring, controllers, auditing, and the creation of opportunities for community consultation (Crawford *et al.* 2003). Aside from these formal mechanisms, local officials are often in other ways accountable to friends, colleagues, kin and local citizens (Lowry 2002).

It is all these aspects that we will include in our analysis of decentralisation in fisheries and coastal management in the two countries.

10.7 Decentralisation in coastal management

The process of decentralisation in the context of coastal and fisheries management involves the restructuring of national laws, national fisheries agencies and bureaucracies. New laws and policies need to include specific reference to the security of local level tenure and property rights over coastal resources. It is important that these new or revised laws are compatible and consistent with the existing laws and policies in other sectors as well as with the overall administration. Also national agencies and bureaucracies need to adapt in order to take on the new responsibilities and functions (Pomeroy and Berkes 1997). The decision on what fisheries management functions should be handled at which level, could be taken jointly by local representatives and fisheries agencies. The government may further provide a forum or formal administrative structure for the various parties to interact. It has an important role in overseeing local arrangements and in dealing with abuse, conflict management and appeals. Finally, the government can provide assistance and services to support local organisations and institutional arrangements. Depending on the capabilities of local-level organisations and their increasing experience, the handing over of responsibilities and functions could be phased (Pomeroy and Berkes 1997). The most common approach currently promoted in decentralisation is adaptive management, or 'learning-by-doing' including flexibility and feedback loops.

10.8 Regional case studies of decentralisation

There is no 'best' form of decentralisation. Decentralisation can occur as a broad administrative mandate in which fisheries are included, as in the case of the Philippines, or it may occur for specific management functions. The form of decentralisation depends on country specific conditions such as the socio-cultural context, the economic situation, and the political history of a country, especially in the case of post-colonial states (Pomeroy and Berkes 1997; Pomeroy 2001). It also depends on the history that people have in relations with the state and with conservation agencies (Wyckoff-Baird 2003). But mostly of all it depends on the qualities, aspirations, visions, possibilities and incentives of those who are involved or those who will be.

10.8.1 The Philippines

In the Philippines, the process of decentralisation came about as a reaction to governance problems (Pomeroy and Berkes 1997). In 1991, the Philippine government enacted the Local Government Code (LGC) which granted local governments (municipalities) a number of powers, including the management of nearshore waters – defined as all waters within 15 kilometres from the coastline. Another important operative principle is a provision that Local Government Units (LGUs) may group themselves and coordinate their efforts, services and resources for purposes commonly beneficial to them (DENR 2001). LGUs also have the power to create sources of revenue and they have the exclusive authority to grant fishery privileges in municipal waters and levy taxes, fees and charges. The objective is to enable LGUs to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national development and social progress (DENR 2001).

The Philippine form of decentralisation thus is devolution. The LGUs and local communities have certain privileges and preferential rights. LGUs may enter into joint ventures and other cooperative arrangements with People's Organisations (POs) and NGOs to engage in the delivery of certain basic services, capability building and livelihood projects, and to develop local enterprises designed to, among others, diversify fisheries (Section 35), (DENR 2001).

The second legislative measure was the passage of the Fisheries Code of 1998 which incorporated Integrated Coastal Management (ICM) as one of its policy approaches. It reinforced the active participation of local fisherfolk and coastal communities through the establishment of municipal Fisheries and Aquatic Resources Management Councils (FARMCs), (DENR 2001). The codification of this law facilitates enforcement, local legislation, and project implementation. New provisions include prohibitions against destructive fishing. Under this law, enforcement is assigned to LGUs who can ask

BFAR[2] for assistance in the training of a local taskforce or *Bantay Dagat*. The municipal government has the right to enact ordinances in accordance with the National Fisheries Policy. They are further authorised to prohibit or limit fishing and establish reserves and sanctuaries.[3] The law further provides for coordination and consultation with adjoining municipalities for the management of larger resource systems.

Other important acts are the National Integrated and Protected Area System (NIPAS) act of 1992, which allows the government to identify and segregate defined areas of land and/or waters and classify them as protected areas for various purposes (e.g. National Parks, Wildlife Reserves). And the Agriculture and Fisheries Modernisation Act (AFMA) of 1997, which provides an overall framework for industrialisation of agriculture in the country, including fisheries. Under international treaties, such as CITES, local governments are required to prevent the collection and trade of species listed.

This legal framework has opened up opportunities for community-based fisheries management which has proven successful in terms of resource rehabilitation as well as empowerment of local people (White *et al.* 2002).[4] Currently, the Philippines are experiencing a rapid expansion of coastal initiatives at local and national scales (Yambao *et al.* 2001; Balgos and Ricci 2002). Ahead of most countries, conditions in the Philippines are now favourable for the wider application of Integrated Coastal Management (ICM). The Integrated Coastal Management Sustainability Research Project (2001-2002) supported ICM activities through research, project assistance and capacity development. The Coastal Resource Management Project (CRMP) which lasted from 1996-2004 provided technical assistance and training to coastal communities, local government units, non-governmental organisations, and national government agencies to promote improved management of coastal resource in the Philippines. However, many local governments endowed with the authority to manage coastal resources, are lacking financial and technical resources to effectively carry out this mandate. Therefore, municipalities are looking up to higher government levels for assistance.

2 Bureau of Fisheries and Aquatic Resources.

3 In the granting of fishery privileges in municipal waters, priority is given to resident fisherfolk and/or their cooperatives and organizations.

4 The first-ever marine sanctuary in the Philippines was established in 1974 on Sumilon Island (Cebu). This case has served as an example for other reserves such as Apo Island (Negros) which was established in 1985, Balicasag and Pamilacan Islands (Bohol), Mabini (Batangas) and San Salvador Island (Zambales), (White 1988; Parras 2001; White et al. 2002; Walmsley and White 2003). These initiatives are often cited and serve as international examples.

FIGURE 10.1 – Map of the Philippines (map: Micheal Waber)

Based on experiences in Negros Oriental province, recently three provincial-level coastal management pilot projects were initiated (Balgos and Ricci 2002). For each of these projects, ICM working groups were established which, on the longer term, will become permanent units within the offices of environment and management. They are funded through annual allocations from the National Economic Development Fund. The main functions of these units are: 1) formulation of provincial plans (in collaboration with municipalities), 2) developing an coordinating mechanism on province level, 3) extend technical skills in planning, implementation and enforcement, 4) facilitate the expansion of ICM, 5) conduct environmental education and

training, and 6) assist municipalities in monitoring and evaluation of ICM plans and programs (Balgos and Ricci 2002). The successes thus far point to a paradigm shift wherein provinces play a greater 'facilitation-coordination-replication' role in ICM.

The following sections present two case studies to illustrate how Coastal Management under a decentralised scheme can actually work out in practice.

Murcielagos bay (based on PIPULI 2002, Panorel 2004)
Murcielagos Bay lies on the northern coast of Mindanao and contains productive mangroves, seagrass beds and coral reef systems. Migrant settlers from the Visayas occupied the area of which the Subanen were the original inhabitants. Nowadays approximately 3400 households reside in the area of which 40% are directly dependent on fishing (PIPULI 2002). Over the past years, fish catches declined drastically from 11 kg in 1985 to 1 kg in 2000. Illegal fishing was rampant and of the 27 types of fishing gear used in 2001, 12 were considered destructive. Fish corrals and fine meshed nets result in growth overfishing. With the introduction of compressor diving, big fish have become very vulnerable. The harvest from these gears was double to that of the non-destructive gears.

As Murcielagos Bay crosses various political boundaries within two different provinces and two different regions, attempts at joint development in the efforts did not progress due to poor coordination and low priorities on coastal protection. As in other parts of the Philippines, communities were regarded as subjects of national and local governments and as such did not participate in the formulation of laws and development programmes. The majority of the community were not politically aware and during elections would simply sell their vote to the highest bidder (PIPULI 2002).

However, in the late 1990s, the communities at Murcielagos Bay became involved in a community-based coastal resource management (CBCRM) program. As they were fragmented, most activities were geared towards community organising, capacity building, networking and advocacy. PIPULI, a Philippine NGO, was the catalyst in establishing stakeholder cooperation. The main stakeholders were the poor fishers in the 24 coastal *barangays* (villages), the local government and other government agencies, a number of NGOs, and church based organisations. The process was also supported by academic institutions and international organisations such as the International Marinelife Alliance (IMA). As the fishers were very keen on seeking solutions for their concerns, organising the fishers proved an effective strategy. The initiative was institutionalised at the level of the *barangay*, the municipality, and Murcielagos-wide through the establishment of Resource Management Organisations (RMOs). In the mean time networking and advocacy was a strategy in building a broader support base for pursuing the necessary policy

changes. The parallel activities led to the establishment of the Murcielagos Bay Multi-Stakeholder Management Body which ensured active participation of all resource users.

The first Stakeholders Conference was held in November 2000 and led to agreement on approach, cooperation, goals and strategies. A series of meetings led to the forging of a Unified Fisheries Ordinance (UFO) that embodies policies and acts that provide for the conservation, development and management of Murcielagos Bay. The UFO covers a number of activities that are important in the context of decentralisation: 1) it combines both scientific and local knowledge for decisions on fisheries management, 2) a Resource Users Assembly (RUA) revalidates the decisions of the majority of fishers and thus is an important mechanism for accountability, 3) an Inter-Stakeholder Conference is a representative body on a higher level which supports decision-making, 4) fund counterparting and a Technical Working Group (TWG) are mechanisms to carry out the decisions, 5) lobbyists ensured that the UFO is passed as a Municipal Ordinance, and 6) the ordinance is implemented through the resource management organisations and *Bantay Dagat*.

Naturally, there are disputes and conflicts, but the communication structures help to reach negotiations. Fish corral owners and dynamite fishers agreed to use legally prescribed nets. Also the length of the closed season was negotiated and agreed upon through an assembly of resource users. Delays in the release of the counterpart funds by the bureaucratic systems of the Internal Revenue Allotment have led the local organisations to pressure the authorities to look for other means to comply with the agreed commitments.[5] So in that respect these organisations are actively involved and do have certain powers.

There is still tension between fishers and authorities with regard to the power to decide over specific issues, such as the ban period for fishing. Government officials insisted on scientifically based limit, while the fishers asserted their local knowledge. A last point is the fact that those in authority are dominant in discussions, giving the fishers little opportunity to speak.[6] But good facilitation and preparation of fishers overcomes this tension. The biggest threat to the system is external support for the existing institutional arrangements which are still weak.

5 The scheme for fiscal decentralisation of the government as mandated under the Local Government Code allows an Internal Revenue Allotment (IRA) sharing that provides little income for less populated areas, like Murcielagos. Marine resources are not included in the IRA computation, much less in the local development prioritization of the government.

6 In contrast to Panorel, the document of PIPULI states that fishers find it difficult to assert their rights because they do not see themselves as active participants in resource management. However, this information is of an earlier date than that of Panorel.

The case illustrates that Murcielagos Bay is well on the way to form a decentralised management structure. Major shifts of power have occurred, decision-making forums and umbrella organisations are established to negotiate conflicts and enhance accountability and participation. Issues raised by PIPULI in 2002, such as compartmentalised fisheries management and resource users that were not united and felt disempowered, were dealt with. The process was strongly supported by a number of NGOs, academic institutions, and foreign organisations. Issues currently dealt with have to do with power, but no longer to the point where the government authorities automatically win. The local groups assert their rights and defend their knowledge. This is an important move forward towards integrated management of the fisheries in Murcielagos Bay and a good example of a local process that includes important mechanisms to enhance participation and democratic principles.

Bohol, Philippines (based on Mayo-Anda 2004, Indab and Suarez-Aspilla 2004)
Bohol is the easternmost island in the Central Visayas region in the Philippines. At least 60% of the coastal residents are either full-time or part-time fishers. The coral reefs were suffering from blast-fishing and the use of sodium cyanide (Parras 2001). The Environmental Legal Assistance Centre (ELAC) started community-based coastal resources management through education and extension of legal assistance. The local government was open to multi-sectoral initiatives. In 1997, a year before the Fisheries Code was promulgated, the 'Bohol Environmental Summit' was held where pressing coastal issues were discussed. There was also a 'Bohol Covenant for Sustainable Development' signed by People's Organisations (POs) and NGOs working in the area, and in 1998 a comprehensive environmental code was drafted. Dissatisfied with the way the summit addressed coastal issues, NGOs and some government representatives formed the multi-sectoral 'Bohol Coastal Resource Management Task Force' and 'Coastal Law Enforcement Councils' in every district. This clearly illustrates the organisational and institutional capacity in the Philippines.

The Enforcement Councils, composed of representative from government,[7] villages, FARMCs,[8] police and coast guard, were formalised thorough a Memorandum of Agreement signed by the municipalities of Bohol, the national government and the ELAC. A group of advisers assist the councils in their work, i.e. the formation of an enforcement team, drafting of enforcement plan, procurement of budget allocations and logistics, capacity building plan, the standardisation of policies, and coordination with local LGUs. The last two tasks are very important as one of the predicted pitfalls in Philip-

7 DENR: Department of Environment and Natural Resources; BFAR: Bureau of Fisheries and Aquatic Resources.
8 FARMCs or Fisheries and Aquatic Resource Management Councils were established under Executive Order No. 240 to institutionalize participation of fishers in resource management.

pine decentralisation is the large number and overlap in laws (Van Weerd, pers. comm. 2004; Plutz, pers. comm. 2004). Again, in these activities all important government departments and enforcement agencies are actively involved including the Provincial Board who donated 3 patrol boats. During 2000-2003 a large number of illegal fishing activities were reported and offenders prosecuted.

Of course, there are problem areas too and the most eminent ones, as in most cases discussed, were inadequate funding, logistics and support from government agencies and NGOs. Lack of education of the people was also mentioned as an obstruction. Corruption and lack of assets (equipment and boasts) undermined enforcement and even when offenders are caught under capacity leads to weak prosecution. MPA management in the Bohol Sea is still fragmented.

Factors that enhance success are strong support from political leadership, community participation and networking among sectors. An important lesson is that enforcement leads to greater success of community management of natural resources. Management involves a multi-sectoral and multi-agency approach that has both a 'hard' (actual patrolling) and a 'soft' component including IEC activities (information, education and communication). More collaboration between LGUs is required and municipal waters need to be delineated. Finally, municipal ordinances need to be harmonised.

This case study that shows that in the Philippines the process is away from merely community-based initiatives. There are more horizontal and vertical linkages established. These linkages are important in creating accountability structures and forums for appeal. They also help in getting real authority over resource management as enforcement is in local hands with legal back-up.

10.8.2 Discussion Philippines

The Philippines have put in place an institutional basis and legal framework to facilitate devolution and support local autonomy. In various provinces, local governments have adopted CRM on their own merit (Yambao *et al.* 2001). There are a number of factors that motivate people to collaborate in CRM, such as the recognition of a resource problem and the need for conservation. The recognition that management is a way to address poverty on the longer term, and the realisation that technical support is important and increases the political will for coastal management. Skills and knowledge of the people have vastly improved and local resource users have gained a more positive attitude towards coastal management. They have developed new perspectives and are actively involved in local committees and organisations. The involvement of People's Organisations also creates opportunities for advocacy. Empowered local organisations can make their needs known and ask for assistance or demand effective government services. They can also lobby for more

favourable policies and allocations, and oppose measures that they consider detrimental.

The two cases show that the process of decentralisation and transfer of authority to local government and partners is definitely taking shape. In Murcielagos bay, a few important building blocks to local resource management are in place like representative bodies and umbrella structures as mechanisms to ensure accountability and representation. Local organisation do have certain powers that enhance their autonomy. The case of Bohol shows the development of a sound organisational and institutional capacity to deal with the new powers. Standardization of policies will help to counter the overlap of laws and policies and improve the legal framework that forms the basis for coastal resource management.

However, despite the sound legal framework and clear commitment of the Philippine government to empower local communities and support them in the management of resources, the implementation of policies and laws and remains weak (PIPULI 2002). This is due to legal and jurisdictional conflicts which arise from the plethora of legislation and administrative issuances affecting different types of economic activities in the coastal area (DENR 2001). Conflicting interpretations of these laws and poor dissemination of information contribute to difficulties in implementation. Another factor is the multiplicity of institutions at the national and local levels with mandates in coastal management as it complicates the lines of authority over resources and sometimes results in fragmented management initiatives.

At the same time, successful projects move the process forward and are replicated elsewhere or scaled-up there were favourable conditions are in place. Scaling up of the model for coastal management can take two forms: 1) in terms of area and population involved, and 2) in kinds of tasks performed or diversification. Scaling-up requires careful planning, groundwork, and experiments. Important is not to rush the process under the pressure of donors and funding (Balgos and Ricci 2002). Currently, the process of scaling-up is taking place in Leyte-Samar (Region 8) covering 6 provinces under the auspices of Leyte State University, the Philippine Council for Aquatic and Marine Research and Development and the University of Rhode Island. In 2002, discussions were held involving numerous stakeholders about the role in terms of support of the provincial government, NGOs and academic institutions. At this moment, the role of the provinces is being further defined, as well as that of other (research) institutions. This institutional set-up is expected to solidify and push forward devolution towards long-term effectiveness and success (Balgos and Ricci 2002).

10.8.3 Indonesia

The 'New Order' regime of president Suharto (1966-1998) was characterised by heavy resource extraction for economic development and a weakening of many local traditional institutions that mediated access and use of local resources (Thorburn 2002). After the fall of autocratic Suharto regime in 1998 and in response to a greater demand for transparency, honesty and autonomy, a series of laws shifting both the political power and financial control from the central government to the regional level have been drafted (Casson 2001; Patlis *et al.* 2001). This so-called 'post-New Order' period signals a shift in the management of natural resources that has profound implications for the rights and roles of local communities and regional governments. Decentralisation, however, is still in its initial stages and brings with it a host of new worries and problems that often have roots in the previous regimes (Peluso 2002; Thorburn 2002).

During the brief presidency of Suharto's successor, president Habibie (1998 – 1999), the government passed a number of reform measures committing the government to a course of administrative and financial decentralisation. Law No. 22/1999 on regional autonomy and Law No. 25/1999 on financial relations created the legal and financial framework for governance primarily by the districts, with assistance from both provincial and central levels of government (Dahuri and Dutton 1999; Patlis *et al.* 2001).[9] In the same year, both the National Maritime Council (NMC) and the new Ministry of Marine Affairs and Fisheries, the DKP[10] were established.

The implications of these legal changes for resource management are profound and entail a larger role for the regional governments (province, district and sub-district). The province has jurisdiction over the territorial sea up to 12 nautical miles from the coastline (art. 10.2), while the district may establish jurisdiction over one third of the provincial waters or 4 nautical miles from the shoreline. There are two exceptions: 1) the territorial sea should not restrict traditional fishing rights and 2) the seabed underneath the sea territory still falls under the authority of the central government (Patlis *et al.* 2001; Satria and Matsuda 2004). The central government also maintains direct responsibility over the maritime areas within the Exclusive Economic Zone (EEZ). In contrast to other resources from which revenues are allotted directly to the district of origin, benefits from fisheries are redistributed in equal sums to all regencies throughout Indonesia (Reg. 104/2000, Art. 11(2)). This highlights the fact that fisheries are regarded as commonly owned (Patlis *et al.* 2003).

9 Government levels: Province (*Propinsi*); District (*Kabupaten*); Municipality (*Kotamadya*); Sub-district (*Kecamatan*); Village (*Desa*).

10 DKP: Departemen Kelautan dan Perikanan.

Instead of direct regulation and control, the role of the central government has become primarily one of indirect action. However, the central government retains authority to develop policy regarding natural resource management and to take administrative action against a regional government that fails to implement existing laws or regulations (Law No. 25/2000, art. 7), (Patlis *et al.* 2001). The province is responsible for: a) exploration, exploitation, conservation and management of the sea, b) administrative affairs, and c) law enforcement. District and municipal governments are now empowered to set resource use and spatial planning policy, and to manage revenues and budgets. District and provincial assemblies (DPRD) must issue scores of new regulations and decrees to administer these new responsibilities (Thorburn 2002).

After the major problems in various parts of the country and under pressure of certain groups Wahid (1999-2001) agreed to revise Laws No. 22 and 25 in order maintain the 'unitary state'. President Megawati Sukarnoputri was pursuing the review, including the reestablishment of the government hierarchy (Down to Earth 2001). A more powerful standpoint and continuation of the decentralisation process is expected from the newly elected president, Susilo Bambang Yudhoyono (cf Maas 2004b, 2004c).

The two following sections describe the process in the field and show recent developments in coastal resource management in Indonesia.

Minahasa, North Sulawesi (based on Tulungen 2002, Patlis et al. 2003)
Minahasa district comprises 150 villages along a 260 km long coastline. The district was one of the first to create a legal framework for community-based integrated coastal management (ICM). The law is a culmination of a 5-year effort by the Coastal Resources Management Project (CRMP) or *Proyek Pesisir* funded by USAID and implemented by the National Development Planning Agency (BAPPENAS) with support of the University of Rhode Island and other agencies[11] (cf. Crawford *et al.* 1998; Crawford *et al.* 2003). Strategies centred upon the development of enabling frameworks and the documentation and institutionalisation of good practices to enable replication. This was done through a combination of legal instruments, guidebooks and training.

[11] USAID and the Coastal Resources Center of the University of Rhode Island (USA) have been responsible for a number of long-term field programs that work to build local and national capacity to effectively practice coastal governance. Other sites with field programs are Balikpapan Bay in East Kalimantan, Lampung Province in South Sumatra, and Bintuni Bay in Papua (see Patlis et al. 2003). Another project implemented to counter coral reef degradation is COREMAP funded by the WorldBank, ADB, AusAID and LIPI.

FIGURE 10.2 – Proyek Pesisir field locations (photo: Brian Crawford)

The formulation of the new district law or *Perda* involved bottom-up community participation and involvement of the private sector, NGOs and Sam Ratulangi University (UNSRAT) in Minahasa. It sets out the key principles, goals, benefits and priorities for community-based management, transparency, and accountability. It also recognises traditional rights. An Integrated Coastal Resources Management Board oversees the process of preparing and approving community plans to integrate the different concerns among stakeholders – government, private sector and community – as well as the coordination of the different sector interests within the government institutions themselves. The Minahasa Fisheries and Marine Office has been assigned the role of providing technical assistance to villages.

The community based approach builds on four village-based pilot projects carried out earlier.[12] These projects had already resulted in locally approved plans and village ordinances to implement marine reserves, no-take zones, mangrove conservation and reforestation, shore erosion control measures, and supplementary livelihood activities. In turn, the district supported these efforts. The law now provides an important new level of institutional commitment for upholding local regulations, as well as for carrying out non-regulatory measures. Adoption of the new law also makes financing village-initiated plans easier. By 2003, 24 coastal villages in Likupang sub-district at the northern tip of North Sulawesi were involved (Crawford and Kasmidi 2004).

12 In Blongko, Talise, and Bentenan-Tumbak village.

FIGURE 10.3 – Capacity building and project activities in Blongko (photo: Brian Crawford)

The drafting of the law was a process that involved local experts who prepared a 'white paper' for discussion. The academic draft that followed was distributed and discussed in a variety of meetings, also international. Central government agencies were also consulted, including those of Fisheries and Marine Affairs. Finally, in 2001, the regulation was submitted to the Minahasa House of Representatives to enter the enactment process. The process followed the formal mechanisms in legislature and included the establishment of a special task force, public hearings, and final meetings to enact the regulation.

In order to fully utilise or enforce the law, however, it is essential that the constituency which was mobilised to pass the law continues to remain engaged in the integrated Coastal Resources Management Board in promoting its use by Minahasa's villages and evaluating its implementation.

Proyek Pesisir is now assisting Minahasa as it begins to implement the new law. This includes operating the Integrated Coastal Resources Management Board which was established in 2003, and working with the Fisheries Office to prepare a plan for getting budget appropriations. They are also helping to meet the demand for technical assistance by villages. Basic elements in the law are: 1) definitions of key terms such as 'coastal area' and 'participation', 2) clarification of authorities and responsibilities among agencies and government levels, 3) creation of mechanisms and programs for coordination, education, training and outreach, 4) identification of basic criteria for coastal

management for villages, and 5) it mandates funding for implementation. The new law stand as a model both in terms of the process in developing the law, as well as in the substance of the law.

Keys to success were the de-politicization of the process (by inviting representatives of all political parties), 2) the signing of letters of intent to enhance commitment, 3) extensive public participation, 4) sound documentation and explanation of the process, and 5) a media campaign which increased public awareness. Important was also that the law is not overambitious. A primary lesson is the flexibility to adapt to comments and revise the draft *Perda* as it went through the process thereby increasing its legitimacy. Shortcomings were the lack of documentation of initial public consultations, the timing of the background material, including the 'white paper', and the lack of engagement with the administrative offices of the *Bupati* (district head) until near the very end of the process.

This case study shows how with adequate support, local resource management can become a reality. The case of Minahasa, however, is an exception in Indonesia and its success is largely due to strong financial and institutional support of foreign donors for this program. However, the case provides a possible format for similar initiatives elsewhere in the region and provides an example of how local autonomy and the development of a sound legal framework can become a reality.

Maluku (based on Kissya and Dwisasanti 2004)
In Central Maluku local resources are managed under *sasi*, a traditional regulatory system geared towards sustainable use (Benda-Beckmann *et al*. 1995; Novaczek *et al*. 2001). Here, the effects of decentralisation also become visible. During the *reformasi*, the area was in great turmoil due to a period of civil strife that lasted from 1999 to 2003 (cf van Klinken 1999; Goss 2004). During the riots, in many villages the social structures were no longer adhered to and laws or rules neglected or violated. Exacerbated by the economic crisis and humanitarian tragedy this tendency led to habitat destruction and resource depletion.

When the riots ended, villages re-established resource regulations. Interestingly, in Haruku village where *sasi* is deeply rooted, customary law (*adat*) really helped and supported the process of conflict resolution and recovery (Kissya and Dwisasanti 2004).[13] The revival of *sasi* regulations and customary

13 The revival of *adat* and a second traditional system which creates alliances between villages called *pela* are seen as two important building blocks in ensuring stability and peace all over Central Maluku (Welsh 2003). In this respect, van Klinken (1999) mentions the restructuring of the government, i.e. replace the nepotistic connections (often based on religion) for accountable and transparent structures.

practices was strongly supported by the local traditional taskforce called *kewang* and community members. In November 2003, when for the first time after the period of civil strife *sasi* was opened again, more participants than ever came to witness the rituals (Rumaruson 2003).

FIGURE 10.4 – Head of the kewang Elli Kissya with Binny, Meentje and myself in 1998.

Efforts are being made to put into place a national and provincial agenda to acknowledge *sasi* as a model for effective community-based governance. Proposed components of this agenda are: 1) to extend the power of the *sasi* authorities (traditional, church or mosque) to a broader level so that they can deal with outsiders, 2) to provide a legal basis at the provincial and local level for customary laws and property rights, and 3) to urge government officials to open and transparent decision-making, including policy. It is further suggested that local traditional authorities participate in seminars and conferences as to promote this model and improve it. This would provide a learning forum for indigenous leaders, CBCRM practitioners and facilitators and could lead to the formation of solidarity groups engaged with effective community-based governance.

The case of Haruku shows the enormous potential of traditional resource management institutions in coastal management and their vital role in conflict resolution and the re-establishment of local rules and regulations, even in the case of major upheavals. The strong community commitment and

presence of organisational structures form an important basis for capacity building towards autonomy. Noted must be though that Haruku is one the very few villages in Maluku with a strong *sasi* system and a well-known reputation for traditional resource management. How villages where *sasi* is less prevalent survived the period of conflict and social breakdown is not clear. The current efforts to draft a district law (*Perda*) meaning to reintroduce *adat* village structures (Soselisa pers. comm. 2004) may have a positive effect on the functioning of this traditional management system and its revival.

10.8.4 Discussion Indonesia

In countries that are in transition from an authoritarian regime to a more democratic system, such as post-New Order Indonesia, the transition often has great impact on social structures and local institutions. The success of decentralisation is location specific and dependent on the manoeuvring space for local governments, the presence of the army,[14] and the type resources and subsequent business interests (Spyer, pers. comm. 2005). In West Sumatra, for example, decentralisation has not only rearranged the political and economic relationships between the centre, province and districts, it has also led to a reorganisation of village constitutional structures and institutions (von Benda-Beckmann and von Benda-Beckmann 2002). In Central Kalimantan, decentralisation involves ethnic conflicts instigated by local elites who use their ethnicity to attain a powerful position (Snyder 2000). In other areas, the introduction of the new laws on local autonomy, has led to an increase in the exploitation of natural resources, pollution and degradation as a result of the eagerness of local government to earn local revenues (Casson 2001). So what should have been a chance for improved governance has become an actual threat to local systems and regulations (van Klinken 2002).

The case of Minahasa illustrates one of the very few successful cases of decentralisation in Indonesia. With strong support and international funding, the CRMP program has become a showcase that offers opportunities for replication and inspiration. The program has contributed to the development of a new district law on integrated coastal zone management, including the principles of transparency and participation. A similar law is now apparently being drafted for Maluku. The case of Haruku provides another positive example as it shows how customary law (*adat*) and traditional institutions such as the *kewang* as well as support of the community can help to sustain local resource management systems, even after major impacts (Chapter 7). These cases provide important

14 The army (and police) are mentioned as playing an important role in the local power arenas in Indonesia, especially as the army is represented from national to village level and use security issues to generate an income. Various experts on Indonesia mention their critical role in decentralization (Schulte Nordholt 2003, Spyer (2005) pers. comm.; Jones 2004) but also in the recent regional conflicts. This complex issue will not be further dealt with in this paper, but for more detailed information I recommend to read the above authors.

building stones for the formulation of new laws and the acknowledgement of local traditional resource management systems such as *sasi* (Salim 1995).

The inclusion of local traditional management structures adds extra complexity to the drafting of a new district law, but is vital to effective coastal zone management and in creating wider political stability (Crawford pers. comm. 2004). However, two important aspects should be kept in mind. One is that in areas where customary law (*adat*) is weak or dysfunctional it does not provide a sound basis for local resource management. In West Sumatra, for example, von Benda Beckmann and von Benda-Beckmann (2002) describe a situation where the Adat Village Council could rarely come to consensual decisions. The second aspect concerns the role of traditional elites. Where on the one hand decentralisation creates opportunities for those who aspire to increase their personal power, on the other some traditional elites will not be able to adapt to more democratic structures. In both cases, mechanisms to enhance a more democratic system such as more transparency and representation are likely to fail.

10.9 Bottlenecks and opportunities

Freedom of the regional governments to use natural resource revenues at their discretion, potentially leads to unbridled resource exploitation as is happening in certain forest areas in Central Kalimantan. Also the role of powerful new elites who are trying to retain power and budgets is a potential threat. Ribot (2004) explains how some projects in the context of decentralisation use people as mere labour rather than empowering them and that if there happens to be a transfer of authority, it often does not include lucrative opportunities. These experiences lead us to question to what extent the process of decentralisation is effectively taking place.

It is not surprising that some researchers are developing a sceptical view. The cases described in this chapter, however, provide us with an opportunity to bring in some nuances and distil the aspects that *do* work. Key aspects in decentralisation that, if not properly dealt with, can lead to problems are: accountability, funding, property rights, the legal framework, the institutional structure, and external support.

Aside from a few exceptions such as the Inuit fishery in the Canadian Arctic and Japanese fisheries (Kearney 2004) most political structures concerning resource management are in the top down direction. Accountability structures thus are upward. Most institutions currently being chosen to receive powers over natural resource management are not accountable to the local population and therefore susceptible to elite capture, as is currently happening in Central Kalimantan. It is thus necessary to redirect these structures

and create downward accountability. This is, however a difficult process. An analysis by workshop participants on Fisheries Co-management from 11 different countries concluded that even where decentralisation efforts were sincere, accountability structures were still upward (pers. obs. IAC training course 2004).[15] Only in a few places, like the case studies in this chapter, are mechanisms that ensure downward accountability in place. Their general establishment and implementation throughout the country, especially in Indonesia, are an important next step.

In order to effectively handle decentralised powers at the local level, certain conditions have to be met such as adequate funding. The lack of budgets, adequate staff, and skills cause the local governments to face serious challenges in handling their new responsibilities (Lowry 2002; Crawford *et al.* 2003; Knight and Lowry 2003; WRI 2003). Again this issue is common in many countries and forms one of the major obstacles towards effective decentralisation (pers. obs. IAC training course 2004). This is also why local elites and district offices under the new law in Indonesia grab the opportunity to increase their income by the issuance of licences for forest concessions. The rampant exploitation of forest resources is, however, not likely to occur to the same extent in fisheries as the revenues of marine resources cannot be claimed by the individual district offices but are being redistributed all over Indonesia.

The transfer of burdens without resources has not only led to scepticism, but has also increased the vulnerability of local people. This vulnerability can increase when property rights are not well-defined. For example, if the community is required to draft complex management plans to arrange exclusion while large-scale commercial interests enter and use the resources with permits acquired from the national government (Ribot 2004), decentralisation is likely to fail. Specified and secure user rights are a prerequisite for local support for management and the development of a positive attitude towards conservation and sustainable resource use (Chapter 11). It is the task of the central government to establish conditions for the specification, legitimization and enforcement of property rights and fishers' rights to organise and develop rules for management (Pomeroy 2001).

Law itself is one of the foundations of society as it shapes the behaviour and activities of its citizens, write Patlis *et al.* (2003). In order to sustain and institutionalise the concepts of integrated coastal management and good govern-

15 Every year, the International Agricultural Centre (IAC) of the University of Wageningen organizes a training course on Fisheries Co-management. Last year, the course was entitled 'Fisheries Management: Perspectives, Information, and Co-management' (4 Oct-19 Nov 2004). Participants came from Angola, India, Italy, Mozambique, Nigeria, the Philippines, Senegal, Sri Lanka, Tanzania, Uganda, and Zambia. My lecture and exercise on co-management and decentralization, and in particular on accountability structures and obstacles towards decentralization, lead to the insights written above.

ance, they have to be internalised through the legal system. The drafting of a law itself is a process that can enhance understanding and support democratic principles such as participation and transparency and in this way increases legitimacy. A flexible, consultative process and realistic objectives help in the adoption and practical application of a new law. The law itself should include the authority and functions delegated under the existing legal framework, including developmental, regulatory, revenue generating and other activities associated with effective coastal management (Knight and Lowry 2003).

Problems with the new legal and institutional arrangements are common. The laws at the local level are so manifold that they overlap and lead to confusion. Local governments can pass ordinances that are not necessarily in line with those of neighbouring villages or municipalities. Regulations are also apt to change as with elections new leaders and parties may very well change the ordinances again (van Weerd, pers. comm. 2005). If no mechanisms are in place to halt this or where people are not capable to oppose these changes – as is the case in remote villages around Murcielagos Bay where people are not politically aware and depend on authorities – this situation can lead to insecurity and short-term perspective of local resource users. It is therefore that political empowerment, capacity building and social preparation as applied by the MREP program are so significant.

It is also important to study the role and position of the traditional authorities in a community and define to what extent there are possibilities to work with these institutions under a decentralised regime. Where traditional institutions exist that are locally supported, legitimate and capable to deal with resource management responsibility, power should be handed over to traditional authorities. If a functional, democratic local government is present this would be the appropriate authority to become engaged in the process. What we would argue against, is the handing-over of power to newly established institutions such as fishing committees that have neither the political nor cultural grounding to function long-term. Often these organisations lack the legitimacy that is required or the scope to operate at a wider level. Most important, however, is the fact that these new structures often provide opportunities for local elites and outside powerful actors to play a major role in resource management.

The Philippines are ahead in scaling-up and dealing with resource management at a wider scope than the local community. Coordination of efforts in the province or region is important as fishermen face similar issues (Caasi in LeaRN Newsletter 2004). It is important therefore that local structures allow for scaling-up to province wide or regional management. Fishers' organisations or LGUs may therefore not always be the proper institutions as they are limited in membership and scope. There is more potential in working with NGOs as they can operate on wider level and often have the financial and

technical support that are required (PIPULI 2002). In Indonesia, however, large-scale NGO intervention may not feasible because, if at all present, there is a history of distrust between NGOs and local people (Crawford *et al.* 2003). Other structures need to be devised to deal with resource management on a larger scale.

Transparency and responsiveness are important aspects in decentralisation but may not be easily achieved in a country like Indonesia where government control and manipulation of the media has been unbridled. Even now that there is a political willingness to create an atmosphere of openness and transparency, it seems impossible to shed off the harness of the past. After a period of relative freedom of press, the Indonesian government is again pulling the ropes of control with the incarceration of the chief-editor of Tempo, a renowned national newspaper, after the publication of allegations against a politically important businessman (Maas 2004a). The outcome of a court case dealing with this issue will be decisive for the role the government plays in controlling the media. Nevertheless, the little faith in media coverage that people may have built up over the past years is probably seriously undermined and it will take more than time to re-establish that confidence. Only on the long term will processes like the drafting of district laws involving multiple parties and the establishment of transparent, accountable structures in the villages enhance democratic principles.

On the national level, large international organisations such as the World Bank or the Asian Development Bank play a key-role in the move towards decentralisation (Persoon and van Est 2003). International donors can help to push the process of decentralisation through political pressure, or simply offer new approaches, ideas and input for sustainable resource management. Also on the local level, external agents such as German Technical Cooperation (GTZ) and the Japan Official Development Assistance are active in providing training, technical assistance, in offering a new approach in decision-making and conflict resolution, and in creating political awareness (GTZ 2001, 2003, 2004). Funding from donors is critical in financing the development and facilitation of decentralisation. The case of North Sulawesi and the MREP program shows how important sustained financial input and technical assistance is in developing and establishing sound local management systems.

10.10 Conclusion

The process of decentralisation is slow and sometimes painful. Setbacks lead to discouragement and especially those who are threatened by decentralisation are quick to declare its failure (Ribot 2004). However, the assessments in terms of negatives currently being made, obscure many important changes that are taking place. F. and K. von Benda-Beckmann (2002) say: 'Politi-

cal ideals, such as democracy, do not provide a good standard for evaluating actual political processes. The risk is that they create a selective and inevitably negative assessment as they do not measure the actual (past) conditions and change.' For Indonesia, the reference to evaluate change should be the oppressive and exploitative Suharto regime, its systematic corruption and its minimal room for political discussion and critique. So what has changed?

In Indonesia, since 2002 at least 15 districts and 30 provinces have drafted district and provincial coastal management laws or *Perdas*.[16] At numerous case study sites (Balgos and Pagdilao 2002; Shakleton *et al.* 2002; Ribot 2004), local governments have demonstrated capacity and initiative in natural resource management. Local people have been empowered and local councils increased their revenues from resource use. Marginal and disadvantaged groups are playing a greater role and are benefiting from newly set-up management schemes. Both in Indonesia and the Philippines, positive effects are clear with the local communities taking up responsibility for management, the drafting of new district laws, the revival of traditional institutions, and the scaling-up of local efforts to province-wide management.

The new financial decentralisation scheme has certain shortcomings. Freedom of the regional governments to use natural resource revenues at their discretion, potentially leads to unbridled resource exploitation as is happening in certain forest areas in Central Kalimantan. Also the role of powerful new elites who are trying to retain power and budgets is a potential threat.[17] Therefore, the role, mandate and authority of the district and provincial governments need to be clearly demarcated. To make decentralisation more effective it is necessary to further operationalise Law No. 22/1999 and to legitimise and empower local institutions. The development of an umbrella law, procedural mechanisms and an interdepartmental coordinating body are suggested to support a nationwide approach that allows for local management and to enhance coordination and effectiveness of various agencies.

There is no blueprint formula for decentralisation. Each country will need to develop a strategy based on its own needs, conditions, and experiences. From the above we can learn that the type, form and process of decentralisation is very much dependent on the local conditions and context. Decentralisation should be viewed as an evolving process that adjusts and matures over time. It will move from one type to the next as more knowledge and experience is

16 The number of provinces has increased from 26 to 32, and the number of districts from 360 to 450. The reason for this formation is the opportunity to benefit from local resource revenues, as well as the delivery of central government services. The risk of this development is *pemekaran* or administrative fragmentation (Jones 2004).

17 The mapping out of the power arena is an important tool in dealing with these parties and in setting out strategic moves to undermine their power (Shackleton *et al.* 2002; Ribot 2004).

gained by the government and the political will for decentralisation increases (Pomeroy and Berkes 1997). Mistakes and setbacks are unavoidable, especially in a country like Indonesia where the process was pushed and decentralisation laws executed at a faster rate than the lower government levels and local population could handle.

From the cases we can learn important lessons. Important in Murcialagos Bay is the establishment of local assemblies, inter-stakeholder conferences, umbrella organisations and other mechanisms that support accountability. The local organisations are actively involved and have adequate powers to make local decisions and rules, albeit within the limits set by the local government. In Bohol, policies were standardized and coordinated with local LGUs which was an important move in countering the large overlap of local laws and ordinances. There is a task force in place to deal with enforcement, and actions are coordinated on district level. From Minahasa we can learn that with sufficient external support decentralised local resource management is possible. The development of the new district law was a sound process with a positive outcome that can serve as an example for other districts. Ongoing support, however, is necessary to sustain these efforts (Crawford 2004, pers. comm.). From Maluku we learn that traditional institutions can play a strong role in resource management and help to rebuild social structures even in the case of a major disruption.

To get 'the institutions right' requires a thorough analysis of the existing political structures, the role and position of traditional authorities, and the appropriateness of these institutions to deal with new management requirements. Where local communities themselves lack expertise – and not everywhere do local people have sustainable resource practices – they need assistance from government line agencies, NGOs, or the private sector (WRI 2003). Large donors and international organisations play an important role in providing the funds and expertise for large projects. Their support and training help to establish management regimes that form important examples and can be replicated at other sites or scaled-up to bay-wide or province wide management regimes.

In conclusion, we can say that even though perhaps scattered, there are positive experiences in the setting up of local resource management systems under decentralisation. A first lesson is to give decentralisation time. Especially for countries with a history of colonisation and dictatorship, such as Indonesia, expectations should be realistic. With a legacy of corruption, nepotism and fraud power structures, little or no individual responsibility, a large degree of distrust between communities and government, the shift towards a decentralised and, in the long run, more democratic state is immense and will take generations. Other countries, such as the Philippines, provide an inspiring example in achieving this goal.

11 Conditions Affecting the Success of Fisheries Co-management: Lessons from Asia*

The purpose of this chapter is to present results from the first five-year phase of the Fisheries Co-management Research project implemented by the International Center for Living Aquatic Resources Management (ICLARM) and the Institute of Fisheries Management (IFM), with national partners in Asia and Africa. More specifically, the chapter will present results of conditions which affect the success of co-management as identified through the project's research activities in Asia. A brief discussion on the data sources for this chapter is presented in section 3.9. Next, the eighteen conditions identified as being of high importance for success are presented, grouped into three categories: supra-community level, community level, and individual and household level. The chapter will finish with a discussion of policy implications for fisheries co-management.

11.1 Introduction

Over the last fifteen years, research undertaken at different locations around the world has documented many cases, both successful and unsuccessful, of co-management in fisheries and other coastal resources (Jentoft and Kristoffersen 1989; Smith and Walters 1991; White *et al*. 1994; Berkes *et al*. 1996; Hoefnagel and Smit 1996; DeCosse and Jayawickrama 1998; Normann *et al*. 1998). From the results of this research, conditions are emerging which are central to developing and sustaining successful co-management arrangements (Pinkerton 1989; Pinkerton 1993; Pinkerton 1994; Pinkerton and Weinstein 1995). The list is long and varied, and is growing. Research and practical experience is continuing to reveal more about co-management arrangements and the factors affecting their successful implementation and performance. It should be noted that these conditions are not absolute or complete. There can still be successful co-management without having met all of the conditions. However, consensus is growing that the more of these conditions that are satisfied in a particular situation, the greater the chances for successful implementation of co-management.

*Based on: R.S. Pomeroy, B.M. Katon, I.H.T. Harkes (2001) Conditions Affecting the Success of Fisheries Co-management: Lessons from Asia. *Marine Policy* 25: 197-208.

11.2 Conditions Affecting the Success of Fisheries Co-management

The conditions are grouped according to three categories of contextual variables identified by Pollnac (in Pomeroy *et al.* 1996). The three categories are:

1 Supra-community level – Supra-community conditions affecting the success of fisheries co-management include those that are external to the community, including enabling legislation and supportive government administrative structures at the national level, and markets. They can also include demographic factors and technological change.
2 Community level – Community level conditions affecting the success of fisheries co-management include those found within the community and include both the physical and the social environment in terms of potential relationships with fisheries and coastal management.
3 Individual and household level – The individual is responsible for making the decision to carry out co-management. Individual and household decision-making and behaviour is thus central to the success of co-management.

It should be noted that this is not a comprehensive list of conditions, but reflects those conditions that the authors feel, based on the research, are of high importance for success of fisheries co-management in Asia.

11.2.1 Supra-community level

Enabling policies and legislation
If co-management initiatives are to be successful, basic issues of government action to establish supportive legislation, policies, rights and authority structures must be addressed. Policies and legislation need to spell out jurisdiction and control; provide legitimacy to property rights and decision-making arrangements; define and clarify local responsibility and authority; clarify the rights and responsibilities of partners; support local enforcement and accountability mechanisms; and provide fisher groups or organisation the legal right to organize and make arrangements related to its needs. The legal process formalizes rights and rules and legitimizes local participation in co-management arrangements.

If supportive legislation and policies are in place, partners tend to have less difficulty in asserting their rights and roles, particularly if the judicial system is fair and objective. The legal basis for the resource user's participation in resource management is vital and must address fundamental concerns, which include: 1) who has the right to use the resource; 2) who owns the resource; and 3) what is the legal framework for implementing co-management arrangements. The arrangements may be undermined in the absence of a legal

basis. The role of the government in establishing conditions for co-management is crucial, particularly in the creation of legitimacy and accountability for institutional arrangements and the delineation of power sharing and decision-making (Pomeroy and Berkes 1997).

In the Philippines, the enactment of the Local Government Code of 1991 (LGC) ushered in the formal devolution of powers and responsibilities from the central government to the local government units and people's organisations. The changed administrative arrangements resulting from the LGC have created a supportive environment for co-management to prosper (Katon *et al.* 1997). An administrative power shift placed local governments at the forefront of coastal resource management (Katon *et al.* 1998). At the local level, the passage of complementary ordinances and the integration of sustainable resource management in local policies and plans have further enhanced co-management efforts. The Fisheries Code of 1998 further defined and strengthened these authorities and responsibilities.

External agents

External change agents are often needed to expedite the co-management process. Change agents may come from NGOs, academic or research institutions, religious organisations, government agencies and project teams (Katon *et al.* 1997; Baticados and Agbayani 1998; Katon *et al.* 1998; van Mulekom and Tria 1999). These external agents assist the community in defining the problem; provide independent advice, ideas and expertise; provide training and technical assistance; guide joint problem-solving and decision-making; and assist in developing management plans. External agents fill a special role in terms of drawing out insights with a participatory style of facilitation, processing the insights, and guiding the community in reaching its goals. Their willingness to live in the community to work with local people, ability to focus on community objectives and their linkages with donors and other supportive organisations are among the factors which favor their catalytic role.

The external agent should be objective and serve a catalytic role in the development process. The external agent should not directly interfere in the process, but may guide or provide information on how to proceed in the process or with a policy. Documented experiences underscore the role of external agents in setting in place a process of discovery and social learning. These catalysts open the eyes of resource users, stakeholders and partner organisations to pressing issues, urge them to search for appropriate solutions, and challenge them to take collective action (Katon *et al.* 1997; Katon *et al.* 1998; Baticados and Agbayani 1998; van Mulekom and Tria 1999). The external agent should have a temporary relationship with the co-management process, serving their particular function and then phasing out. However, the recruitment of external agents, such as NGOs, may not always be ideal in

establishing co-management. The staff may be young and may not readily be accepted by traditional societies. Some of them may have ideological views on development that may not be acceptable to the community or the government. Others may be reluctant to involve the government and the business community even though they are stakeholders in resource management. They may also lack funds to finance continuing operations.

11.2.2 Community Level

Appropriate scale and defined boundaries
The scale for co-management arrangements may vary a great deal but should be appropriate to the area's ecology, people, and level of management. This includes the size of the physical area to be managed and how many members should be included in a management organisation so that it is representative, but not too large, so as to be unworkable. Decisions on physical scale include not only the boundaries of the area to be managed, but also the species or ecosystem level to be managed. The scale of the management unit should be appropriate to human resources and the ecology of the area. Boundaries should be distinct so that the fishers have an accurate knowledge of them, can easily observe them, and are of a size which fits with available fishing and monitoring and surveillance technology. The boundaries of the area to be managed are often established based on political criteria, but where possible, should also reflect ecosystem considerations. In terms of members, it is observed that small groups are more manageable than larger groups (Calumpong 1996). In co-management, where a great number of people may be involved, it is wise to divide them into smaller groups to facilitate and enhance supervision, control and management. In general, a limited scale (both in terms of membership and jurisdiction) will support participatory democracy and therefore enhance co-management given that the management structure has appropriate stature and power to initiate the process. Expansion of scale is easier once initial activities succeed and are sustained, that is, start small and simple and show results early (Buhat 1994).

Membership is clearly defined
The individual fishers or households with rights to fish in the bounded fishing area, to participate in area management, and to be an organisation member should be clearly defined. The numbers of fishers or households should not be too large so as to restrict effective communication and decision-making. In Bangladesh, membership in the lake fisheries teams of the Oxbow Lakes was clearly defined to include those fishers living around the lake (Khan and Apu 1998).

Group homogeneity
The fisher group or organisation permanently resides near the area to be managed. There is a high degree of homogeneity, in terms of kinship, ethnic-

ity, religion or fishing gear type, among the group. Group size, in terms of the number of individuals involved in the management arrangements, is relatively small. There were many communities in Vietnam, Thailand, Indonesia and the Philippines where successful co-management was dependent on the high level of socio-economic and cultural homogeneity of the community. This does not mean, however, that co-management projects cannot succeed in socio-economically and culturally heterogeneous communities (Pomeroy *et al.* 1996). In the Oxbow Lakes of Bangladesh, Muslim and Hindu fishers were able to work together on the lake fisheries teams (Khan and Apu 1998). In the village of San Salvador in Zambales, Philippines, successful co-management occurred despite marked differences in ethnicity and fishing gear (Katon *et al.* 1997).

Participation by those affected

Most individuals affected by the co-management arrangements are included in the group that makes decisions about and can change the arrangements. In the Oxbow Lakes of Bangladesh, the lakes fisheries teams allowed all members to have equal voting rights in making management decisions (Khan and Apu 1998). In San Salvador Island and Malalison Island, Philippines, all members of the fisher organisation were involved in making and changing the rules (Katon *et al.* 1997; Baticados and Agbayani 1998).

Leadership

Local leadership is a critical condition for success of co-management. Local leaders set an example for others to follow, set out courses of action, and provide energy and direction for the co-management process. While a community may already have leaders, they may not be the correct or appropriate leaders for co-management. Local elites may be the traditional leaders in a community, but they may not be the appropriate leaders for a co-management effort. Leaders may need to be drawn or developed from the ranks of the community, including resource users. These individuals may be more acceptable and respected by their peers. In Bangladesh, the local leaders of the lakes (*baor*) were identified and elected by the fishers. Leader's term of office were limited so as to give others the chance to gain leadership skills and to reduce the possibility of corruption (Khan and Apu 1998). Reliance on one individual as a leader can be a problem. In certain Philippine cases, projects failed when the leader died, left political office, or left the area because there was no one to take the leader's place (Katon *et al.* 1998). The external change agents must not act as leaders because the community will become dependent upon them. The community must look inward to develop local leadership itself. Training and education efforts must strive to build and develop leadership skills among a variety of individuals in the community so that the co-management activity does not become dependent on any one person. Documented experiences affirm that locally recruited and trained leaders, both formal and informal, are a potent force in mobilizing residents for col-

lective endeavours, spearheading awareness campaigns and outreach efforts, and motivating stakeholders to take action (Katon *et al*. 1996; Pomeroy *et al*. 1996).

Core group formation is strategic in identifying and developing leaders (Buhat 1994). Core groups, a sub-unit of a larger community organisation, should be established early in the co-management process. The members of the core group may be drawn from committed individuals in the community who consistently participate in co-management activities and who share a concern for sustainable resource management. Core groups normally take responsibility for the initial implementation of co-management strategies or for specific activities. From their ranks, capable leaders often emerge to guide present and future undertakings

Empowerment, capacity building and social preparation

The economic and political marginalization of coastal communities has led to the problems of poverty and resource degradation. Addressing marginalization requires empowerment of community members and the transfer of economic and political power from a few to the impoverished majority. By transferring the access and control of resources from a few to the community at large, the community is gradually empowered in the economic realm. Simultaneously, political empowerment ensues as community management and controls over the resource are effectively operationalized (Addun and Muzones 1996). Empowerment allows communities to be free from many of the bureaucratic requirements of government's central administrative agencies.

Individual and community empowerment is a central element of co-management. Empowerment is concerned with capability building of individuals and the community in order for them to have greater social awareness, to gain greater autonomy over decision-making, to gain greater self-reliance, and in establishing a balance in community power relations. Empowerment covers a range of actions including enhancing community access to information and services, ensuring community participation, consciousness raising of the people, business and enterprise management skills, and gaining control over the utilization and management of natural resources. Empowerment can be considered as an individual and a community desire for change. Individual empowerment leads to community empowerment. The empowerment process must be balanced since it may have differential impacts on the community leading to not a balance of power but simply a redistribution of power elites. There is a tendency for rural power structures to gain control over resources. The shifting power holders can easily hijack co-management. Empowerment reduces social stratification and allows groups in the community to work on a more equal level with the local elite (Khan and Apu 1998; Thompson *et al*. 1998).

Empowerment is only functional if it is based on the socio-cultural and political context of the community. The co-management process needs to adopt a gender-balanced perspective, and must acknowledge the position of women. Women should be given the opportunity to develop themselves and actively participate in the co-management process (Foltz *et al.* 1996).

Empowerment at the individual and collective levels is enhanced by capacity building through education and training efforts that raise the level of knowledge and information of those involved in the co-management process. Inadequate investment in capacity building may condemn the co-management effort to failure. Co-management often requires a conscious effort to develop and strengthen the capability of the partners for collective action, cooperation, power sharing, dialogue, leadership and sustainable resource management. Coastal villagers may not always have a tradition of collective action. Functioning organisations of resource users may not be in place. Moreover, the range of skills and knowledge required to address the complex dimensions of resource management might not be adequate. In these cases, capability building is a must.

To reverse the effects of destructive fishing practices, change non-sustainable practices, or provide viable alternatives; people must learn new management skills and new technologies. Partners need to be equipped with knowledge, skills and attitudes to prepare them to carry out new tasks and meet future challenges (Pomeroy *et al.* 1996). Capacity building must address not only technical and managerial dimensions but also attitudes and behavioural patterns. Training and education may include leadership, situation analysis and problem solving, consensus building, value reorientation, basic biology and ecology, technology application, livelihood and enterprise management, conflict management, advocacy, facilitation, networking, ecological and socio-economic monitoring and evaluation, and legal/para-legal, among others. In the Philippines and other Asian countries, the experience affirms that capability building strengthens the confidence and sense of empowerment of resource users and partners. Providing opportunities to visit communities with successful resource management projects also helps create the enthusiasm and the motivation to embark on similar activities in their own community (Katon *et al.* 1997). Capacity building, moreover, enables local residents to sustain resource management interventions and pursue new initiatives.

Linked to empowerment is social preparation and value formation. The inability to sustain co-management may be partly attributed to the insufficient time allocated to the social preparation phase of the process and to rapport-building and value formation in the community. Social preparation should always precede technical and material interventions. Cutting corners during the social preparation phase to yield to pressures to produce material accomplishments is likely to weaken the foundation for self-reliance in the community. Good so-

cial preparation is manifested in positive attitudes toward collective action and in the readiness of community members to take on responsibility for resource management and decision-making (Pomeroy *et al.* 1996).

Community organisations

The existence of a legitimate community or people's organisation is vital means for representing resource users and stakeholders and influencing the direction of policies and decision-making. These organisations must have the legal right to exist and make arrangements related to their needs. They must be allowed to be autonomous from government. The organisation will need to be recognized as legitimate by the community members and stakeholders, not just be a government established organisation, to carry out its mandate.

In the Philippines, the formal recognition by the government of the role of resource users as valuable partners in co-management is established through the Local Government Code of 1991 and the Fisheries Code of 1998. People's organisations are formally allowed to enter into partnerships with local government units on a broad range of activities (Katon *et al.* 1997). The more successful co-management projects in the Philippines were those where organizing is not a prerequisite, but rather the community organisation evolved after the people recognized the need for it to address a collective concern (Sandalo 1994).

Long-term support of the local government unit

The cooperation of the local government and the local political elite is important to co-management. There must be an incentive for the local politicians to support co-management. There must be political willingness to share the benefits, costs, responsibility and authority for co-management with the community members. Co-management will not flourish if the local political 'power structure' is opposed in any way to the co-management arrangements. The case studies in the Philippines, for example, show this quite clearly. In those communities where the political elite were not included in the process or were opposed to the project for some reason, the interventions failed to be sustained after the project ended (Pomeroy *et al.* 1996). In addition to the political elite, local government staff must endorse and actively participate in the co-management process. Local government can provide a variety technical and financial services and assistance to support local co-management arrangements such as police, conflict management, appeal mechanism, and approval of local ordinances.

Property rights over the resource

Property rights, either individual or collective, should address the legal ownership of the resource and define the mechanisms (economic, administrative, collective) and the structures required for allocating use rights to optimise use and ensure conservation of resources, and the means and procedures for

enforcement. The case studies in the Philippines show that when user rights are specified and secure (such as with a mangrove certificate of stewardship contract), there is a change in the behaviour and attitude of the resource user toward conservation and a much greater chance that the intervention will be maintained. Without legally supported property rights, resource users have no standing to enforce their claim over the resource against outsiders. In most cases, local initiatives require active collaboration with government to protect and enforce user rights (Pomeroy *et al.* 1996). Local interventions were sustained where property rights existed, were clear, and were enforced (Pomeroy *et al.* 1996).

Adequate financial resources/budget

Co-management requires financial resources to support the process. Funds need to be available to support various operations and facilities related to planning, implementation, coordination, monitoring and enforcement, among others. Funding, especially sufficient, timely and sustained funding, is critical to the sustainability of co-management efforts (Segura-Ybanez 1996). In many instances, resource user organisations are unable to continue existing programs or start new ones due to limited financial resources that members can raise on their own. Often co-management projects which are initiated and funded from outside sources fail when the project finishes due to the inability of the partners to fund the activities. Funds also need to be made available on a timely basis to sustain and maintain interventions. The co-management arrangements must be supported and accepted so those partners will be confident enough in the process to invest their own funds and time. Co-management must be designed from the start with a secure internal budget source. Community members will need to invest their own financial resources in the process. Too much dependence on external sources will impact upon sustainability of the arrangements (Carlos and Pomeroy 1996).

Partnerships and partner sense of ownership of the co-management process

Active participation of partners in the planning and implementation process is directly related to their sense of ownership and commitment to the co-management arrangements. Partners involved in co-management need to feel that the process not only benefits them, but that they have a strong sense of participation in, commitment to and ownership of the process. External agents working to plan and implement the co-management arrangements must allow the partners to recognize themselves as the owners and directors of the process. Early and continuous participation of partners in planning and implementation of co-management is related to success (Pomeroy *et al.* 1996). It allows partners to demonstrate their commitment to the process. Not only does this type of involvement serve to adapt activities to local needs, but partners also gain a better understanding of the problems involved in implementation and a greater sense of empowerment and confidence. Objectives need to be developed jointly by the partners and external change agents.

Partnerships in co-management must grow out of a mutual sense of commitment (Segura-Ybanez 1996). Adequate coordination, communication and consultation are necessary, especially with multiple partners. It is important to have clarification about each other's role, goals, purpose, operation, style and limitations (Carlos and Pomeroy 1996). The process of clarification must take place through equitable dialogue and partnerships. When the actions of collaborating partners are not synchronized and consistent, resource users see too many 'role players' and this may lead to misconceptions and wrong expectations, and eventually hamper success. Thus, an appropriate operational structure and agreement should always be developed based on the needs of co-management arrangement so that coordination between partners will be effective without being too costly to the structure.

No co-management arrangement can survive unless a relationship of trust and mutual respect is developed and maintained between the partners. The establishment of trust between partners usually takes a long time to develop and takes concerted effort by the partners. There is some risk involved by the partners in participating in co-management. Fishers usually have a low level of trust of government, for example. Trust will require the development of good communication channels and open and ongoing dialogue. Meeting objectives and mutually agreed targets enhances trust. These actions reduce risk and stimulate partner cohesion that will have a positive effect on building trust. This can be started in the early stages of the co-management process and strengthened over time. At the Oxbow Lakes of Bangladesh, trust was developed among the fishers by upholding the rules. Those individuals who consistently disobeyed the rules were dismissed from the fisher organisation (Khan and Apu 1998).

Providing forums for discussion are fundamental to developing trust among partners. A process must be developed to understand needs and expectations of all partners. Decisions must be made in a context of mutual respect where the partners respect each other's concerns needs and knowledge. In some cases, needs and expectations may not be straightforward. Values held by different groups, including cultural, religious and traditional beliefs, must be respected. Public discussions that encourage a free and non-threatening exchange of information foster effective communication. Dialogue clarifies an understanding of needs, expected roles, extent of responsibility sharing among partners and expected benefits and costs in the short-term and long-term, among others (Baticados and Agbayani 1998).

Accountability

Co-management means having a process in which business is conducted in an open and transparent manner. All partners must be held equally accountable for upholding the co-management agreement. The partners have common access to information. Venues are provided for public discussion of issues and to reach consensus. There needs to be accepted standards for evaluating the management objectives and outcomes. Without strong accountability, decision-making can become corrupt and arbitrary (Sandalo 1994; Yap 1996). A body outside of the community, such as government or an NGO, may need to monitor and evaluate the co-management process. This outside body can serve to provide checks and balances to make the process more accountable in a formal way. Formal agreements will require a structure for legal accountability among the partners.

Conflict management mechanism

Arbitration and resolution of disputes are imperative when conflicts arise over co-management and institutional arrangements. If resource users are to follow rules, a mechanism for discussing and resolving conflicts and infractions is a must. There is a need for a forum for resource users to debate and resolve conflicts and to appeal decisions. Conflict management should be conducted at the local level where solutions can be found quickly. It is often useful to have a mediator who can objectively assess and propose solutions to the conflict. While the government can act as an outside mediator for local conflicts and as an appeal body, heavy reliance on the government to resolve conflicts is not good. Co-management thrives in a situation where forums and appeal bodies are available for deliberation and conflict resolution. The Philippine and Bangladesh experiences show that conflict management tends to be less problematic when the resource users are involved in rule formulation and enforcement and when sanctions are imposed on the rule violators (Khan and Apu 1998; Baticados and Agbayani 1998; Katon *et al*. 1998).

Clear objectives from a well-defined set of issues

The clarity and simplicity of objectives helps steer the direction of co-management. Partners need to understand and agree on the issues to be addressed, know what must be achieved, where the activities are headed and why. Clear objectives developed from a well-defined set of issues are essential to success. Those involved in the co-management process must see and agree that the issues are important to their daily existence. The co-management process may involve multiple objectives and multiple implementation strategies. These should be prioritised, and linked where possible.

Fundamental to co-management is a common understanding of the situation, comprehension of the root causes of the problems and the issues, and an agreement on appropriate solutions to the identified problems. Fisheries tend to be better managed when resource users, stakeholders and partner

organisations have a good grasp of why they are managing the resource and what results are envisaged (Katon *et al.* 1997).

One of the major reasons for failure of certain community-based management projects in the Philippines is lack of problem recognition by resource users. This may sound like a simple issue but due to the top-down approach of many co-management projects, the resource users are really not active but passive recipients of project interventions. The project objectives are conceptualised outside the community and without true community participation. As such, the resource users may not fully recognize the problem in the same way as the external change agent. The resource user may also work with the project only for what they can get out of it, not fully participating for long term success. Of course, this is not always the situation. In some cases, the resource users recognize that there is a problem and take the initiative for action themselves.

Management rules enforced

The management rules are simple. Monitoring and enforcement are effected and shared by all fishers. The research found that enforcement of management rules was of high importance for success of co-management. In San Salvador Island, Philippines, the fishers shared responsibility for guarding the marine sanctuary which led to high levels of enforcement of rules (Katon *et al.* 1997).

Vigorous, fair and sustained law enforcement requires the participation of all partners. Enforcement can be carried out separately by an enforcement unit, or in collaboration between local informal or traditional enforcers (church, senior fishers, local leaders) and formal enforcers (police, coast guard). Community sanctions – teaching, example, social pressure – are important and can be useful in increasing compliance. Local enforcement efforts may need to be backed up by government enforcement bodies to ensure objectivity. It may be necessary to have government law enforcement agencies involved in dealing with outsiders in order to have better cooperation.

The motivation to comply with regulations depends upon rational decisions where the expected benefits of violating the rules are measured against the risk of getting apprehended and fined. It is also linked to socio-cultural mechanisms that regulate behaviour (fear of ancestral spirits, social exclusion, moral obligation). A key variable for determining compliance is the individual perspective of the fairness and appropriateness of the law and its institutions (Kuperan *et al.* 1996). The willingness to comply is linked to the perceived legitimacy of the authorities charged with implementing the regulations. Local enforcers (*bantay dagat* in the Philippines, *kewang* in Indonesia) can be very effective provided they are formally legitimised (Novaczek *et al.* 2001). Rules should be simple so those affected by them can easily un-

derstand and comply. There needs to be good communication between the enforcement unit and the resource user group. The co-management process is put in jeopardy if even one partner fails to comply, even in part, with the agreement.

11.2.3 Individual and household Level

Individual incentive structure

The success of co-management hinges directly on an incentive structure (economic, social, political) that induces various individuals to participate in the process. Such individuals may include a resource user, a resource stakeholder, a government fishery manager, or a politician. Individuals must have a sense that the rules in place are equitable and there must be sharing of costs and the benefits. Individuals must feel that the benefits to be obtained from participation in the co-management arrangements, including compliance with rules, will be greater that the costs of such activities. The co-management process often involves giving up individual short-term benefits for real and perceived longer-term benefits. For the individual, the costs of decision-making, especially in terms of the time involved, cannot be too high or participation will fall. Often, the short-term costs are high in terms of lost income or voluntary labour. For a poor fisher with a family to feed, the incentive structure to support and participate in co-management must be clear and large. Risk is involved for the individual in changing management strategy. The fisher must understand and agree to the co-management arrangements. The fisher must recognize an incentive for co-management before the process begins and/or need information to further develop their understanding and recognition of the incentive. The recognition of resource management problems may take the form of a progressive decrease in fish catch, disappearance of valuable species, declining mangrove stands, and existence of resource use conflicts. An impetus is needed to propel co-management forward (Pomeroy and Berkes 1997). In successful cases of co-management in the Philippines, awareness of resource-related problems prompted stakeholders to enter into collective action, particularly in communities that are heavily dependent on coastal resources and are vulnerable to non-sustainable resource uses (Katon *et al.* 1997; Baticados and Agbayani 1998; Katon *et al.* 1998). This is largely due to the threats to survival, economic livelihood and food security that deteriorating resource conditions bring about.

The incentive may start as simply as hope for a better tomorrow, but usually 'matures' as the individual gains more information and as the process develops over time. It is often easier and faster to implement co-management arrangements where the resource user recognizes an incentive for participation on their own and undertakes action rather than when an incentive is presented to a resource user by an external agent. One method to measure that an incentive structure for participation and action does exist in a com-

munity is when the community members invest their own resources (labour, money) in the project.

Different incentive structures appeal to different individuals. For an individual resource user, the incentive may be economic, primarily in terms of higher income, food availability or protection of livelihoods (Khan and Apu 1998; Thompson *et al*. 1998). It may also be social, in the form of higher prestige among peers or legitimate access to coastal resources (Segura-Ybanez 1996; Katon *et al*. 1997; Baticados and Agbayani 1998). Co-management arrangements that offer an improvement in these areas are likely to be appealing. Economic incentives are also important to resource stakeholders, such as fish traders and processors, who are directly dependent on a steady supply of fish products for their livelihood. For resort owners, dive tour operators and managers of tourist-related businesses, the preservation of coastal ecosystems and the maintenance of clean coastal waters are vital because these have a direct bearing on the earnings they derive from those who patronize their businesses.

Other resource stakeholders may be motivated by different incentives. The concern for stable ecosystems, food security for present and future generations, improved living conditions, and equitable property rights often underlie the motivation of development advocates, external agents, and individual members of resource management councils. The reduction of conflicts and the streamlining of plans and policies through co-management arrangements may motivate government administrators, planners and policy-makers to support co-management.

For politicians, the incentive to support co-management may be rooted in the desire to be recognized for their achievements in governance and resource management. Such achievements strengthen their capacity to win more votes from a broader base of constituents and improve their chances of being re-elected to positions of power and influence.

11.3 Policy implications for fisheries co-management

The conditions discussed in the section above are those that have been identified from Asian experience for the successful implementation of community-based co-management. As mentioned earlier, this is not a comprehensive list. These conditions are meant to serve as a guide in the planning and implementation of co-management. The conditions must be viewed in the distinct political, biological, cultural, technological, social and economic context of the Asian region and the individual countries. We need to bear in mind the role these unique characteristics play in shaping the process and implementation of co-management in Asia. They are different from those in

Western societies and reflect the so-called 'Asian values.' Resource management systems must be viewed in the context of the complex interactions of these characteristics that have shaped past and present situations and that have a capacity for influencing the future. These characteristics include the small-scale, subsistence based fisheries, the local community traditions, the social and political structures, the political and economic restructuring that is occurring in the region, and the need for food security.

Some of the conditions can be met by means internal to the community, while others require external assistance. The number and variety of conditions illustrates that the planning and implementation of co-management must be conducted at several levels. These levels include the individual (i.e. individual incentive structure); the stakeholder (i.e. stakeholder involvement, local political support); the community (i.e. fit with existing and traditional social and cultural institutions and structures of the community); the partners (i.e. partnerships, coordinating body and agreements); the government (i.e. government agency support, enabling policies and legislation); the external agent; and the overall process (i.e. trust, networking and advocacy, leadership, organisation, financial resources).

None of the conditions exist in isolation, but each supports and links to another to make the complex process and arrangements for co-management work. In addition, all of the parties (resource users, stakeholders, external agents, government) have different but mutually supportive roles to play in co-management. The role of government in co-management is often associated with the passage of enabling policies and legislation, vigilant and effective enforcement, arbitration of disputes among partners when these cannot be resolved by the parties themselves, provision of financial and technical assistance to sustain co-management activities and promotion of a stable political and social environment. The role of the external agent involves initiating a process of discovery and social learning, guiding problem-solving, building local capabilities and advocating appropriate policies. Resource users and stakeholders are largely responsible for the day-to-day management of resources, participation in consultations, design of appropriate resource management measures and assistance in monitoring and law enforcement. The fulfilment of these complementary roles is crucial to the operation and sustainability of co-management.

Implementation is often a balancing act to meet these conditions as timing and linkages in the co-management process and arrangements are important. For example, developing trust between partners is associated with effective communication and come before the development of contractual agreements between partners. The recognition of resource management problems is associated with the development of clear objectives from a set of well-defined issues.

12 Project Success: Different Perspectives, Different Measurements*

Within Southeast Asia, the government of the Philippines has been a leader in decentralising management of natural resources to the local level. Between 1984 and 1994, more than a hundred community-based resource management (CBRM) projects were undertaken. According to Pomeroy *et al.* (1996), the time, funds, and collective effort put into these projects have allowed implementers and participants to accumulate valuable knowledge in the area of CBRM. An overall evaluation by Pomeroy and Carlos (1997) revealed, however, that less than 20 per cent of these projects were identified as being successful. The criteria used to evaluate success were that the community organisation still existed and that at least a single project intervention was maintained after the project terminated. It may have been that the project components (alternative livelihood programmes, the installation of a protected area, or technology for increased fish production) were implemented at a time when the people were not ready for them, or that for the people the project components were not relevant, but *why* the majority of projects failed, is not clear. It is, however, not the scope of this chapter to discuss project failure, but to discuss *how* to measure failure, or, in that respect, project success. Indeed, a more in-depth study by Pomeroy *et al.* (1996) showed that while projects could be unsuccessful in the eyes of the implementers, the project participants did not necessarily perceive the projects as failures at all.

This chapter is in the form of a review and attempts to shed light on why the perceptions of project staff and beneficiaries are contradictory, and how we can revise the methodology of evaluation in order to capture the impacts of a project from both perspectives. The chapter begins to explain the discrepancy in project evaluation with an illustration from the above-mentioned study by Pomeroy *et al.* (1996). Then it takes a step back in time and explains why conventional development projects shifted to people-centred resource management. It explains the difference between the perspectives of the project participants and those of outsiders, and the consequences of this for perceptions of project success. How the 'inside perspective' can be measured objectively, and what should be measured and when, is discussed as well as the methodology. Finally, the chapter describes the obstacles to include the extra measurement in CBRM and co-management project evaluations.

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12.1 Success or failure?

The in-depth analysis by Pomeroy *et al* (1996) covered nine project sites that were part of the Central Visayas Regional Project-1 (CVRP-1) and the Coastal Environmental Programme (CEP) in the Philippines which started in 1984. The study showed that, while projects could be unsuccessful in the implementers' eyes, the project participants perceived them as largely successful. To be more precise, the analysis suggested that the community-based coastal resource management projects evaluated were successful despite partial or complete failure (or destruction by natural events) of some project objectives such as mangrove planting, artificial reefs, fish aggregating devices, and shellfish culture.

Illustrative are two cases: Calagcalag and Tiguib, in the municipality of Ayungon region, Negros Oriental. Impacts were measured on two levels: (1) the independent variables (project variables and context variables) and (2) the dependent variables (achievement of intermediate objectives and impacts on 'well-being' of the coastal ecosystem). The first set of independent variables is less relevant because these variables are comparable for both cases. The latter most clearly underline the argument in this chapter. Calagcalag is presented as a successful case, while Tiguib is classified as being unsuccessful. The first subset of dependent variables included both material objectives (see above) and non-material objectives such as training and institution building. The second subset (well-being of the ecosystem) included both human and 'natural' components. For a more elaborate description see Pomeroy *et al*. (1996).

12.1.1 Calagacalag

The artificial reefs (ARs) installed as part of the material intermediate project objectives, were ineffective and partly destroyed by typhoons, as happened with the Fish Aggregating Devices (FADs) that were installed. However, both are being reinstalled. Mangrove reforestation was a failure because apparently an improper species was selected, as was the case with an oyster-farming project. The goats introduced as alternative livelihood died or were not very useful –in fact, the very idea of goat milk amused many respondents. From the intermediate objectives, only the seaweed culture as part of the sea farming and the installation of a marine sanctuary were successful.

From the organisational and institutional perspective, the Fishermen's Organisation was active, but not widely supported – membership being beneficial to those who wanted access to the mangrove plantings, ARs and FADs, or to the alternative livelihood programmes. Activities concerning use rights and management efforts (community-based monitoring and enforcement), were successful in the sense that most respondents from the fisher community knew *why* the sanctuary and other regulations were installed, namely, to protect the fish habitat and breeding area. Generally, the perceived impacts

(ten in total) on the ecosystem were positive, except for access, which was related to removal of fishing area by the installation of a sanctuary.

Pomeroy *et al.* (1996) suggest that it is important to note that this overall perception of positive change exists despite partial or complete failure (or destruction by natural events) of some project objectives. They write further that the early involvement of the fishing groups in the project gave them a better understanding of the difficulties that came with the introduction of new technologies. Additionally, the adaptive nature of the project, the willingness of the project staff to listen to beneficiary complaints and institute changes in implementation procedures, resulted in the participants' feeling that they, in part, influenced project success (ibid.). This was also the case in less successful projects, where an overall perception of positive change existed despite partial or complete failure of some project interventions. This is clear from the next case.

12.1.2 Tiguib

As in Calagcalag, the ARs and FADs in Tiguib were destroyed or deteriorated, but in contrast to the first case never reinstalled. The fish sanctuary was not installed at all. The mangrove reforestation survival rate was only ten per cent and livestock dispersal was limited. Apparently, sea farming was not part of the project. The Fishermen's Association has had its 'ups and downs', but at the moment of the evaluation was active – the interest of the members mainly in mangrove reforestation and access rights to ARs and FADs, despite the fact that these were reported as destroyed at the time. The Fishermen's Association was reactivated as a means of obtaining a milkfish fry collection concession. In this village there was a clear difference in the understanding of the use of creating rules, ARs, and FADs, between the members of the Fishermen's Association and the non-members.

The Tiguib near shore component of CVRP-1 was considered to be less than successful by project staff. From the perspective of the fisher households interviewed, however, statistically significant improvements were perceived in seven of ten impact indicators. The three remaining impacts were perceived as improving, but were not statistically significant. Again, it is important to note that this overall perception of positive change exists despite partial or complete failure of some project interventions. Fisher people noted an increased level of knowledge of project objectives and a high level of participation in project planning and changes in the project. They may have felt a sense of empowerment because while the original association failed, a new association was formed to take advantage of an economic opportunity. This indicates that when the right circumstances existed, the residents of Tiguib demonstrated that they can work together.

From the study it appeared that project staff were focusing more on easily observable impacts, for example, functioning fishermen's organisations, area of mangrove successfully replanted, etc. The fishermen, however, felt a sense of empowerment and increased knowledge. They had more information with which to make decisions and improve their life, they had more skills, and they felt more integrated into the economic and political mainstream. However, although the general project approach was bottom-up, indicators for project success were solely defined by the project implementers or outside evaluators.

The bottom-up approach implies a highly participatory form of planning, action and evaluation, that is, one which involves a high degree of input by the local participants (IUCN/UNEP/WWF 1991). Hence, evaluations by *both* project staff and beneficiaries are important, and it is also important to understand that they reveal different results based on different criteria of success or failure. In fact, it is the evaluation by the community members themselves that will influence their subsequent behaviour and thus the potential sustainability *and* success of the project.

12.2 From development to people-centred resource management

Evaluation of intermediate objectives is basic to any project evaluation. It is a matter of determining stated objectives from project planning documents, and determining whether or not the objectives have been met (Pomeroy *et al.* 1996). It is clear from the above, however, that this way of assessing project success is inadequate, but then, *why* are such indicators still used? In order to understand this, we have to review the historical practice of development project implementation.

Indicators commonly used to measure success of development projects were designed at a time when most projects aimed to increase the well-being of the local population by intensifying their (agricultural) production. Local people were merely recipients of advice and training to increase their harvests. The top-down, blueprint development approach stimulated neither people's affinity with nor their sense of responsibility over the projects. Failure of many of these projects in the 1960s and 1970s led to a shift in development thinking, of which Chambers' *Farmers First* (1989) is an enlightened example. Attention shifted from strictly production to farming systems research and extension. It was acknowledged that without the support, consent and participation of the target population, a project was likely to fail (Korten 1986). Technology and production, however, were still regarded as keys to development.

The ever-increasing exploitation of natural resources, however, led to their degradation and over-exploitation. In the early 1980s, it became clear that sustainable resource use and conservation were the only options to reverse the process of decline (*Rio Summit*; *Our Common Future*, WCED 1987; *Caring for the Earth*, IUCN/UNEP/WWF 1991). The efforts of centrally organised conservation projects, such as massive reforestation projects, to combat over-exploitation and degradation and to improve monitoring, control and surveillance, however, also proved ineffective (see also Persoon and Sajise 1997). Governments were often unable to implement or enforce the regulations that were issued for the management of natural resources. At the same time, local communities did not have the means and mandate to participate, even if they had a traditional management system. Slowly the idea emerged that it was not the government institutions, but the people who were the true resource managers (Korten 1986; Poffenberger 1990; Bromley 1992).

Community-based Resource Management (CBRM) strives for more active people's participation in the planning and implementation of natural resources management. Its central concern is the empowerment of groups and social actors and to create a sense of self-reliance. It starts from the basic premise that people have the innate capacity to understand and act on their own problems (Ferrer and Nozawa 1997; Rivera 1997). However, it has also been realised that the government is a crucial partner in resource management to provide enabling legislation, information and other assistance (Pomeroy and Berkes 1997). This form of management is called co-management, a partnership between government and community.

A wealth of literature has been written on Community-based Resource Management and Co-management (for instance, McCay and Acheson 1987; Jentoft 1989; Pinkerton 1989; Berkes 1990; Ostrom 1990; Poffenberger 1990; Bromley 1992; and Pomeroy 1994, 1998). Many lessons have been learned and conditions for success defined, but *how* to measure this success, or rather, the true perception of success, is still unclear. Although the approach has changed over the years, and more components are included to enhance project success, the indicators used to measure this success have not been changed.

12.3 Shortcomings in evaluation

The question therefore is: what kind of indicators do reflect project success? For the answer, we have to look at the structure of CBRM and co-management itself. In order to shift from the role of resource users to the role of resource managers, project participants in CBRM required different skills and capabilities. A new set of methods were designed, called participatory

methods, through which the local population would not only have a voice, but would also be able to participate in all project components.

A few examples currently in use are: PRA (Participatory Rural Appraisal) which focuses on interaction based on communication means which are locally understandable PTD (Participatory Technology Development) a method which includes local production techniques in agricultural development; and RAAKS (Rapid Appraisal of Agricultural Knowledge Systems) a method which is used to learn about a local situation and, through dynamic interaction, works at problem resolution, in, for example, agricultural settings (Kidd 1979; Korten 1986; Uphoff 1986, 1992; Engel *et al.* 1994). In addition to the use of participatory research methods, in many projects, a training component is added to increase local capacity. People need to acquire communication skills, the ability to formulate project goals, to plan and delegate tasks, solve problems and other abilities necessary to be partners in executing a community-based management project, a process usually referred to as capacity building.

If we take a look at the general process of implementing a CBRM project, various phases can be distinguished. In his article on CBRM, Pomeroy (1998) distinguishes three project phases: the pre-implementation phase, the implementation phase and the post-implementation (or phase-out) phase. The first phase (sometimes overlapping with the second) is usually the phase in which the community members develop their 'management skills'. This phase of community development is also referred to as the 'social preparation process' (Pomeroy 1998).

The Philippine experience shows, as do other cases, that the social preparation process is time-consuming. It was concluded that for a truly participatory project, the time required for people to master new skills for CBRM would be at least three to five years, but probably longer (Borrini-Feyerabend 1996, Pomeroy *et al.* 1996; van Mulekom 1999). In reality, however, many projects are planned for a shorter time span, even if they do include a social preparation process! The result is that the material project interventions are carried out while the beneficiaries are still in the process of developing the skills needed to actually understand the project interventions, and are not in a position to implement them. Consequently, at the end of the project life – which is not necessarily the end of the developments in the field – project interventions are not (or not fully) implemented or sustained. In these cases, the project is deemed to be a failure. However, it is entirely possible that if the participants had been given more time, chances are that in the longer run, project objectives may have been accomplished.

Not only is the timing to measure project success essential, it is also important to know *what* to measure. The fact is, that even though community-

based resource management is people-centred, in most cases project evaluation does not include the personal achievements of the participants. Despite the personal development of the project beneficiaries, project evaluation has remained focused on quantitative and material indicators of project success. The less tangible results of the project such as changes in attitudes, beliefs and values of the project participants, or their sense of empowerment, which was important in the case-studies mentioned earlier, were and are not measured.

From the above, it can be concluded that the reason why projects are often evaluated as being unsuccessful is because neither the timing of the evaluation, nor the criteria used to measure success are appropriate. Chances are that the criteria that are measured are those that the project implementers feel are important, while overlooking those representing the experience of the participants. The obvious solution to this deficiency is to re-define success and to develop new criteria to measure project results. This is, however, only possible if those who evaluate the projects are aware of their limited perception of reality, and recognise that the local community may evaluate project success differently to the researcher or evaluator him- or herself.

12.4 Emic and etic

The disparity between what is actually measured and the people's perceived impacts of the project can perhaps be understood using some theoretical ideas from Anthropology. Harris (1991) for example writes: 'The problem is that both the thoughts and behaviour of the project participants can be viewed from two perspectives: from that of the participants themselves and that of the observers. In both instances, scientific, objective accounts of the mental and behavioural fields are possible. In the first instance, the observers employ concepts and distinctions that are meaningful and appropriate to the participants; in the second instance they employ concepts that are meaningful and appropriate to the observers. The first way of studying culture [or perceptions of success] is called *emics* and the second way is called *etics*.'

Borrowed from linguistics (Pike 1954), phon*emic* refers to what a sound signifies in the minds of the users. Phon*etic* on the other hand refers to scientific descriptions of sound with no reference to meaning, that is, from the outside. Etic categories are those that the researcher employs for the purposes of scientific classification, analysis, and understanding of human-environmental interactions (Lovelace 1984). Emic is concerned with the elements, aspects, and interpretations of the belief system as perceived or conceived by the members of the culture or society under consideration (see also de Groot 1992 on the use of emic and etic in the perception of environmental problems).

The problem is that even though many projects claim to value the participation of the local people, they tend to neglect emic categories. Project output is expressed in concrete, technical terms; evaluations focus exclusively on etic observations. However, strictly etic assessments are inadequate for projects that have socio-cultural impacts. 'During the process phase it is meaningful to determine how the people perceive the natural environment, the local problems, the alternative solutions, their abilities to intervene, but most importantly, their capabilities to do this collectively' write Pomeroy and Carlos (1996). In the absence of emic considerations, it is impossible to discover these local conceptions and perceptions.

This does not mean that etic measurements cannot be used to measure success. On the contrary, the physical aspects (that forms part of the etic environment connected to the values and views of the project implementers) are important project results. However, they need to be measured in a later phase. It is essential that the two types of project evaluation take place at the appropriate time. As long as the social preparation phase is ongoing, there is no need (or use) to measure material output even though they are part of project activities. This is the moment for emic considerations. Only after the project has phased out and when the community has had the time to actually carry out project interventions, is it appropriate to measure according to etic standards.

12.5 Subjectivity objectified or: emic becomes etic

The purpose of the discussion of emic and etic is not only to elucidate the difference in perspective, it also touches on issues such as objectivity and validity. What we have seen is that not only the timing, but also the decision of *what* to measure is crucial in the evaluation of project success. Until a more pluralistic approach is widely accepted, what is measured depends for a large part on the demands and requirements of donors and/or the implementing agency (see also Anderson *et al.* 1998). The prevailing positivist mind-frame of researchers – who often design or are involved in implementation of the projects – evokes a natural preference for easily observable results that can be quantified and measured (Leurs 1996). However, it is a false assumption that only empirical observations lead to valid and objective measurements. The non-material, subjective, personal experience of the project participants can also be transformed into observable facts.

De Groot (1992) explains in his environmental science theory how people form conscious structured pictures in their heads based on facts from the outside world. He concludes that if we externalise this subjective picture – by putting it onto paper, measuring it and testing it – it becomes objective. During the social preparation process of a project, people not only learn, but

become conscious of their personal progress and capacities. This personal development needs to be translated into 'pictures'. With the right set of indicators and methodology people's perceptions can be captured, hence, their experience can be externalised and measured. This is exactly what is foreseen in an emic evaluation: the subjective, emic experience becomes an objective, etic observation that can be measured and analysed in a scientifically valid way.

There is another advantage to this approach. During the social preparation process, it is expected that people's perceptions will change and that their awareness concerning environmental problems will grow. People will realise that not only do they cause environmental problems, but they also can play an active role in solving them. At the moment when this consciousness becomes part of their conceptual framework, we speak of *internalisation*: the process in which behavioural codes originating from others become part of the personality of an individual (Wilterdink and van Heerikhuizen 1985). The measurement of people's perceptions and experience at an early stage stimulates the process of internalisation and the project beneficiaries become more self-aware. Instead of following passively what is prescribed by the project, people will start acting based on personal considerations.

Increased self-awareness further enables project participants to contribute and join the process as equal partners in sessions where project goals are developed with the project implementers. This is extremely important during the pre-implementation phase of co-management, because it is often in this phase that a resource problem is recognised by the resource users and stakeholders, followed by an open discussion about the problem, negotiation, consensus building and the development of agreement on a plan of action and strategy (Pomeroy 1998). At this stage, the community may seek assistance from outside agencies such as government, NGOs and others.

In the next phase, the implementation phase, field workers and community organisers generally conduct meetings to discuss the concept of co-management and discuss the project. Baseline data is collected and participatory research conducted. Once the community feels comfortable with the community organisers, a community problem-, needs- and opportunity assessment is conducted, information is shared, and management and development objectives are defined in a communal process (Pomeroy 1998). This is, of course, in an ideal situation where there is consensus and where there is common ground to define the project objectives. If this is the case and the outcomes are the result of a communal activity, it may be assumed that that the physical objectives of the project as perceived by the beneficiaries (emic) and the implementers (etic) coincide. The second measurement of these physical outcomes, right after the project phases out, thus will represent an objective, etic perception of project success.

12.6 What to measure and when?

Two important components of the social preparation phase are 'communication-mechanisms' and participation. Communication mechanisms are used to clarify and define the roles of participants, that is, local people and project representatives, in the different phases of the project. Exercises can help people to understand principles of adult learning and community participation. Trainers and participants become aware of preconceptions about each other; they learn about group behaviour and role perceptions (see for example the FAO Handbook for Participatory Evaluation 1988; UNDP Toolbook 1993). These exercises and other tools enhance participation. They help to establish a working climate that stimulates involvement of various stakeholder groups and allows people to partake in decision-making. The communication-mechanisms thus provide the prior conditions for active participation and stimulate capacity building.

From several studies and experiences, one criticism of participatory methods is that, despite the attempts to develop a methodology which creates equity, PRA and other participatory methods still imply an imbalance of power (possibly because of funding) and control (due to lack of accountability) (Leurs 1996). The construction of local knowledge (and the emic picture) is strongly influenced by existing social relationships, in particular by relations of gender, power, and by the PRA facilitators themselves (ibid.). This means that these methods need to be applied critically.

Several studies, guidelines and training manuals for a participatory approach provide possible indicators that represent community attributes, such as awareness and capability (UNDP Toolbook 1993; Pretty 1994; Pomeroy *et al.* 1996; Borrini-Feyerabend 1997; IIRR 1998). These indicators allow a measurement of project success on different levels: the personal/individual level and the community level. It is recognised that these indicators are predefined and, in this sense, contradictory to what we actually want, that is, development of indicators in the field. However, in the absence of a more adequate method, this seems a good basis for the measurement of project results. It is hoped the discussion in this chapter and the growing recognition of the need for a more pluralistic approach (Anderson *et al* 1998) will stimulate the development of new tools for evaluation.

Possible indicators that represent project beneficiaries' personal achievements and benefits are listed below in Table 12.1.

TABLE 12.1

INDIVIDUAL INDICATORS FOR PROJECT SUCCESS

- *Involvement*: in the project design; in decision-making; in management; in defining boundaries; in rule development;
- *Capability*: to express an opinion; to make decisions; to prioritise issues; to participate in a meeting; to write a proposal; to speak in public; to work in committees;
- *Control*: over the process; over resources; over people's own life;
- *Access*: to knowledge; to meetings; to resources;
- *Skills*: to repair and maintain technical equipment; to manage a project; to solve problems;
- *Personal change*: in awareness; in sense of responsibility; in self confidence; in initiative; in self respect; in generating new ideas; in willingness to deviate from customs and community values; in willingness to take risks.

With these indicators, differences within the community can be measured (in terms of class and gender, for example). For the community as a whole, success will be defined in a different way because achievements other than the purely personal are also important. The community viewpoint is naturally more concerned with general benefits and accomplishments. A set of indicators to identify changes on the community level is listed in Table 12.2.

TABLE 12.2

COMMUNITY INDICATORS FOR PROJECT SUCCESS

- *Communication*: commitment of stakeholders; recognition of stakeholders; understanding between stakeholder groups; expression of different viewpoints; level of open disagreement;
- *Representation*: of various stakeholders; of various social groups; of women; of socially marginalized groups;
- *Collaboration*: between individuals; between neighbourhood groups; between various social (differentiated) groups;
- *Trust*: between staff members; between staff and government; between staff and project beneficiaries;
- *Support*: of higher government levels; of the local leaders; of a NGO; of the project staff; of village based organisations.

It should be apparent that this list is not exhaustive. Furthermore, it is likely that selection of indicators will be useful depending on the local situation. However, with such indicators emic evaluation can be attempted. The early emic evaluation has the advantage that it allows the project to adapt over

time and thus prevent possible failures (see also Pollnac 1989). Since the social preparation process often takes place during the implementation phase when physical project activities have also started, it maybe an option to include material and physical project indicators in the preliminary evaluation (see list below). This evaluation typically focuses on the process of project development in terms of material achievements. It will show whether the project goals are appropriate, need to be modified, adapted, or skipped altogether. The advantage of this early measurement of physical indicators is that it enhances the self-esteem and awareness of participants, and also reveals the priorities of the project participants. Hence, it further stimulates internalisation of project objectives, which makes it more likely that the selected activities are actually carried out.

It is only in the last phase of the project, the post-implementation phase, that the final etic evaluation of the project takes place. Not only are the physical outputs of the project measured in a quantitative way, but also the organisational, non-material, success factors are quantified, such as the intensity of group involvement and the functioning of the management system and enforcement mechanism, see Table 12.3.

TABLE 12.3

PROJECT INDICATORS OF SUCCESS

- *Success in terms of material output*: size of yields; catches per unit effort; hectares of protected areas; hectares of mangroves/forests replanted; occurrence of destructive practices by local people.
- *Success in terms of human involvement*: number of people attending the training; numbers of participants in project; frequency of staff-meetings; size of the network.
- *Success in terms of project benefits*: division of benefits; economic opportunities; well-being in terms of health; well-being in terms of income; flow of investments; education level.
- *Success in terms of management structure*: management institution designed and active; management plan and regulations designed and implemented; enforcement structure in place; conflict solving mechanism in place; leadership.
- *Success in terms of participation*: type of participation; dimension of participation.

Ideally, the indicators would be selected by the project participants during the implementation phase of the project. In reality, however, many indicators are predefined in a project proposal drafted by the implementing or funding agency. Even though this may be the case, it is still advisable to lead all project participants through a process in which the goals and objectives are discussed and prioritised. This is essential because if the project goals are locally derived and internalised – and not *imposed on* the people – the definition

of success for both the implementers and the participants can be expected to be similar. This final evaluation then, will truly represent project success.

12.7 Proposed methodology

The last question to be answered is: *how* should project success be measured and by *whom*? The emic and etic measurements require a standard methodology that is valid and allows comparison. The core of project evaluation is people's perceptions. It is essential to use the right method to measure these perceptions, especially since for a number of these indicators no baseline data is available. The measurement of people's perceptions is complex. Perceptions cannot simply be measured by asking people 'what they think', as happens in many studies. These kinds of questions do not reflect the complexity of people's thoughts and the subconscious. Emic indicators (such as perceptions and attitudes) are non-material and qualitative yet quantifiable and demand a certain approach in order to be measured (Bernard 1994).

There are various ways to measure project success and to operationalise the indicators. The methodology to measure people's perceptions of success depends largely on whether the evaluation is action oriented or is part of an academic exercise. In the latter case, each indicator needs to be thoroughly operationalised and studied. This could be done, for example, through anthropological fieldwork directed at the development of a set of indicators. This would lead to scientifically valid outcomes, but can be time-consuming, especially when it concerns a long list of indicators.

Where time is limited because action is required, or where funds and the availability of skilled researchers are limited, alternative methods need to be used. One example of such a method is a visual self-anchoring ladder scale used in the ICLARM-IFM Fisheries Co-management Project (Pomeroy *et al.* 1996). This base-line independent method allows for the use of non-parametric statistical techniques and makes use of the human ability to make graded ordinal judgements. Fishermen are asked to answer questions about the state of the resource, fish-catches, personal well-being, income, occurrence of conflicts, collective action etc. by using a picture of a ladder with ten rungs as a visual aid. The lowest rung represents the worst possible condition; the highest rung represents the best. In the study, fisher peoples' perceptions were recorded of past conditions, current conditions and degree of optimism for the future. The technique deals with variability in perceptions over time and facilitates analysis of the perceived project impacts.

TABLE 12.4 – PRA Techniques (adapted from Jiggins and de Zeeuw 1992; Pido *et al.* 1996)

1. *Visual scoring and ranking systems* can be used to measure changes in wealth and well-being, development of skills, representation of social groups etc.
2. *Time lines* can be used to represent significant changes in the village, but also on the individual level.
3. *Seasonal patterns* can be used to show the relative magnitude of workload, they can also illustrate project activities and extent of involvement in the project.
4. *Venn- and linkage diagrams* are useful to represent social relationships or the importance and influence of different individuals or institutions.
5. *Visual estimations and quantification* record such things as yields and prices, but can also be used to measure skills, initiative, commitment etc.

This is only one example to show the use of participatory techniques to measure project impacts. Other methods, such as participatory evaluation methods, may also be useful (FAO 1988). These techniques allow a great deal of input from participants and are very useful for rapid assessment of the local situation (Chambers 1991, Drijver 1993; Mosse 1994; Blauert and Quintanar 1997). The exercises can be adapted to measure personal change and development accruing from the project, and outcomes can be quantified and compared (see Table 12.4). For more easily quantifiable indicators of project success, relatively straightforward methods could be used, such as observations, enumeration (census) and surveys.

12.8 Conclusion

Over the last decades, development projects have shifted their approach from development to a people-oriented approach. An important concern of CBRM and co-management is the empowerment of groups and social actors. These approaches require extensive participation and the development of local capacity. Project participants need to develop the skills required to manage their resources. However, the personal development of project participants is often not evaluated and project evaluation remains exclusively focused on material outputs.

Project success depends largely on what is actually measured, when, and by whom. In order to evaluate project success from the perspective of both participants and implementers, we need to adapt the indicators used to evaluate the project. The personal development of the participants in terms of increased involvement, access, control, capability, skills, and personal change can be reflected in an emic evaluation. These skills are largely acquired during the social preparation process and the appropriate moment to measure these non-material project impacts is directly after the implementation phase.

The early emic evaluation has the advantage that it allows the project to adapt strategies and adjust project goals, and thus prevent possible failures. It also provides a picture of the performance of the project over time, which may result in a more accurate assessment of what the project has achieved. In this way the chances of project success will not only increase, but it is also more likely that after the project terminates, the participants will continue the project's activities.

The fact that the material project goals are defined collectively with the assistance of government, NGOs and donor agencies, leads to the internalisation of these material project goals by all parties. Since the project outputs are agreed upon and based on collective decision-making, it is more likely that the physical objectives of the project as perceived by the beneficiaries and the implementers will coincide and will be actually carried out. A second measurement at the post-implementation phase, focusing on the material project outputs, thus can be seen to be objective and would truly represent project success.

There are three critical points in this discussion: (1) the acknowledgement of a social preparation process, (2) the need to define project goals communally, and (3) intermediary measurements of various sets of project indicators. Current development structures, however, make no allowance for the extra set of indicators needed to evaluate project success at the emic level. Targets are usually set by those outside the community. Only in a few cases do the opinions of the participants play a major role in project design, implementation and evaluation. Furthermore, in many cases projects are carried over in too short a time, without a clear or long enough social preparation process, and with material interventions started too early. Hence, it is not surprising that the material interventions are either not sustained or never implemented at all. Consequently, the project fails to measure the non-material successes that may actually be experienced by the participants.

Without emic assessments, the evaluation of a project is not complete. But this is only possible when donors are prepared to change their approach away from predefined, entirely material project goals. The implications for donors are significant. It means a restructuring of project proposals to include a longer preparatory process, a redefinition of project goals, and possibly a longer implementation period. This has financial consequences, but more importantly, changing the approach would imply a drastic shift in authority and control over the project. Numerous evaluations and studies of failed projects are a clear indicator that these changes are required to increase the likelihood of project success in the short term, and thus to ensure sustainable resource use over the longer term.

13 Discussion and Conclusions

World-wide decline in fish catches, deterioration of the eco-system and loss of biodiversity has led governments to rethink their approach towards management and conservation. These considerations paved the road towards a more decentralised approach to natural resource management including the transfer of management authority to local and lower government levels. Co-management is but one of the alternative strategies, but one that facilitates and stimulates locally based management with a supporting and facilitating role of the government. In places where there is no history of local management, new structures need to be set-up and substantial groundwork needs to be carried out in order to prepare the local government, villagers and organisations to deal with their new responsibilities. The Philippines provide an example where the implementation of community-based resource management (CBRM) has proven successful both in terms of biological sustainability and in the empowerment and increased capacity of people to manage their marine resources (White *et al.* 2002). In this country, co-management is a widely adopted strategy which, despite certain local setbacks, difficulties and obstacles to be tackled, is progressively being scaled up to province-wide management schemes. The system has increasingly strong horizontal and vertical links, leading to an effective management strategy and providing an important and inspiring example for other villages and countries in the region.

Some countries have traditional forms of resource management that potentially form a basis for local management, like the Pacific inshore fisheries described by Johannes (1978, 1998). Especially now, the new legislative frameworks gearing towards decentralisation and regional autonomy offers great opportunities to acknowledge and formalise these systems. Scepticism over the functionality of traditional management, including the role and capabilities of traditional institutions (Fegan 2004) is countered by the example of *sasi* in Maluku Province, Indonesia. As part of the international ICLARM-IFM Fisheries Co-management Research Project, this local traditional management system was studied in 1997-98 to identify to what extent the institution actually *was* active and functional, and whether it had positive outcomes in terms of sustainability (biological and social), equity and efficiency. Also sought were insights in the mechanisms that make such a system strong and able to deal with disruptions and externalities without breaking down. By identifying the mechanisms behind its resilience and functionality, *sasi* was assumed to provide insights and serve as an example for newly to be set-up management systems, a process which has become actualised in the route

towards decentralisation and regional autonomy that is currently taking place in Indonesia.

In search for successful resource management and the conditions under which this can take place, this study is highly pragmatic in that it is based on an existing system with the objective of drawing lessons and learn from it in order to increase the functionality of resource management systems in Central Maluku and elsewhere. The overall study on co-management in Southeast Asia of the Fisheries Co-management Research Project (Chapter 11) aimed to identify conditions to enhance success of local resource management. Some of the findings are relevant to current processes such as decentralisation. The mechanisms that play a key role in institutional resilience, for example, coincide with the factors described as fundamental to the process of decentralisation, such as transparency and accountability. These results may be helpful to those working in the field of policy as well as to practitioners in the field. The study is embedded in Common Property Theory and some findings either support, contradict or complement the work of Ostrom and others who with their theoretical insights built up over the years are dismantling Hardin's Tragedy of the Commons (1968) by proving that under the right circumstances local people use their knowledge and abilities to design resource management strategies for sustainability, equity and efficiency (Ostrom *et al.* 1999; Dietz *et al.* 2002; NRC 2002). Finally, this study provides some insights in the role of the anthropologist in the study of environmental behaviour and local institutions, but foremost in communicating local perspectives to the other parties involved such as the government and external agents in order to establish a certain degree of understanding and mutual respect.

13.1 *Sasi*

Sasi in Central Maluku has been in place for over 400 years and indicates that rules pertaining to gear types, access, closed areas and seasons can be successfully developed and applied at the local level by villagers independent of external influences and government intervention. In the place of a science-based rationale for management, we find an ethic of working together for the benefit of the community, attachment to a cultural tradition (*adat*), and the tendency to comply with sanctions based on religious beliefs. These have combined to form the basis of a resilient and, within its narrow scope of application, demonstrably effective institution.

The most significant outcomes of the *sasi* study, which was carried out from 1997-98, are on the level of social sustainability. In *sasi* villages, people experienced a higher level of communal action and reduced conflicts. In addition to the perception that *sasi* is a 'good thing', these aspects created important

incentives to comply with the rules. Compliance was further positively affected by a sense of 'control over access', i.e control on who was entering the water. This was particularly the case in *sasi* villages where people trusted their leader and felt more involved with management issues. In those villages people also had a more positive outlook for the future, for example on fish catches. In terms of efficiency and equity, there were no significant differences between *sasi* and non-*sasi* villages. *Sasi* provides effective structures and decision-making processes that may not be very equitable in the sense that all villagers are actively participating, but that were, particularly where traditional authorities were involved, perceived as highly legitimate.

The environmental benefits of *sasi* were limited as *sasi* covers only limited resources and species. Yet, species such as sea cucumber and top shells (*Trochus niloticus*) only seemed to occur in protected *sasi* areas, and without *sasi* these valuable and commercially interesting species are bound to disappear.

Important aspects of *sasi* related to resource management are:

1 An internalised attitude regarding resource management:
   - A cultural value attached to the protection of resources in order to conserve them, but also for strict commercial purposes (coconut) and to avoid theft.
   - The realisation that people are responsible for the resources under their governance (based partly on fear for the wrath of ancestral spirits and God).
   - A concept of the unity of man with nature which is rooted in *adat* and consistent with the modern concept of sustainable use.

2 The concept of community tenure rights over a marine or terrestrial area:
   - Locally developed and agreed-upon regulations on gear types and size of species harvested, as well as regulations that reinforce national laws such as prohibitions on blast fishing and the use of poison.
   - A shared responsibility of all villagers to report violations of *sasi* rules.
   - Local enforcers (*kewang*) with defined structures and prescribed sanctions to impose.
   - A hierarchical institutional structure wherein various tasks are divided among clearly defined bodies, i.e. village government, *kewang*, church, etc.
   - Communication mechanism in place to advise all residents at regular intervals of the substance of *sasi* rules.

3 The concept of limiting access to resources:
   - Open and closed areas.
   - Open and closed seasons.
   - The ability to exclude outsiders from a particular area.
   - The possibility to rent out or auction certain parts of the village marine territory.

4 The concept of 'investing' in resource management:
   - Controlled (i.e. delayed) harvest and distribution of benefits to all villagers.
   - An overall goal of improving or maintaining community welfare (when revenues are used for the village).
   - Enforcement at low or no financial cost to formal government, i.e. kewang members and church leaders involved are not paid. In fact, local government offices may sometimes receive income from the controlled harvest and sale of communal resources.

Additional to these aspects, *sasi* has shown resiliency and the ability to evolve, even after major impacts.

13.2 Institutional resilience

In Maluku, of the 63 villages studied in 1997-98, 19 had lost the entire *sasi* institution. Where some form of *sasi* persisted there had often been a partial loss or a change, for example from *adat sasi* to church *sasi*. Of the 35 villages that used to have *sasi* on marine resources, 17 villages had some form of it left. Post-World War II social, administrative and economic change, internal village conflicts, amongst other reasons, caused *sasi* to break down. Political instability or weak leadership was an important cause for *sasi* to become fragile or disappear altogether. *Sasi* was strongest and most resilient in villages with fewer than 3000 inhabitants that were relatively remote from large urban centres. Village homogeneity appeared important as well as institutional interplay among the governing authorities. Where the new village structures under Law No. 5/1979 embraced traditional authorities, the *sasi* institution was able withstand political changes while collaboration with religious authorities related to the church or mosque made the institution even stronger. In villages where *sasi* was still active, people were strongly attached to it and saw it as an inseparable part of their culture.

The strength of the *sasi* institution can be accounted to several factors. Berkes and Folke (1998) explain that there are social mechanisms behind social-ecological processes that deal with disturbances and so enhance institutional and ecological resilience. *Sasi* comprises a number of these practices, such as temporal restrictions on the harvest (see former section). From our study

we concluded, however, that the social-ecological practices in *sasi* are merely components of the institution and vulnerable to change as they were abolished or overruled as soon as a conflicting situation arose in a village (Novaczek *et al*. 2001). What kept the institution alive appeared to be the social mechanisms that glue these components together, like legitimacy, trust, collaboration and transparency. The importance of trust (and also reciprocity) is also mentioned by Ostrom (1990) although she identified these factors as *conditions* for successful common property institutions rather than *mechanisms* that reinforce institutions. Others too have come to the conclusion that social aspects are important in resource management institutions (Rappaport 1968; Vayda 1969, Rappaport 1984; Jentoft *et al*. 1998, Dietz *et al*. 2002). Interestingly, it is exactly these social aspects that rate significantly higher in villages that have *sasi*, while the presence of these mechanisms, at the same time, forms the basis for the continued existence of the institution. This realisation has important implications when looking at local resource management in the context of decentralisation.

13.3 Revitalization of *sasi*

In 1997-98, various contextual realities were at work toward the revitalization of *sasi* as a management institution. Revitalisation primarily concerned the reestablishment of collective-choice rules and operational rules concerning the day-to-day use. During times of extreme stress the rituals and practical execution of *sasi* were abolished or disappeared altogether. This was not the case for the constitutional choice rules which stem directly from *adat* and are intrinsic to the local culture and which, even where *sasi* disintegrated, only became dormant. They never totally disappeared and could, as soon as the opportunity arose, simply be reactivated.

At the time, the potential to collect resource rents through *sasi* made reviving the institution very attractive, in particular for the local government. For fishers the incentives to support revitalisation were linked rather to culture than the conscious decision to manage resources for sustainability. On the contrary, the strong market demand coupled with high dependence on the fishery made villagers extremely wary of any management measures that limited access or imposed catch limits. Only if they would derive direct benefits from such measures, would fishers support these restrictions. At the same time, competition pushed artisanal fishers to organize themselves and demand clear access and withdrawal rights on pelagic fishing grounds. However, by the end of 1998 the outbreak of the civil strife and subsequent social disruption severely impacted the fishery and developments towards revitalisation of *sasi* as well as province-wide coordination through traditional structures (*Latupati*) were put to a halt.

Only now that the situation in Central Maluku has calmed down and villagers are reorganising their lives and livelihoods, there may be room for some form of management strategy with a potential role for *sasi*. Information coming from the area defining the extent of breakdown of villages and village institutions is scattered, but in 2004 at least one village, Haruku, reactivated its *sasi* system and has had, for the first time since the disruption, an opening ceremony for *sasi lompa* (Rumaruson 2003). In fact, the *sasi* institution has played a vital role in resolving conflicts and the process of recovery (Kissya and Dwisasanti 2004). This example is inspiring and has great significance as it illustrates the strength of the institution and might be an indicator of similar processes towards revitalisation and reestablishment of local management in other parts of Central Maluku.

13.4 *Sasi* and the design principles

Sasi has beneficial impacts on marine resource management, but the most outstanding effect of *sasi* is on the social level. Jentoft and McCay (2003) explain how erosion of community qualities like cooperation and solidarity produces the very conditions under which Hardin's (1968) 'tragedy of the commons' can take place. Interestingly, it is exactly these 'qualities' that *sasi* enhances. Other aspects that we find in *sasi* villages, such as trust, representation and legitimacy, form the primary mechanisms that keep the institution functional and resilient over time. These mechanisms, including downward accountability, are also highly relevant if not critical in decentralisation (Agrawal and Ribot 1999). Additionally, *sasi* provides and illustrates certain key conditions for the success of local and/or co-management.

Sasi confirms the applicability of a number of Ostrom's (1990) design principles (see Chapter 11). What we have seen in *sasi* villages are clearly defined boundaries and membership, group cohesion, benefits that exceed costs, participation by those affected, the enforcement of management rules, cooperation at the community level, and strong legitimate leadership. *Sasi* is equivalent to the presence of a strong organisation, but also in the villages that have lost *sasi* the constitutional rules of *adat* still form an important basis for revitalisation. Design principles that are of less importance in *sasi* are the legal rights to organise (*sasi* was developed outside a formal legal framework), decentralisation and the delegation of authority (which may strengthen the institution, but is not a prerequisite), and the existence of a coordinating body. It is thus possible for resource management systems to evolve without (formal) government support.

The design principles of Ostrom (1990) and other scientists who have pursued this line of thinking thus are an interesting point of exit, but only partly explain the success of management institutions. Most of the conditions men-

tioned are merely characteristics of the community or institution, such as scale, village size, homogeneity, or the ability to exclude outsiders, and even though these factors undoubtedly contribute to their functionality, from our study it has become clear that the real 'glue' that keeps an institution alive over time are the social mechanisms, i.e. trust, legitimacy, and transparency. All these aspects are important as they form incentives to communally manage resources and to build and support a strong management structure that is able to deal with major disruptions as we have seen in the recent past. In this way, *sasi* confirms the proposition of Dietz *et al.* (2003) that Hardin, with his theory on human behaviour, oversimplified the situation and that social groups are very well capable of developing and maintaining self-governing institutions.

13.5 Decentralisation

In post-New Order Indonesia, in response to a call for greater democratisation the national government has decided to devolve political and administrative responsibility to lower government levels. Increasing resource degradation and the incapability of the central government to stop this process was another driving factor to delegate responsibility for natural resource management to local levels. Regional autonomy includes major legislative reforms, of which Law No. 22/1999 and Law No. 25/1999 on respectively administrative and financial decentralisation (and already under revision) provide new authority structures and roles for provincial, district and local governments (Patlis *et al.* 2001). Presently, there seems to be no identifiable lead agency dedicated to coastal and fisheries management in Maluku, but this may be a future prospect as part of the new Ministry of Marine Affairs and Fisheries (DKP). To what extent the implementation of existing policy and regulations may work out at the local level is unclear. Even though the practical implementation of the new laws appears to be a difficult and time-consuming process, the effects of decentralisation at the regional and local level are becoming evident, but not in all respects in a positive sense. Resurgence of local elites, a renewed interest in cultural identities (including *adat*) to back-up demands for property rights over natural resources, and a lack of coherent laws have lead to conflicts and rapid resource degradation (van Klinken 2002; Thorburn 2002).

Resource benefits, now accruing directly to the district governments, are a major incentive to intensify resource exploitation as happens in places like Central Kalimantan where the issuance of logging permits and subsequent forest exploitation are expanding at an unprecedented rate. It is also an incentive for those who have the financial resources and popular support to establish new districts to create a power base and reinforce existing patron-client relationships. The violence in Central Maluku and bombings in Bali provide

the context in which decentralisation is to take place. Instead of a single political process leading to institutional change, we witness an extremely complex and contradictory set of developments with many unexpected outcomes (Schulte Nordholt 2003; McCarthy 2004). Instead of developing scepticism, however, it is important to acknowledge the positive changes that have taken place and the potential of the new legal framework, for example in reviving or developing local and resource management practices (Salim 1995; Thorburn 2002). On the longer term decentralisation is expected to increase equity and participation, greater effectiveness of management, downward accountability, and responsiveness of government to citizens. It may eventually lead to the fulfilment of greater ideals, including democracy and responsible and sustainable use of natural resources.

With the decentralisation process ongoing in Indonesia and the development of a favourable legal framework for regional autonomy, the revival of *sasi* may take a different form than thought at the time of our research. During the Suharto era, efforts to organise and stimulate local management were not supported and the formal acknowledgement of local institutions and regulations was hardly feasible. The government was preoccupied with stimulating the fishery for economic benefits and thus failed to provide incentives for resource conservation or management. At the village level, enforcement by higher government levels was patchy or non-existent. Maluku fishers felt cut-off from higher levels of government and the Fisheries Agency and had a very low opinion of the police and navy which did not have legitimacy conferred by association with *adat*.

The new legal framework, of which Laws No. 22/1999 and 25/1999 are the most ground breaking ones, opens a window of opportunities. In some places fishing communities have regained authority over their traditional fishing grounds (Down to Earth 2001). This formal acknowledgement is crucial for well-functioning local management systems (Ostrom 1990). Haruku village, where villagers with support of traditional institutions and authorities have reactivated *sasi*, may take the first steps in getting its traditional management system acknowledged (Rumaruson 2003; Kissya and Dwisasanti 2004). With access to information on new legal structures,[1] a shift in authority to local government control including traditional institutions, and with support and services from NGOs, the district or central government, more villages may choose to revitalise *sasi* or establish a new (co-) management system and, on the longer term, may unite their efforts under a coordinated province-wide management scheme.

1 For example through an 'e-government' and Internet as Rose (2004) suggests.

13.6 The potential of *sasi* as a modern resource management institution

The perpetuation of *sasi* (as opposed to the introduction of a totally new institution), especially if it includes religious leaders, has certain advantages over new institutions. The structures, rules and regulations are already in place and authority is largely defined. However, there are certain challenges and limitations:

- The *sasi* institution in its current form is neither strong nor comprehensive; it covers only a relatively small area and limited species.
- The institution is vulnerable to (political) conflict and highly dependent on leadership.
- There is poor coordination among local institutions and knowledge of legal rights and responsibilities is lacking.
- Marginal village economies and declining income encourage destructive fishing practices.
- The *sasi* rules are effective in controlling local residents, but less effective when applied to outsiders.
- Local institutions such as the *kewang* are not formally recognised, while supernatural sanctions (wrath of God) are less effective in modern society.
- While traditional leaders are growing old, younger generations lose interest in *sasi* and the knowledge linked to *adat* – a process we also see in other parts of Indonesia (Sakai 2002).

In revamping the institution it may therefore certainly be useful to retain traditional titles and structures as well as elements of ceremony to provide a strong spiritual and cultural basis. The involvement of respected traditional and religious leaders also makes resource users feel secure and this encourages rule compliance. Collaboration requires a shared value system, which in this case is *adat*. However, where through modernization the younger generation develops new values, the institution must adapt. It is important to ascertain just how important traditional language and ritual is, and how much needs to be incorporated into a revitalized institution, so as to benefit from the cultural strength of the traditional institution without alienating younger fishers.

The subsidiary principle, widely applied in decentralisation and natural resource management, holds that decisions should be made at the lowest possible level. The reason for this is that proximity to resources and consequently better insight in the local situation, would lead to more appropriate management decisions which are better suited to local conditions and hence more effective. Additionally, local level management reduces the costs related to planning and execution of management at the national level. It is important

FIGURE 13.1 – Children in Haruku of whom some are members of the mini-kewang

to realise, however, that the most effective decision-making procedures are not necessarily the most equitable ones. The current hierarchical decision-making process in *sasi* for example, is not very equitable, but it is efficient, cost-effective and highly legitimate. Wider involvement of local people as foreseen in decentralisation makes planning and decision-making processes more equitable and inclusive, but it will also render them less efficient. The *sasi* study thus shows that efficiency and equity are two sides of the same coin and that the application of these principles on the local level will always be a compromise.

Participation is a multi-dimensional concept and its practical execution is complex. In decentralisation participation usually refers to people's direct involvement in decision-making, planning, and other management related processes. In *sasi* villages, people do not individually take part in the political process, yet they feel involved as they are represented through respected, legitimate leaders. These representative structures thus provide a viable alternative to direct participation. In villages where these structures no longer exist, access to the political arena may be obstructed by 'new elites' who may, once they achieved a powerful position, try to fend off intervention from villagers. The downward lines of command from the Suharto regime have in many villages created dependent local governments that are not accountable to the population and that may be susceptible to abusing their newly acquired powers. These leaders and governments lack legitimacy and support of the

local population and in these cases the creation of structures that enhance participation or representation of the local community is vital in countering the formation of elites and commercial undertakings that contribute to the affluence of leaders at the cost of the long-term prosperity of the village.

Historically, in Indonesia relations between the government and people have been characterised by distrust and dependency (Sakai 2002; Visser 2004). Local structures and institutions were overruled by formal government structures in the 1970s, leaving the villages with either a functional government where the new structures overlapped with the traditional ones, or a dysfunctional one where this was not the case. *Sasi* has thus remained active despite the presence of government agencies rather than because of it. The government-promoted national ethic of non-questioning obedience to central authority was a powerful disincentive to village leaders who otherwise might have instituted reforms or introduced new village-level management structures. The complete lack of approval for non-governmental and grass-roots organisations also tempered local initiative. In the new situation, this may change. Future management institutions initially may need to be supported at higher government levels and village leaders will need assistance and incentives to become proactive and creative. In Central Maluku, aside from the provision of information and other forms of administrative support, an active role of the government in management is, however, particularly where local institutions exist, not required.

As mentioned before, legitimate and respected leadership is of critical importance for success of local resource management and has a positive effect on the political stability of the village. In the *sasi* villages where traditional structures exist, the legitimacy of the village head is directly linked to his descent from the traditional *raja* line which makes him *kepala adat*.[2] In villages where the traditional and formal authorities have merged and where the *kepala adat* is also the formal village head (*kepala desa*) like in Nolloth, village political structures are perceived as highly legitimate. In this situation, traditional structures including leadership need to be formalised under the new law. In villages where these structures are lost, other mechanisms need to be in place to ensure that leaders are elected in a legitimate way.

Well-functioning local management systems are dependent on the enforcement, protection, and legal recognition of local rights by higher levels of government (Ostrom 1990). As a village organisation active in enforcement, the *kewang* is more functional than the police. Formal recognition of their mandate will increase local enforcement capacity. Military presence in the villages (Schulte Nordholt 2003) and the questionable role that the police

2 The *kepala adat* is the traditional village head. Once the formal village structure (*desa*) was introduced in the 1970s, the elected village head was called *kepala desa*.

and the army have played during the civil strife in Central Maluku have reinforced existing distrust and local resistance. New decentralised structures may, however, also include a role for non-*adat* institutions such as the navy, police and higher government levels. Their involvement may very well become a sensitive issue and *sasi* villages need to establish some sort of collaboration between the various actors embedded in a legitimate, locally accepted structure.

Trust, which is a key condition for successful resource management, can be enhanced by clear and transparent social processes. The high levels of trust in the village leaders, characteristic for *sasi* villages, has a positive effect on the continued existence of the institution and on rule compliance. Where trust is lacking and, as a consequence, management structures are dysfunctional, deliberate actions need to be undertaken in order to build trust. This can be achieved through negotiations in which objectives and targets are set in mutual agreement as this reduces the risk for those involved in management and stimulates cohesion. Also important are discussions and open dialogue. If needs and expectations can be voiced and a dialogue can take place based on respect for different value systems and in a free and non-threatening environment, effective communication and trust are fostered. This would also work on a higher level, i.e. between the village population and higher government levels.

In order to make decentralisation effective the existing accountability structures need to be redirected downward, so that leaders are accountable to the population rather than to higher level government structures. Even though *sasi* leaders, through the representative structures and detachment from the formal government, are accountable to the population, their ascribed position makes critique of these village authorities very difficult and a dysfunctional leader usually caused the whole institution to break down. Modern local management institutions will therefore have to ensure that leaders are elected through procedures that respect traditional lines of command, while building in a mechanism that allows for the replacement of an incompetent leader. Downward accountability structures can be strengthened through the creation of discussion platforms where criticism can be voiced and by the establishment of procedures that stimulate transparency and openness of affairs to community members, two aspects that were also found of great significance in *sasi* villages.

Village level institutions are important in dealing with local resource management. Cross-boundary problems, however, such as management of pelagic fish stocks, can only be adequately addressed if these local institutions are nested into a broader network of larger-scale institutions (Anderies *et al.* 2004). As management measures cover more than one municipality or district, it is important that local institutions have horizontal links with neigh-

bouring villages and government offices, while vertically nested in a larger organisation. In Maluku a traditional umbrella organisation of this kind is present (the *Latupati*) which could, if formally acknowledged and adapted to current requirements in terms of accountability, transparency and democratic structures, form a legitimate and adequate structure for resource management.

Successful continuation or resurgence of *sasi* under the new legal framework requires thus that certain conditions be met. It is necessary to define the *sasi* structures, powers and responsibilities within the framework of provincial and national legislation, but at the same time, build towards local autonomy and to provide local institutions with more capacity to deal with internal and external threats. The weakened political structure in the villages allows for different scenarios varying from village leaders who might abuse the current situation to achieve a powerful position, to proponents of *sasi* with a genuine aspiration to re-establish social stability and economic prosperity. As *adat* still forms a strong basis and is meaningful in Central Maluku, there is potential for a struggle as we have seen in places where leaders back-up local demands for political sovereignty based on cultural identity (Acciaioli 2002; Hidayat and Firdausy 2003).

On the district level too, government officials have a choice between supporting *sasi* and *adat* institutions or allowing new elites to attain a powerful role. The rich resources of Central Maluku may attract outside investors with a single interest in extracting resource rents. If and how the regional governments will use their authority and devise electoral mechanisms to restrain these new elites from entering the political arena is an open question. An important provision of the new law (Regulation No. 25/2000) is that the provincial government can act in lieu of the district if it does not have sufficient capacity (Patlis *et al*. 2001). As the authority of the province under Law No 22/1999 is vague, but potentially very broad, it could perhaps be applied where a district government proves dysfunctional. In any case, the specification and practical implementation of this provision is not yet provided for and under the current arrangements the provincial governments lack the funds to adequate carry out this authority.

13.7 Alternative management systems in non-*sasi* villages

Collaboration, trust and legitimacy which support *sasi* are a function of a village size and homogeneity. In larger, more heterogeneous villages traditional *sasi* therefore may not be a viable option. A logical alternative would be a modern village institution that provides a transparent, inclusive decision-making process and mechanisms to change and enforce rules, and which offers direct benefits to the fishers. Perceived benefits as well as initial benefits

once people join a program or activity create a feeling of involvement and increase the likelihood of sustaining the activities (Pollnac and Pomeroy 2005). Also needed are a funding base (part of which could be generated by village organisations) and a stable management structure that includes, but is not dependent upon, the village government. Whether or not the institution is modelled on *sasi*, the needs and aspirations of the various proponents (fishers, *adat* leaders, local governments, fisheries managers, and environmental NGOs) must be successfully accommodated. Local institutions need to be involved, not only in local monitoring and enforcement, but also as partners in planning and implementation, stock assessment and allocation, and licensing. In addition, to have a place in negotiating access and withdrawal rights for artisanal fishers in offshore waters, local institutions will need to engage or be nested in larger institutions operating on district, provincial and higher levels.

In 1999, the government has adopted Integrated Coastal Zone Management (ICZM) as its strategy, indicating a clear commitment to integrating social aspects and commercial interests with conservation and management (Dahuri and Dutton 1999). Devolution, the streamlining of management authority, and stakeholder participation are important aspects of this approach. For actual participation of people in discussion forums and decision-making, however, substantial groundwork is required. In Indonesia, coastal communities in remote locations such as Maluku have been marginalized and access to information has been limited. Forced to function under strict government control and top-down communication, local governments have developed a dependent attitude and basically lack the skills to handle their newly acquired powers.

Two important activities in co-management (see Chapter 2 and 10) are empowerment and capability building which help individuals to gain greater social awareness, become more involved in decision-making, increase self-reliance, and in this way, establish a balance in community power relations. This last aspect is important as the decentralisation process may have differential impacts on the community leading to not a balance of power, but simply a redistribution of power elites (Pomeroy *et al.* 2001). Social awareness and other skills that lead to greater autonomy are developed during the so-called social preparation process that precedes co-management (Pomeroy 1998; Chapter 11). The development of local skills includes value formation, situation analysis, consensus building, leadership training, conflict management, livelihood and enterprise management, networking, and basic biology and ecology. Especially for the fisheries in Maluku, which are characterised by high uncertainty, it is important to provide information of good quality on stocks, flows and processes within the resource systems, as well as the human impact on it (van Oostenbrugge 2003).

Good social preparation is manifested in positive attitudes toward collective action and in the readiness of community members to take on responsibility for resource management and decision-making (Pollnac 1994; Pomeroy *et al.* 1996). It is crucial to create structures that enhance legitimacy, representation or direct participation. Because those changes require time and stimulate an increased awareness on biological as well as social and political issues, the social preparation process needs to be carefully designed and cover an adequate stretch of time. Furthermore, the process is only functional if it fits within the socio-cultural and political context of the community and if it includes marginalized groups and women.

Building trust and mutual respect is a time consuming process and takes concerted efforts of partners in management. As trust is a key mechanism in the functioning (and thus success) of management institutions and political structures, it is important to be aware of changes in the level of trust during the time it takes to establish these structures and afterwards. Changes in actors are a good indicator for the effectiveness of decentralisation (Agrawal and Ribot 1999). Like in the co-management projects and processes described in Chapter 12, in revitalised *sasi* systems trust can be measured on various levels and concerns trust between individuals at the local level as well as trust between local people and the government, NGOs and other external agents. Other important indicators for success are the individual perception of being involved in management, increased knowledge and skills, and the level of participation in project planning (Pomeroy *et al.* 2001 and Chp 11). Evaluations can further include social indicators on the level of the community such as the degree of collective action and collaboration. Changes at this level could include aspects like the activities undertaken by various groups and changes in collaboration between individuals, neighbourhood groups and otherwise differentiated groups. It may also be interesting to measure an increase or decrease in collaboration between formal and informal institutions and government agencies.

13.8 Conclusion

Sasi shows an interesting example of how a local institution can contain or enhance some of the principles important in decentralisation. *Sasi* also provides an alternative to the western idea that local management must be highly democratic. The paternalistic *sasi* model is potentially very efficient and cost-effective, putting little demand on the time of busy fishers, farmers and women, and it is also culturally acceptable. What is important is not to further entrench current elites by allowing the system to become inflexible, non-transparent and corrupt. Should democratic ideals one day become the norm, the management institution must be able to evolve to accommodate increased need for direct participation.

In villages where the revitalisation of *sasi* is not an option, new management structures need to be devised that on the one hand contain the principles of *sasi*, and on the other hand contain processes that enhance the social mechanisms so important in resilient resource management institutions. Trust, collaboration, accountability and all those aspects that make *sasi* and resource institutions in general functional need to be built into a resource management strategy. Co-management is a possible strategy to achieve the goals envisaged in Integrated Coastal Zone Management (ICZM). The experiences from the Philippines and other Southeast Asian countries could serve as an example and source of inspiration. Close monitoring of the process of decentralisation and developments at the local and district level is required to avoid the pitfalls encountered in other parts of Indonesia, while assessments of social change will illustrate its effectiveness.

Whether based upon existing institutions or upon new management structures, resource management in Maluku will always include underlying principles and traditions of *sasi* and *adat* as they are an intrinsic part of the culture. Over the centuries, *sasi* has proven to be both adaptive and resilient to external perturbations (Volker 1925; Cooley 1962; Zerner 1994b). The cultural embeddedness of *sasi* as well as a shared notion of its relevance – 'sasi is good' – has stimulated local villages to maintain it in spite of external influences and in a situation where the temptation to abuse the system for personal benefits was strong. Even more recent impacts such as the monetary crisis and the violence of 1999-2004 within and between villages have not caused a total breakdown. The feedback mechanisms in *sasi* seem to have proven strong enough to mitigate the effects of these disturbances. At least one village has re-established the *sasi* institution after the civil strife. There is therefore hope that the institution can form a modern element in the new decentralised government structures, in which the needs and aspirations of the various proponents (fishers, local governments, *adat* leaders, environmentalists, fisheries managers) can be successfully accommodated.

13.9 Further research

The process of decentralisation that is taking effect in other parts of Indonesia seems to be slowed down in Central Maluku (Sopacua pers. comm. July 2005) probably because the islands are still recovering from the civil strife. As the extent of breakdown (and revival) of *sasi* over the past years is not clear, an important research question concerns the impact of the social disruptions on the presence and functionality of *sasi*. A revisit including an inventory would provide important information about in which villages it has survived and in what form. This would enable us to gain a deeper understanding of institutional resilience and especially of the role that the social mechanisms play in the survival or revival of *sasi* where this is the case. It would also be

worthwhile to investigate which actions are currently being undertaken to revive *sasi* or establish new management structures based on the principles of decentralisation, and which institutional, legislative and organisational frameworks are in place to support this process. Whatever form or shape, *sasi* is unique and offers great insights in how local resource management can function under varying conditions, its further study will therefore provide important insights in adaptive systems theory and institutional resilience.

13.10 The role of anthropology — building bridges

Milton (1996, 53) makes an important point when she says: 'If the source of environmental damage is human activity, then an understanding of the rationale on which damaging activity is based is important as a starting point for instigating constructive change.' It is also important to understand what kinds of cultural interpretations of the world predispose people towards more environmental friendly practices, if such practices are to be successfully adopted and encouraged (see also Zwaal 2003). The identification of options and motivations is also the starting point of the Problem-in-Context approach in search for solutions in environmental science.

The study of *sasi* provides a striking illustration of environmental behaviour in Maluku both in its 'destructive' form where *sasi* is lost, as in its 'environmental friendly' form in the villages that still actively implement it. It was a unique opportunity to compare the two types of systems in a similar context, using in-depth case studies and structured research to discover the variables at work in defining people's behaviour. The multi-disciplinary character of the study including biological surveys allowed for (limited) insights in the feedback mechanisms between the ecological and social system. Without the anthropological perspective, however, it is questionable whether the cultural significance of *sasi* and the social aspects that lie at the basis of its continued existence would have been brought to the light. In the search for solutions for environmental problems anthropology, in my view, is thus highly relevant.

With fisheries globally under threat and marine resources depleting, it is obvious that more knowledge and more data on fisheries, stocks and yields are inadequate to manage marine resources. Slowly, the research field of environmental management, which until recently was the exclusive domain of biologists and fisheries scientists,[3] is being invaded with insights from other disciplines. Social sciences have gained recognition in identifying the

3 The dominant view at the time was that 'nature' is to be exploited for their human benefits. As a consequence, the conviction was that environmental problems could be solved by technology assuming that physical and biological sciences would identify the problems and appropriate responses (Milton 1996).

impacts of non-technological (particularly economic and political) factors on the environment, and vice versa. Scientists like Degnbol (2003) now argue to shift the focus from quantitative biological data to the social processes that lie behind management. If we take depletion of fish stocks as an outcome, the main 'variable' in reducing fish catches is the behaviour of fishers, i.e. fishing effort and management. It is on that level that I agree, the action should be.

Over the years an increasing number of anthropologists has found employment in research programs and pragmatic studies on environmental management, e.g. irrigation, forestry and fisheries. I have always felt privileged to be one of them. In 1996, the project leader of the Fisheries Co-management Project was innovative in taking on an anthropologist to do research on fisheries. 'Cutting-edge' research at the time meant to include social aspects into the analysis. The study on institutional resilience is a good example of what applied anthropology can contribute in the context of environmental management and the role of institutions. With the insights from people-oriented approaches like community-based and participatory management, social scientists in close collaboration with resource users can help to search viable solutions for resource problems and set up organisations and institutions that are well-prepared to manage resources for sustainability.

In my work and approach of the past years I seem to have combined two roles. The first is the one of a researcher studying environmental behaviour, i.e. the key features in Maluku culture relating to their environment of which *sasi* is a strong expression. These features were all included in the institutional analysis used in understanding the local dynamics around resource management. A second role is to clarify that environmental behaviour to the outside world, thus, the role of the anthropologist as an 'interpreter' between local communities and others (government officials, NGOs, and researchers from other disciplines).

In my view, the strength of environmental anthropology in its most practical form is to study and clarify the different perceptions and interests of various actors concerning resource management and to represent these views. As there is often a huge gap between the parties in (co-)management in terms of culture, language, interests and values, mechanisms and processes need to be in place through which views can be expressed in order to increase mutual understanding or respect. The ideas and viewpoints presented may not all be agreed upon, but as they become clear they can be negotiated upon (Wilson 2003b), and constructive dialogues and discussions support the search for solutions for environmental problems. The common ground that is formed can function as a platform on which management decisions can be taken and conflicts resolved. In other words, anthropology can help to tear down walls and to build bridges between people.

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Summary

Central questions

The marine resources of Central Maluku are very rich but are under severe pressure, particularly from destructive fishing techniques. Economic incentives have caused a rapid increase in fishing pressure and catches and now there is a need for more cautious management. In 1997-98, Indonesian fisheries management was complex, multi-agency, and top-down. Ultimate power was retained at the national level and provincial and lower levels were unable either manage resource exploitation or conserve resources.

In response to a call for better management, the national government in Indonesia has made a move towards decentralisation of management authority to regional and local communities through the enactment of laws No. 22/1999 and 25/1999. However, although decentralisation is the way forward there are possible pitfalls and setbacks related to corruption, resurgence of local elites, massive exploitation (in forestry), overlap in laws and unclear division of tasks and authority structures of management institutions. In Indonesia, however, the process has just begun and it makes sense to look at the achievements sofar, while drawing the lessons from the experiences in the Philippines which are a leader if it comes to co-management and decentralisation.

In Central Maluku, resource use is governed through a set of rules and regulations called sasi, which is based on adat or traditional law. Traditional management systems such as sasi, however, were not recognised. Within the context of decentralisation in Indonesia, a relevant question is what role existing institutions, and sasi in particular, can play within the new legal framework and whether they form an appropriate basis for modern resource management? A study of the institution provides important insights in the revitalisation or establishment of local management not only in Maluku, but throughout Indonesia and perhaps even further.

This thesis tries to answer the following questions:

1 To what extent is *sasi* present and functional?
2 What are the outcomes of *sasi* institutional arrangements in terms of efficiency, equity, and biological and social sustainability?
3 Which aspects contribute to its continued existence over time?

4 How is fisheries management organised in Central Maluku and what is the legal framework?
5 What are the prospects for decentralisation and can local institutions play a role?
6 What conditions contribute to the success of co-management?
7 How can project success be measured in an appropriate way, i.e. reflecting both the perspective of the project partners and the recipients?

Inventory of *sasi*

Of the 63 villages in this study, only 41 still retained some form of *sasi* institution and only 17 villages had rules pertaining to marine management. Marine *sasi* is most prevalent in mid-sized villages (2000-3000 people) distant from the urban centre of Ambon. In 14 other villages, informants expressed a desire to revitalise *sasi*.

Sasi practices vary from village to village. Written rules were found in 42% of the *sasi* villages and usually went together with the application of sanctions and the performance of ceremonies, i.e. the opening and closing of harvest times and fishing grounds. The most elaborate forms of these ceremonies are found in Nolloth village (Saparua Island) and Haruku village (Haruku Island).

Villages in the study area range from relatively isolated, highly traditional rural communities where *adat* leadership is paramount, to more modern urban satellite villages where *adat* leaders lack significant influence. In no case is management under *sasi* comprehensive; where it concerns marine resources, only small areas of shallow water and few species are regulated (e.g. *Trochus niloticus*, sea cucumbers and small pelagics). Rules include the use of gear types and destructive fishing methods, as well as limitations on the harvest. The existence of *sasi* means that certain important management concepts are widely known and valued as part of local culture. Using *sasi* as the basis for modern management institutions therefore is considered to be efficient as it reduces potential costs of public education and enforcement.

Performance of *sasi*

Control over access in terms of who is allowed to enter the water, is perceived to be tighter in *sasi* villages and compliance in these villages is greater. *Sasi* has no impact on the economic situation of individual artisanal fishers, probably because the resources managed under *sasi* constitute a relatively small proportion of family income. *Sasi* also has no effect on distribution of fishing gears or on economic disparities within the village. In cases where harvest

rights are sold or auctioned and benefits are not distributed fairly or accrue to outsiders, fishers are inclined to trespass the *sasi* rules. On the other hand, where marine resources under *sasi* are harvested as a communal crop and distributed among the population, which is the case in Haruku, fishers perceive the system as fair. Also, where decision-makers are respected and use the proceeds of auctions of fishing rights for community development like in Nolloth, the arrangement can be very efficient and is perceived as reasonably equitable.

Sasi is not equitable in the sense that fishers' voices are not always heard and women are excluded from decision-making. Common fishers in *sasi* villages feel no more involved in decision-making than fishers in non-*sasi* villages. However, the ability to make decisions *communally* is stronger and more stable in *sasi* villages. Decisions 'made by the community' in reality means 'by a person acceptable to the community' which confirms the significance of representation and legitimacy. The hierarchical structures in the villages are thus not equitable, but very efficient and culturally acceptable as long as leadership is strong and legitimate.

The major difference between *sasi* and non-*sasi* villages is in terms of social sustainability. The level of conflict and instable leadership was much higher in non-*sasi* villages. *Sasi* fishers also felt that there was a strong tradition of collective action and greater discussion of village issues. Social sustainability, especially family well-being and income, is also positively influenced by whether fishers are members of village organisations and satisfied with their jobs.[1] In *sasi* villages the trends of deterioration on these aspects compared to the past were also less with a more positive future outlook than in non-*sasi* villages.

In terms of biological sustainability there was no evidence that *sasi* had an impact on the health of the fishery in general, doubtless because *sasi* pertains only to small, inshore areas while most fish are caught in the deep sea. On a regional level, the condition of the coral reef is more closely related to population density and fishing pressure than to presence or absence of the *sasi* institution. At a local level, however, guarded *sasi* areas suffer less damage from blast fishing than adjacent unguarded areas. *Sasi* also has demonstrable benefits in protecting the valuable top shells (*Trochus niloticus*) and sea cucumbers.

Fishers in general find it important that all stakeholders are represented in decision-making. When fishers feel that village decision-making is based on consensus or majority agreement they have more positive scores on all

1 Job satisfaction was also measured during this study. Results and more detail can be found in Novaczek *et al.* 2001 and in Pollnac *et al.* 2001.

performance indicators. For a management system it is thus important that the decision-making process is perceived to be inclusive. Insulation of the management institution from political turmoil is also important. Where formal and traditional leaders collaborate closely and where leadership is highly legitimate, *sasi* thrives.

Institutional resilience

Sasi has known periods of decline, revitalisation and stability. In the 1970s *sasi* declined as a result of social and political change and rapid economic growth. The introduction of a new village structure in 1979 has caused in many villages conflicts between traditional and new formal village authorities leading to political instability. The 1980s was a period of relative stability, where *sasi* was alive it remained functional while in other villages *sasi* was revitalised. The 1990s was a period of further decline. Generational change together with, again, rapid changes often captured under the term 'modernisation' are most likely the reasons why *sasi* was lost.

The decline of *sasi* often coincides with conflict. In the 1990s, the imposition of the formal village structure still had an impact on the political situation in the villages and the election system opened up possibilities for opportunists with vested interests to become the village leader. On the other hand, where traditional authorities had been able to merge into the new government, *adat* and *sasi* remained important aspects of village life leading to more stability. The continued presence of *sasi* was further affected by village size and proximity to a large urban centre, hence the loss of *sasi* on Ambon Island.

The relative robustness of marine *sasi* can be ascribed to people's attachment to *sasi* as part of their culture, but also to the commercial value of marine products under *sasi*, such as *Trochus niloticus* and sea cucumbers. Revitalisation was stimulated by these commercial interests, but also by the facilitation and support of NGOs, the government and academic supporters who saw the potential value of *sasi* as a resource management system. However, in the villages where people did not get direct benefits or where distribution of benefits was not transparent, support for *sasi* was lacking.

In Christian villages, the church played an important role in land *sasi* (on coconuts) and sometimes had a supporting role in marine *sasi* in cases like Nolloth and Haruku. In Muslim villages where traditional positions have been abandoned and religious leaders no longer play a role, *sasi* has turned into a more commercial transaction where resource harvesting rights are auctioned. Close bonds and collaboration between formal and traditional institutions and religious authorities, however, makes *sasi* highly resilient. A redefinition of responsibilities and involvement of non-*adat* institutions such

as the church, police and higher government levels thus is important (but needs careful consideration).
Factors that contribute positively to resilience of *sasi* should be considered during the process of modernizing local management. For instance, the legitimacy of a village head who descends from the traditional *raja* line contributes positively to the execution of his authority with regard to *sasi*. A large overlap between the traditional and formal authorities in the village government is also beneficial. Acknowledgment of the traditional village authorities within formal government is vital to revitalization of *sasi* (and feasible under the new laws) and makes enforcement of *sasi* regulations more effective. On the other hand, political instability and weak leadership may seriously hamper *sasi* as well as any revitalization process.

Adat forms the basis of *sasi* on the constitutional choice level and since "*adat* cannot be changed" and is intrinsic to Maluku culture, revitalisation or adaptation of *sasi* primarily concerns the operational rules (e.g. harvest regulations and access) and collective-choice arrangements (e.g. re-establishment of the *kewang*). The operational rules may be indigenous or may mimic national legislation and are subject to revision. This adaptivity is important to the resilience of the institution, but has also led to the development of a patchwork of marine management efforts lacking a unified purpose and a set of minimum standards.

As an institution *sasi* has never been static. It has changed with the times and been used by different proponents for different economic and social reasons – thus not simply for resource management. Berkes and Folke (1998) mention various social-ecological practices that enhance institutional and ecological resilience, such as harvest restrictions, taboos, ceremonies and intergenerational knowledge. This study shows that it are not the practices that make the *sasi* institutions strong, but the social mechanisms that link the various players and components, i.e. legitimacy, trust, collaboration, and transparency. A shared notion of the relevance of the institution is also needed to stimulate a common objective to maintain *sasi* in spite of external influences and in a situation where the temptation to abuse the system for personal benefits is strong.

Organisation of fisheries management and legal framework

Prior to 1999, Indonesia did not have a separate Department of Fisheries and management structures were unorganised and ineffective. Fisheries and coastal management at the national level was characterised by overlapping laws under more than twenty uncoordinated ministries. Although stimulated to develop more detailed and locally appropriate legislation at the pro-

vincial level, here comprehensive operational rules were lacking too. Only at the local level had some regulations been developed. However, even though the importance of *sasi* and local level management was acknowledged and village heads held *de facto* management responsibility over local resources for the benefit of the community, traditional management systems were not formalised.

Two laws affected Maluku's fishery (Law No. 9/1985 and Decree No. 607/1976) that respectively prohibited the use of destructive gear types such as explosives and poisons, and that designated inshore fishing zones. Every year, the total allowable catch (TAC) was set based on the maximum sustainable yield (MSY). However, unreliable data obscured the decline in commercial stocks and a lack of enforcement power contributed to illegal fishing. Besides, unclear boundaries of fishing grounds led to conflicts between small-scale artisanal fishers and the motorised commercial fishing fleet.

Economic interests and the development of the fishery had priority over sustainability and management. The regional and provincial planning board BAPPEDA therefore largely concerned itself with expansion of the fisheries, rather than with management or conservation. Under BAPPEDA one group of institutions was directly involved in the fishery activities and dealing with equipment, vessels and human resources, such as the Marine and Navy. A second group dealt with marine and fishery problems as a subset of their duties, such as the Environmental Bureau. In addition, there was the national research institute LIPI which was to provide information to policy makers. Among these agencies limits of power and responsibility were unclear.

The development of fisheries policy and regulations were largely controlled from the centre (Jakarta) and passed down to provincial, district and sub-district levels. Suggestions for management developed at the local level, could hardly get through to the national level. Furthermore, traditional authorities long involved in enforcement and management had no legal position and were effectively isolated from regional and provincial management structures and planning. However, since the *Reformasi* in 1999 at the national level advances have been made in devolving powers over management of inshore waters down to lower government levels.

Decentralisation

Government failure in resource management has set in motion the process of decentralisation which transfers authority and responsibility to lower government or local level institutions in order to create the incentives for sustainable resource use. Involvement of lower government levels and local people makes planning and decision-making more efficient, while the

deployment of power and resources to the local level is expected to enhance economic and community development. Decentralisation is expected to increase political participation, greater transparency, empowerment and equity and in this way gives force to democratic ideals.

With the enactment of Law No. 22/1999 and Law No. 25/1999 on administrative and fiscal decentralisation, regional autonomy is becoming a fast reality. The new laws create the legal and financial framework for governance primarily by the district government, with assistance from the provincial and national governments. Fisheries and coastal management has been boosted by the created of the National Maritime Council (NMC) and the Ministry of Marine Affairs and Fisheries (DKP).

The new laws, however, also create opportunities for abuse. Rampant resource exploitation, power struggles, and the formation of new elites form a potential threat to the process of decentralisation, leading to scepticism amongst researchers and opponents. A comparison between case studies in the Philippines and Indonesia show how and under what circumstances functional local resource management can be achieved. Important is the formation of institutions at the local level that have discrete powers, transparent processes, and that are downwardly accountable. For this adequate funding and other forms of support from external agents are required. Empowerment, increased knowledge, good leadership and the development of skills help to create institutions that are strong enough to deal with powerful opponents and 'new elites', and that are capable of generating resource revenues and carrying out management authority (Pomeroy and Berkes 1997; Pomeroy 2001). Also the establishment of local assemblies, discussion forums and umbrella organisations is important.

To get 'the institutions right' requires a thorough analysis of the existing political structures, the role and position of traditional authorities, and the appropriateness of these institutions to deal with new management requirements. The role, mandate and authority of the district and provincial governments need to be clearly demarcated. The development of an umbrella law, procedural mechanisms and an interdepartmental coordinating body are suggested to support a nationwide approach that allows for local management and to enhance coordination and effectiveness of various agencies.

With a history of dictatorship, the shift towards a decentralised state with more democratic structures in Indonesia will take a long time. Experiences from the Philippines provide an inspiring example.

Conditions for success

To ensure success for co-management, enabling policies and legislation need to be in place to spell out jurisdiction and control, and to provide legitimacy to property rights and decision-making arrangements. Responsibility and authority of the various partners needs to be defined as well as the rights and rules that legitimise local participation. The development of co-management often involves external agents who play a catalytic role. They can further assist the communities in problem definition, give advice and support, and provide training and technical assistance.

Important on the community level are an appropriate scale and clear boundaries. Clearly defined membership is important in defending community rights. Smaller groups facilitate effective communication and decision-making. A high degree of homogeneity also positively influences the co-management arrangements, especially where individuals affected by these arrangements are part of the decision-making process. Success is further highly dependent on respected, legitimate leaders who serve as an example, who set out the course of action, and who provide energy and direction to the process. However, strong dependency on the leaders makes co-management also vulnerable.

The social preparation process preceding co-management is important to build capacity and empowerment. The process increases social awareness and autonomy and stimulates a more balanced power structure in the community. It should be based on the socio-cultural and political context of the community and include marginalised groups, such as women and the poor. Other mechanisms that are important are downward accountability structures and conflict management.

Legitimate community organisations that represent resource users and stakeholders can influence the direction of policy and decision-making. Early involvement and active participation of partners in planning and implementation stimulates a sense of ownership over the process and commitment. The process further needs long-term support of local governments and political willingness. Financial resources are also necessary to support the process and to fund the costs for planning, coordination, implementation, monitoring and control. Legal ownership of the resource use rights are an incentive for optimal use and conservation. Ideally, community members themselves invest their own financial resources in the process as too much dependence on eternal source impact the sustainability of the co-management arrangements.

It is important that the objectives of co-management are clear and come from a well-defined set of issues. The rules need to be simple. A common un-

derstanding of the root issues and solutions helps to choose a strategy and priorities. The willingness to comply with the rules is determined by the individual perspective on the fairness and the appropriateness of the laws and the legitimacy of the authorities charged with implementing the regulations. Enforcement by formal agents, such as the coast guard and police, is therefore if possible coordinated with local traditional enforcers.

The conditions are meant to serve as a guide in planning and implementation of co-management and should be viewed in the context of Southeast Asia. The number and variety of key conditions for co-management illustrates that planning and implementation must be conducted at several levels. Each condition is linked to the others and supports it to make the complex process and arrangements for co-management work.

How to measure success

In order to get an accurate picture of project success, it is important to measure the impacts of projects from both the insider and outsider perspective. To develop a methodology, the dependent project variables of two co-management cases in the Philippines were analysed and compared. The perception of being involved, a feeling of empowerment, increased knowledge and a high level of participation in project planning were mentioned by respondents as making the projects successful – also in the cases that were assessed as failures by project staff who used quantitative, easily observable project results. The reason for the discrepancy in the assessment is that the project approach has changed from 'development' to 'participation' with thus a larger focus on people, while the indicators have remained the same. It is thus important to change the indicators to measure success.

The social preparation process often takes longer than the total project span which is often only 3 to 4 years. So often during the first phase, project interventions are carried out while people are still involved in personal development. This is the reason why timing of project success measurement is important. It is also important that these personal changes are assessed. The conceptions and perceptions of the local people (*emic* perspective) can be translated into indicators and assessed. In a later, more appropriate phase, physical project output can be measured. The early measurement of people's perceptions has advantages. It may stimulate internalisation of project goals, while increased self-awareness may positively impact the process of project design and implementation. Where the project objectives and outcomes are the result of a communal process it may be assumed that: (1) the envisaged project goals of the implementers and the beneficiaries coincide and thus that (2) a measurement of these (physical) outcomes at a later stage represents an objective perception of project success.

Participatory methods are useful to measure project results. Suggested indicators to measure project participants' personal changes are: the degree of involvement, the increase in capabilities, the measure of control, access, skills and personal change. On the community level measurements concern the degree of communication, representation, collaboration, trust and support. Important is an early evaluation of these indicators as it may help the project to adapt and prevent possible failures. Only in the post-implementation phase will the overall project output be measured including material output (catches, income, hectares of protected areas), but also human involvement, project benefits, management structures and the level of participation. Ideally, these indicators are designed during the planning phase in a communal process and this final evaluation will then thus truly represent project success.

Conclusion

Declining fish catches, deterioration of the eco-system, and loss of biodiversity has led governments to shift to a more decentralised management approach including the transfer of management authority to lower government levels and local communities. Co-management, a form of collaboration between the government and local communities, is one possible alternative strategy. It facilitates and stimulates locally based management with a supporting and facilitating role of the government. *Sasi,* the strong local traditional management structure in Central Maluku, potentially offers an important basis for local management. The existence of *sasi* means that certain important management concepts are widely known and valued as part of local culture, e.g. open and closed seasons, the concept of limiting access to resources, and the concept of community tenure rights over a marine area. The promulgation of regular fisheries rules at the village level has clearly been influenced by the *sasi* institution, and marine *sasi* in particular. *Sasi* provides a structure that is culturally embedded, that includes a functional enforcement system, and has a set of rules and regulations that are acceptable to most. The presence of *sasi* thus positively influences the potential for development of modern marine management institutions.

Sasi had (and may still have where present) significant outcomes in terms of social sustainability and stimulates mechanisms that keep the institution functional and resilient over time, thereby undermining Hardin's theory (1968) that local institutions are incapable of resource management. Social mechanisms like collaboration, trust, but also downward accountability not only stimulate local resource management, but also form the basis for decentralised structures. *Sasi*, however, is vulnerable to political conflict, opportunism of leaders interested in extracting resource rents, and a lack of support and interest of younger generations. At the same time it are the younger

fishers who see the community as having responsibility for management. Legitimate leadership, access to knowledge and formal recognition of traditional leaders and enforcers can strengthen the institution. It is further important that the traditional structures merge into a modern institution that meets current demands for participation and democracy. An adapted form of *sasi* will also attract the attention of younger generations and gather general support.

In places where *sasi* has disappeared or where the conditions important to the survival of *sasi* are lacking, new management arrangements need to be formed that ideally include the management concepts of *sasi*. The constitutional rules based on *adat* might build the foundations, while the collective-choice rules and operational rules are adapted to the requirements of a village that is larger, more heterogeneous, closer to the urban capital of Ambon, or otherwise not able to retain *sasi* in its original form. A logical alternative would be a modern village institution that provides a transparent, inclusive decision-making process, mechanisms to change and enforce rules, and that offers direct benefits to the fishers in their role as managers.

Many government staff agreed that local institutions are useful and hold a strategic position close to the resource and to fishers. However, the current political structures in the villages are still a reflection of centralized and hierarchical national structures. Because village government leaders are used to taking orders from above rather than initiating action, future local management institutions must initially be supported at higher government levels. Village leaders will need assistance and incentives to be proactive and creative in developing new, local level management arrangements. In contrast to countries like the Philippines, in Indonesia NGOs or environmental organisations outside the government or church are rare. The involvement of these organisations and outside catalysts, however, is important in empowerment and capacity building that are part of the social preparation process.

Whatever form the institution takes, needed are a funding base and a stable management structure that includes, but is not dependent upon, the village government. Whether or not the institution is modelled on *sasi*, the needs and aspirations of the various proponents – fishers, local governments, fisheries managers, *adat* leaders and environmentalists – must be successfully accommodated. Under the new legal framework, *sasi*, the *kewang* and other management institutions can gain formal recognition and so bring to an end the isolation from regional, provincial and national management structures. Local institutions need to be involved, not only in local monitoring and enforcement, but also as partners in development planning and implementation, stock assessment and allocation, and licensing. In addition, to have a place in negotiating access and withdrawal rights for artisanal fishers in off-

shore waters, local institutions will need to engage or be nested in a larger institution operating on regional, provincial and higher levels.

As multiple parties are involved in the new management structures, there is an important role for a 'facilitator' who can translate the different views and perceptions to one another. The anthropologist who studies environmental behaviour and local dynamics around resource management can help to bridge the cognitive and cultural gap between parties in order to support constructive dialogues and negotiations in the search for solutions for environmental problems.

Visserij co-management, de rol van lokale instituties en decentralisatie in Zuidoost Azië

Met pecifieke verwijzing naar *sasi* in de Centrale Molukken, Indonesië

Onderzoeksvragen

De mariene hulpbronnen in de Centrale Molukken worden gekenmerkt door een grote rijkdom en variëteit, maar staan onder zware druk, voornamelijk door het gebruik van destructieve vismethoden. Economische drijfveren hebben geleid tot een snelle toename in de visserijdruk en vangsten, waardoor de noodzaak voor een bewuste manier van beheer is ontstaan. In 1997-98 was visserijbeheer in Indonesië een complex geheel waarbij veel verschillende organisaties betrokken waren en dat top-down georiënteerd was. De ultieme macht lag bij de nationale overheid, terwijl de provinciale en lagere overheidsniveau's niet in staat waren exploitatie te reguleren of hulpbronnen te beschermen.

Als respons op een roep voor beter beheer, heeft de nationale overheid van Indonesië een stap gemaakt richting decentralisatie van autoriteit over beheer van natuurlijke hulpbronnen naar regionale en lokale overheden en gemeenschappen door de invoering van Wet Nr. 22/1999 en Wet Nr. 25/1999. Echter, hoewel decentralisatie de toekomst is, zijn er ook valkuilen en hindernissen voortvloeiend corruptie, de opkomst van lokale elites, grootschalige exploitatie (vooral in bosbouw), overlappende wetten, en een onduidelijke verdeling van de taken en mandaten binnen de instituties die moeten zorgen voor beheer. In Indonesië is het proces echter pas begonnen en is het zinvol vooral te kijken naar de reeds geboekte successen, terwijl er lessen geleerd kunnen worden van de ervaringen in de Filippijnen die een voortrekkersrol spelen die waar het co-management en decentralisatie betreft.

In de Centrale Molukken is het gebruik van hulpbronnen gereguleerd door sasi, een geheel van regels en gebruiken gestoeld op adat, het lokale gewoonterecht. Traditionele beheerssystemen zoals sasi werden echter niet erkend. In de context van decentralisatie in Indonesië is een relevante vraag welke rol bestaande instituties – en sasi in het bijzonder – kunnen spelen binnen dit nieuwe beleidskader en of zij een goede basis kunnen bieden voor moderne vormen van hulpbronnenbeheer? Een studie naar de institutie geeft inzichten die van belang zijn in zowel herinvoering als oprichting van lokale managementsystemen, niet alleen in de Molukken maar voor heel Indonesië en zelfs daarbuiten.

Dit proefschrift probeert een antwoord te vinden op de volgende vragen:

1 Tot op welke hoogte is *sasi* nog aanwezig en functioneel?
2 Wat zijn de uitkomsten van institutionele regelingen van *sasi* in termen van 'efficiency', 'equity', sociale en biologische duurzaamheid?
3 Welke kenmerken dragen bij aan het voortbestaan van de institutie op langere termijn?
4 Hoe is visserijbeheer in de Centrale Molukken georganiseerd en wat is het beleid?
5 Wat zijn de vooruitzichten voor decentralisatie en kunnen lokale instituties een rol spelen?
6 Welke randvoorwaarden dragen bij aan het succes van co-management?
7 Hoe kan het succes van projecten gemeten worden op een juiste wijze, dat wil zeggen een manier die zowel het perspectief van de projectmedewerkers weergeeft als die van de ontvangers?

Inventarisatie

Van de 63 dorpen in dit onderzoek, hebben er 44 nog een vorm van de *sasi* institutie over terwijl 17 dorpen nog regels hebben voor marien beheer. Mariene *sasi* komt het meeste voor in middelgrote grote dorpen (2000-3000 mensen) die ver liggen van het stedelijke gebied rond Ambon. In 14 andere dorpen werd de wens uitgesproken *sasi* opnieuw in te voeren.

Sasi praktijken variëren van dorp tot dorp. Van de *sasi* dorpen heeft 42% geschreven regels die vaak samengingen met de toepassing van sancties en het uitvoeren van ceremoniën, dat wil zeggen het openen en sluiten van het visseizoen en visgronden. De meest uitgebreide vorm van deze ceremoniën werd gevonden in de dorpen Nolloth (op Saparua eiland) en in Haruku (op Haruku eiland).

De dorpen in het gebied variëren van relatief geïsoleerde, traditionele, rurale gemeenschappen waar *adat* leiderschap nog belangrijk is, tot moderne urbane dorpen waar *adat* leiders geen werkelijke macht meer hebben. In geen van de gevallen is *sasi* alomvattend; beheer van mariene hulpbronnen is beperkt tot kleine, ondiepe kustzone gebieden en bepaalde soorten zoals schelpen (*Trochus niloticus*), zeekomkommers, en kleine pelagische vissoorten. Regels bepalen zowel het gebruik van bepaald vistuig en destructieve vistechnieken als beperkingen van de vangsten. De aanwezigheid van *sasi* betekent dat bepaalde belangrijke concepten gerelateerd aan (natuur-)beheer wijd verbreid zijn en een belangrijk onderdeel vormen van de lokale cultuur. Het gebruik van *sasi* als basis voor moderne management instituties wordt daarom gezien als efficiënt omdat het potentiële kosten van educatie en handhaving van de regels drukt.

De resultaten van *sasi*

De controle over toegang in de zin van wie de visgronden mag betreden en wie niet, wordt gezien als groter in *sasi* dorpen waar ook de regels beter nageleefd worden. *Sasi* heeft geen significant effect op de economische situatie van de individuele kleinschalige vissers, waarschijnlijk omdat de hulpbronnen onder *sasi* maar een relatief klein deel vormen van het gezinsinkomen. *Sasi* heeft ook geen effect op de verdeling van vistuig of op economische ongelijkheid binnen het dorp. In gevallen waar de rechten om te vissen verkocht of geveild worden en waar de opbrengsten niet eerlijke verdeeld worden of naar buitenstaanders gaan, zijn vissers meer geneigd de *sasi* regels te overtreden. Aan de andere kant, daar waar mariene hulpbronnen onder *sasi* gemeenschappelijk worden geoogst en de opbrengsten verdeeld worden onder de bevolking, zoals het geval is in Haruku, wordt het systeem als eerlijk gezien. Ook in de dorpen waar degenen die de besluiten nemen gerespecteerd worden en waar de opbrengsten van de veiling van de visrechten gebruikt worden voor dorpsontwikkeling, zoals in Nolloth, zijn de reguleringen effectief en worden ze gezien als eerlijk.

Sasi is niet 'equitable' (eerlijk, gelijkheid bevorderend) in de zin dat de stem van vissers niet altijd wordt gehoord en dat vrouwen uitgesloten zijn van besluitvorming. Gewone vissers in *sasi* dorpen voelen zich niet méér of minder betrokken bij besluitvorming dan vissers in dorpen zonder *sasi*. Echter, het vermogen om beslissingen *gemeenschappelijk* te nemen wordt wel ervaren als groter en stabiel over langere tijd in *sasi* dorpen. Besluiten genomen 'door de gemeenschap' betekent in de realiteit 'genomen door een persoon aanvaard door de gemeenschap' wat het belang van representatie en legitimiteit bevestigd. De hiërarchische structuren in de dorpen zijn dus misschien niet 'eerlijk' of 'gelijk'; ze zijn wel zeer efficiënt en cultureel gezien acceptabel zolang leiderschap krachtig en legitiem is.

Het grootste verschil tussen dorpen met en zonder *sasi* is de mate van sociale duurzaamheid. Het aantal conflicten en instabiel leiderschap was in dorpen zonder *sasi* veel hoger dan in *sasi*-dorpen. *Sasi*-vissers hadden ook het gevoel dat er een sterke traditie van collectieve acties was en ook meer discussie over dorpsgerelateerde zaken. Sociale duurzaamheid, vooral in termen van familiewelzijn en inkomen, werd verder positief beïnvloed door het feit of vissers lid waren van een dorpsorganisatie en of ze tevreden waren met hun beroep.[1] In *sasi*-dorpen was de trend van afnemende scores op deze factoren vergeleken met vroeger ook minder dan in non-*sasi* dorpen, terwijl het toekomstperspectief positiever was.

1 Het meten van de tevredenheid met hun beroep (job satisfaction) was ook onderdeel van deze studie. Resultaten en een meer gedetailleerde beschrijving is te vinden in Novaczek *et al*. 2001 en in Pollnac *et al*. 2001.

Op het gebied van biologische duurzaamheid was er geen bewijs dat *sasi* een significant effect heeft op de visstand. Dit komt zonder twijfel omdat *sasi* alleen betrekking heeft op kleine kustzonegebieden terwijl de meeste vis op open zee gevangen wordt. Op regionaal niveau is de staat van de koraalriffen ook meer afhankelijk van de bevolkingsdichtheid en visserijdruk dan van de aan- of afwezigheid van *sasi*. Op lokaal niveau werd echter duidelijk dat *sasi* gebieden minder te lijden hebben van dynamiet-vissen dan omringende gebieden. Het voordeel van *sasi* is ook aantoonbaar als het gaat om de bescherming van commercieel waardevolle schelpen (*Trochus niloticus*) en zeekomkommers.

Over het algemeen vinden vissers het belangrijk dat alle belanghebbenden vertegenwoordigd zijn in besluitvorming. Vissers die het gevoel hebben dat beslissingen worden genomen op basis van consensus of met instemming van de meerderheid, hebben een hogere positieve score op alle indicatoren met betrekking tot de resultaten. Het is dus belangrijk voor een visserij managementsysteem dat het ervaren wordt als alomvattend in de zin dat iedereen betrokken is. Verder is het belangrijk dat het systeem losgekoppeld is van politieke schermutselingen. Waar formele en informele leiders nauw samenwerken en waar leiderschap legitiem is, bloeit *sasi*.

Institutionele veerkracht

Sasi heeft periodes van ondergang, wederopkomst en stabiliteit gekend. In de jaren '70 is *sasi* afgenomen ten gevolge van sociale en politieke veranderingen en snelle economische groei. De introductie van een nieuwe dorpsstructuur in 1979 heeft in veel dorpen conflicten veroorzaakt tussen de traditionele en nieuwe formele dorpsautoriteiten wat leidde tot politieke instabiliteit. De jaren '80 waren een periode van relatieve bestendigheid; waar *sasi* actief was bleef het functioneel terwijl in andere dorpen *sasi* nieuw leven in werd geblazen. De jaren '90 waren weer een periode van teloorgang van *sasi*. De opkomst van een nieuwe generatie in combinatie met snelle veranderingen gevat onder de term 'modernisering' zijn de meest waarschijnlijke oorzaken voor het verdwijnen van *sasi*.

Het verdwijnen van *sasi* gaat vaak gepaard met conflicten. In de jaren '90 had de invoering van de nieuwe dorpsstructuur nog steeds een effect op de politieke situatie in de dorpen terwijl het systeem van verkiezingen mogelijkheden bood aan opportunisten die erop uit waren een leiderspositie in te nemen. Aan de andere kant, in dorpen waar traditionele autoriteiten min of meer waren opgenomen binnen het nieuwe overheidssysteem vervulden *sasi* en *adat* nog steeds een belangrijke rol wat leidde tot politieke stabiliteit. De continuïteit van *sasi* werd verder beïnvloed door de grootte van het dorp en de

nabijheid van een groot stedelijk centrum. Vandaar het verdwijnen van *sasi* op Ambon eiland.

De relatieve robuustheid van mariene *sasi* kan toegeschreven worden aan het belang dat mensen eraan hechten als deel van hun cultuur, maar ook aan de commerciële waarde van mariene produkten onder *sasi* zoals *Trochus niloticus* en zeekomkommers. Het opnieuw instellen van *sasi* werd niet alleen gestimuleerd door deze commerciële belangen, maar ook door de steun van NGOs, de overheid, en academici die de potentiële waarde zagen van *sasi* als een systeem voor het beheer van natuurlijke hulpbronnen. Echter, in dorpen waar de verdeling van de opbrengsten niet transparant was, ontbrak de steun voor *sasi*.

In christelijke dorpen speelde de kerk een belangrijke rol in land *sasi* (vooral met betrekking tot kokosnoten) en verrichtte soms een ondersteunende rol in mariene *sasi* zoals in Nolloth en Haruku. In islamitische dorpen waar de traditionele functies afgeschaft waren en religieuze leiders geen rol meer speelden, veranderde *sasi* in een soort commerciële transactie waarbij de rechten om te vissen geveild werden. Hechte banden en samenwerking tussen formele en traditionele organisaties en religieuze autoriteiten zorgen er echter voor dat *sasi* zeer veerkrachtig wordt. Een herdefiniëring van verantwoordelijkheden en betrokkenheid van niet-*adat* instituties zoals de kerk, politie, en hoger overheidsniveau's is dus belangrijk (maar vereist ook zorgvuldige afwegingen).

Factoren die positief bijdragen aan de veerkracht van *sasi* moeten meegenomen worden in het proces van modernisering van lokaal beheer. De legitimiteit van het dorpshoofd die van de traditionele *raja* lijn afstamt, bijvoorbeeld, is positief voor de uitvoering van zijn autoriteit met betrekking tot *sasi*. Een grote overlap tussen de traditionele en formele autoriteiten binnen de dorpsoverheid is ook gunstig. De erkenning van traditionele functies binnen de formele structuren is essentieel voor het opnieuw instellen van *sasi* (wat mogelijk is onder de nieuwe wetgeving) en maakt de handhaving van *sasi* regels effectiever. Aan de andere kant, politieke instabiliteit en zwak leiderschap ondermijnen *sasi* en elke poging om het nieuw leven in te blazen.

De basis van *sasi*, op constitutioneel niveau, is *adat* en omdat '*adat* niet veranderd kan worden' en een intrinsiek deel uitmaakt van de Molukse cultuur, bestaat het opnieuw invoeren van *sasi* in feite vooral uit het instellen van regels op operationeel niveau, zoals vangstreguleringen en het regelen van toegang, en op 'collective-choice level' ofwel collectief niveau, zoals het opnieuw oprichten van de *kewang*. De operationele regels kunnen zowel traditioneel zijn als een kopie van de nationale wetgeving en ze kunnen gemakkelijk aangepast worden. Deze flexibiliteit is belangrijk met betrekking tot institutionele veerkracht, maar heeft ook geleid tot een mozaïek van initia-

tieven voor marien beheer waarbij een gemeenschappelijk doel en minimum standaarden ontbreken.

Een institutie zoals *sasi* is nooit statisch. Door de eeuwen heen hebben er veranderingen plaatsgevonden en werd het door verschillende voorstanders gebruikt voor allerlei economische en sociale doelen, dus niet alleen voor het beheer van hulpbronnen. Berkes en Folke (1998) noemen verschillende socio-economische praktijken die de institutionele en ecologische veerkracht stimuleren, zoals beperkingen op de vangsten, taboes, ceremoniën, en lokale kennis die wordt doorgeven van generatie op generatie. Dit onderzoek heeft aangetoond dat het echter niet de praktijken zijn die de *sasi*-institutie sterk maken, maar de sociale mechanismen die de verschillende 'spelers' en componenten bij elkaar houden zoals legitimiteit, vertrouwen, samenwerking, en transparantie. Een gedeelde overtuiging dat de institutie relevant is, is ook nodig om tot een gemeenschappelijk besluit te komen *sasi* te handhaven ondanks de externe invloeden en in een situatie waar de verleiding om het systeem te misbruiken voor eigen belang groot is.

Organisatie van visserijbeheer en beleidsstructuur

Vóór 1999 had Indonesië geen apart departement voor visserij en beheer was ongeorganiseerd en ineffectief. Visserij- en kustbeheer op nationaal niveau werd gekarakteriseerd door een grote overlap in wetgeving en vond plaats onder meer dan 20 ongecoördineerde ministeries. Ook al werd op provinciaal niveau de ontwikkeling van meer gedetailleerd en lokaal toepasbaar beleid gestimuleerd, er ontbrak een samenhangend geheel van operationele regels. Alleen op lokaal niveau waren een aantal regels opgesteld. Maar hoewel het belang van *sasi* en lokaal beheer algemeen erkend werd en de dorpshoofden *de facto* verantwoordelijkheid hadden over de lokale hulpbronnen ten dienste van de gemeenschap, werden de traditionele management systemen niet geformaliseerd.

Er waren twee wetten van toepassing op de visserij in de Molukken (Wet Nr. 9/1985 en Besluit Nr. 607/1976) die respectievelijk een verbod inhielden op destructieve vismethoden zoals explosieven en gifstoffen en een bepaling van de visgronden binnen de kustzone. Elk jaar werd een totale vangst (Total Allowable Catch of TAC) vastgesteld op basis van MSY (Maximum Sustainable Yield). Onbetrouwbare data echter verhulde de achteruitgang in de commerciële vispopulaties en het niet bij machte zijn de visserij te controleren droeg bij aan illegale vangsten. Onduidelijke grenzen van visgronden leidden verder tot conflicten tussen kleinschalige handmatige vissers en de gemotoriseerde commerciële vloot.

Economische belangen en de ontwikkeling van de visserij hadden de prioriteit over duurzaamheid en beheer. Het provinciale en regionale planbureau BAPPEDA hield zich dan ook voornamelijk bezig met de uitbreiding van de visserij in plaats van met het beheer of bescherming ervan. Een groep van instanties onder BAPPEDA was direct betrokken bij visserijactiviteiten en hield zich bezig met vistuig, schepen, en mankracht, zoals de marine. Een tweede groep hield zich alleen bezig met visserij als nevenactiviteit, zoals het Milieu Bureau. Verder was er het onderzoeksinstituut LIPI dat informatie verstrekte aan de overheid. De verdeling van taken en autoriteit tussen deze instanties was onduidelijk.

De ontwikkeling van visserijbeleid en reguleringen werden grotendeels bepaald door de nationale overheid in Jakarta en van daaruit doorgegeven naar overheden op provinciaal, district en subdistrict niveau. Het was echter bijna niet mogelijk ideeën en suggesties omtrent beheer ontwikkeld op lokaal niveau naar boven door te sluizen. Ook traditionele autoriteiten, van oudsher betrokken bij beheer en handhaving van regels, hadden geen legale positie en waren in de praktijk buitengesloten van provinciale en regionale beleidsstructuren en planning. Echter, sinds de *reformasi* van 1999 zijn er op nationaal niveau stappen gezet om zeggenschap over het beheer van kustgebieden over te hevelen naar lagere overheidsniveau's en lokaal niveau.

Decentralisatie

Het falen van de overheid om hulpbronnen te beheren en beschermen heeft een proces in gang gezet van decentralisatie waarin de autoriteit en verantwoordelijkheid overgedragen worden naar lagere en lokale instituties om op deze manier een stimulans te creëren richting duurzaam hulpbronnengebruik. Betrokkenheid van lagere overheidsniveau's en lokale gemeenschappen maakt planning en besluitvorming efficiënter, terwijl het in handen hebben van macht en hulpbronnen op lokaal niveau naar verwachting leidt tot meer economische en sociale ontwikkeling. Van decentralisatie wordt ook verwacht dat het de politieke participatie zal bevorderen en zal leiden tot grotere transparantie, 'empowerment' en grotere gelijkheid, wat op zijn beurt voeding geeft aan democratische idealen.

Met de invoering van Wet Nr. 22/199 en Wet Nr. 25/1999 met betrekking tot administratieve en fiscale decentralisatie werd regionale autonomie een realiteit. De nieuwe wetten creëren het wettelijke en financiële raamwerk voor beheer grotendeels door de districtsoverheid, met een meer ondersteunende rol van de provinciale en nationale overheid. Visserij- en kustbeheer krijgen verder een grote impuls door de creatie van een Nationaal Maritieme Raad (National Maritime Council or NMC) en een Ministerie van Visserij en Maritieme Zaken (DKP).

De nieuwe wetten laten echter ook ruimte voor misbruik. Grootschalige exploitatie van hulpbronnen, machtsstrijd, en de formatie van nieuwe elites vormen een potentiële bedreiging voor het proces van decentralisatie wat leidt tot scepsis onder wetenschappers en tegenstanders. Een vergelijking tussen case-studies in de Filippijnen en Indonesië laat zien hoe en onder welke omstandigheden functioneel lokaal beheer bereikt kan worden. Belangrijk hierbij is het opzetten van instituties op lokaal niveau die afzonderlijke bevoegdheden hebben, die transparant zijn, en die verantwoordelijkheid moeten afleggen naar beneden toe, dus richting de bevolking. 'Empowerment', een hoog kennisniveau, adequaat leiderschap, en de ontwikkeling van vaardigheden helpt om instituties te creëren die sterk genoeg zijn om met machtige tegenstanders en 'nieuwe elites' om te gaan, die in staat zijn inkomsten te onttrekken uit de hulpbronnen, en die in staat zijn het beheer uit te voeren (Pomeroy en Berkes 1997; Pomeroy 2001). Daarbuiten is de oprichting van lokale groeperingen, discussiefora, en overkoepelende organisaties belangrijk.

Om de 'instituties goed te krijgen' is een diepgaande analyse nodig van de bestaande politieke structuren, de rol en positie van traditionele autoriteiten, plus de toereikendheid van deze instituties om met de nieuwe management verantwoordelijkheden om te gaan. De rol, autoriteit, en het mandaat van de provinciale overheid dienen zorgvuldig begrensd te worden. Voorgesteld wordt om een overkoepelende wet, procedures, en een inter-departementaal orgaan te ontwikkelen ter ondersteuning van een landelijke aanpak waarbinnen lokaal beheer kan plaatsvinden en waardoor de coördinatie en effectiviteit van de verschillende instanties verbeterd wordt. Met het oog op het voormalige dictatoriale regime zal de verschuiving naar een meer gedecentraliseerde staatsvorm op basis van democratische structuren in Indonesië een lange tijd vergen. De ervaringen in de Filippijnen fungeren als inspirerend voorbeeld.

Voorwaarden voor succes

Om het succes van co-management te verzekeren is het nodig dat de nieuwe wetgeving de bevoegdheden en controle duidelijk definieert en legitimiteit toekent aan eigendomsrechten en besluitvormingsprocessen. De verantwoordelijkheid en autoriteit van de verschillende partijen moeten worden gedefinieerd, evenals de rechten en regels die lokale participatie legitimeren. Bij de ontwikkeling van co-management zijn vaak externe tussenpersonen betrokken die een rol spelen als katalysator. Ze helpen de dorpsgemeenschappen bij het vaststellen van de probleemdefinitie, geven advies en steun, en voorzien in training en technische assistentie.

Belangrijk op dorpsniveau zijn een juiste schaal waarop de activiteiten plaatsvinden en duidelijke grenzen. Als de rechten van de gemeenschap verdedigd

moeten worden, moet duidelijk zijn wie er lid is en wie niet. Een hoge mate van homogeniteit heeft ook een positieve invloed op de co-management regelingen, vooral waar de mensen die de gevolgen ondervinden van de afspraken, betrokken zijn bij de besluitvorming. Succes is verder in hoge mate afhankelijk van gerespecteerde, legitieme leiders die een voorbeeldfunctie vervullen, die bepalen welke actie ondernomen wordt, en die energie en richting geven aan het proces. Aan de andere kant maakt een grote afhankelijkheid van leiders het co-management proces ook kwetsbaar.

Het sociale voorbereidingsproces dat aan co-management vooraf gaat is belangrijk om capaciteit op te bouwen en de persoonlijke macht en daadkracht van mensen te vergroten (empowerment). Het proces versterkt verder het sociale bewustzijn en autonomie en stimuleert betere machtverhoudingen binnen de gemeenschap. Het moet gebaseerd zijn op de socio-culturele context van de gemeenschap en de marginale groepen erbij betrekken, zoals vrouwen en armen. Andere belangrijke mechanismen zijn structuren die zorgen voor verantwoording naar beneden toe en conflict-management.

Legitieme dorpsorganisaties waarin gebruikers van hulpbronnen en andere belanghebbenden vertegenwoordigd zijn, kunnen de richting van beleid en besluitvorming mede bepalen. Betrokkenheid in een vroeg stadium en actieve betrokkenheid van partners in de planning en uitvoering zorgt ervoor dat mensen zich eigenaar voelen over het proces en zich ervoor willen inzetten. Het proces heeft verder langdurige steun nodig van lokale overheden en politieke wil. Financiële hulpmiddelen zijn ook nodig om het proces te steunen en planning, coördinatie, uitvoering, toezicht en controle te betalen. Wettelijke eigendomsrechten over het gebruik van hulpbronnen zijn een motivatie voor optimaal gebruik en beheer. Idealiter investeren de leden van de gemeenschap hun eigen financiën in het proces, omdat een te grote afhankelijkheid van externe bronnen het voortbestaan van co-managementarrangementen in gevaar brengt.

Het is belangrijk dat de doelen van co-management duidelijk zijn en de uitkomst zijn van duidelijk geformuleerde problemen. De regels moeten simpel zijn. Een gedeeld inzicht in de kernoorzaken van de problemen en mogelijke oplossingen helpt om de strategie te kiezen en prioriteiten vast te stellen. De wil om zich aan de regels te houden wordt bepaald door het persoonlijke perspectief op de eerlijkheid en zinnigheid van de wetten en de legitimiteit van de autoriteiten die deze moeten uitvoeren. Het werkt het beste als handhaving door formele instanties zoals kustwacht en politie gecoördineerd wordt met lokale traditionele wetshandhavers.

De geschetste voorwaarden dienen als een richtlijn in planning en uitvoering van co-management en moet gezien worden in de context van Zuidoost Azië. Het aantal en de verschillende soorten randvoorwaarden voor co-manage-

ment laat zien dat planning en uitvoering dienen plaats te vinden op verschillende niveau's. Elke voorwaarde is gerelateerd aan de andere en ze versterken elkaar om zo het complexe geheel van co-managementregelingen te laten werken.

Hoe meet je succes?

Om een goed beeld te vormen van het slagen van een project, is het belangrijk de impact van het project te meten vanuit zowel het perspectief van de insider als dat van de buitenstaander. Om een methodologie te ontwikkelen zijn de afhankelijke variabelen van twee co-managementcasussen in de Filippijnen geanalyseerd en vergeleken. Bepalend voor het succes van het project voor de respondenten waren: het idee erbij te horen, toegenomen onafhankelijkheid, toegenomen kennis, en een hoge mate van betrokkenheid in de project planning, ook in de projecten die door de projectmedewerkers (die alleen keken naar kwantitatieve tastbare resultaten) als mislukt werden beschouwd. De reden voor het verschil in de beoordeling is dat de benadering van projecten veranderd is van ontwikkeling naar 'participatie' en dus meer gericht op mensen, terwijl de indicatoren om succes te meten hetzelfde zijn gebleven. Het is dus belangrijk om deze indicatoren aan te passen aan deze nieuwe benadering.

Het sociale voorbereidingsproces neemt veelal meer tijd in beslag dan de totale duur van het project dat meestal maar 3 tot 4 jaar is. Daardoor vinden projectactiviteiten plaats terwijl mensen zich nog steeds in het proces van persoonlijke ontwikkeling bevinden. Dit is waarom de timing van het meten van succes belangrijk is. En het is belangrijk dat de persoonlijke verandering van mensen ook gemeten wordt. De ideeën en percepties van de lokale mensen (het *emic* perspectief) kan vertaald worden naar indicatoren die vervolgens gemeten kunnen worden. In een latere fase, wanneer het aan de orde is, kan dan gekeken worden naar de fysieke projectresultaten. De meting van de ervaringen van mensen op een vroeg tijdstip heeft voordelen. Het meten op zich kan leiden tot een internalisering van projectdoelen, terwijl een toegenomen zelfbewustzijn een positieve invloed heeft op het projectontwerp en de uitvoering ervan. Waar zowel de projectdoelen als de resultaten de uitkomst zijn van een gemeenschappelijk proces, mag aangenomen worden dat: (1) de voorgestelde projectdoelen van de uitvoerders en de participanten overeenkomen, en dat (2) een meting van de tastbare resultaten op een later tijdstip een objectieve weergave is van projectsucces.

Zeer bruikbaar voor het meten van projectresultaten zijn participatieve onderzoeksmethoden. Mogelijke indicatoren om de individuele veranderingen van participanten te meten zijn: de mate van betrokkenheid bij het project, de toename in capaciteiten en vaardigheden, de mate van controle over en

toegang tot het proces, en persoonlijke veranderingen. Op het niveau van de gemeenschap gaan metingen over een toe- of afname in communicatie, representatie, samenwerking, vertrouwen en steun. Het is belangrijk deze metingen tijdig uit te voeren omdat dit het mogelijk maakt het project aan te passen om zo mogelijke fouten te vermijden. Pas nadat de projectactiviteiten zijn uitgevoed (post-implementation phase) moet het hele project geëvalueerd worden, inclusief materiële output (vangsten, inkomsten, grootte natuurreservaat) en ook de betrokkenheid van mensen, opbrengsten van het project, managementstructuren, en het niveau van participatie. Het mooiste is als deze indicatoren gemeenschappelijk ontworpen zouden zijn tijdens de planningsfase, omdat dan deze uiteindelijke evaluatie een echte weergave is van het succes van het project.

Conclusie

Teruglopende visvangsten, achteruitgang van het ecosysteem en verlies van biodiversiteit hebben overheden ertoe aangezet beheer over natuurlijke hulpbronnen te decentraliseren inclusief de overheveling van autoriteit naar lagere overheden en lokale gemeenschappen. Co-management, een vorm van samenwerking tussen de overheid en lokale gemeenschappen, is één van de mogelijke strategieën. Het stimuleert lokaal beheer met een steunende en faciliterende rol van de overheid. *Sasi*, het traditionele lokale beheerssysteem in de Centrale Molukken, vormt een potentiële basis voor lokaal beheer. De aanwezigheid van *sasi* betekent dat een aantal belangrijke management concepten wijd verspreid zijn en deel uitmaken van de locale cultuur, zoals bijvoorbeeld open en gesloten seizoenen, de notie van beperkte toegang tot hulpbronnen, en van gemeenschappelijke gebruiksrechten over een kustgebied. De invoering van reguliere visserijregelgeving op dorpsniveau wordt duidelijk beïnvloed door de *sasi*-institutie en mariene *sasi* in het bijzonder. *Sasi* biedt een structuur die cultureel ingebed is, inclusief een functioneel systeem voor regelhandhaving, en die voorziet in een geheel van regels en reguleringen dat door iedereen geaccepteerd wordt. Het aanwezig zijn van *sasi* is dus positief voor de ontwikkeling van nieuwe moderne mariene managementstructuren.

Sasi had (en heeft waar nog aanwezig) significante resultaten op het gebied van sociale duurzaamheid en het stimuleert de mechanismen die ten grondslag liggen aan de functionaliteit en veerkracht van de institutie op langere termijn waarmee Hardin's theorie (1968), dat lokale gemeenschappen niet in staat zijn hun hulpbronnen te beheren, weerlegd wordt. Sociale mechanismen zoals samenwerking, vertrouwen, maar ook verantwoording naar het volk stimuleren niet alleen lokaal beheer, maar vormen ook de basis voor gedecentraliseerde structuren. *Sasi* is echter ook kwetsbaar voor politieke conflicten, opportunistische leiders die vooral geïnteresseerd zijn in de ont-

trekking van opbrengsten, en een gebrek aan support en interesse van de jongere generaties. De jonge vissers zijn echter wel degenen die vinden dat de gemeenschap verantwoordelijk is voor visserijbeheer. Legitiem leiderschap, toegang tot kennis, en een formele erkenning van traditionele leiders en wetsuitvoerders kunnen de institutie versterken. Verder is het belangrijk dat de traditionele structuren opgenomen worden in een modern beheerssysteem dat voldoet aan de huidige eisen van participatie en democratie. Een aangepaste vorm van *sasi* zal ook de jongere generaties aantrekken en zo brede steun krijgen.

Op plekken waar *sasi* verdwenen is, of waar de voorwaarden belangrijk voor het overleven van *sasi* ontbreken, moeten nieuwe structuren voor beheer gecreëerd worden waarin, idealiter, de concepten van *sasi* verweven zijn. De constitutionele regels die afstammen van *adat* vormen een mogelijke basis, terwijl de 'collective-choice' regels en de operationele regels aangepast moeten worden aan wat nodig is voor een dorp dat te groot of te heterogeen is, dicht bij het stedelijke centrum van Ambon ligt, of op een andere manier niet in staat is geweest de oorspronkelijke vorm van *sasi* te handhaven. Een logisch alternatief zou een moderne dorpsinstitutie zijn met een transparant besluitvormingsproces waarbij iedereen betrokken is, met een mechanisme om regels aan te passen en te handhaven, en dat directe voordelen biedt aan de vissers in hun rol als 'manager'.

Veel overheidsambtenaren erkenden dat lokale instituties nuttig zijn en een strategisch voordeel bieden door hun ligging dicht bij de hulpbronnen en de vissers. De huidige politieke structuren in de dorpen zijn echter nog een afspiegeling van de gecentraliseerde en hiërarchische nationale structuren. Omdat dorpsleiders gewend zijn te wachten op orders van boven in plaats van zelf actie te ondernemen, moeten toekomstige lokale management structuren in eerste instantie gesteund worden door de overheid. Dorpshoofden moeten geholpen en gemotiveerd worden om op een proactieve en creatieve manier nieuwe lokale beheersregels te ontwikkelen. In tegenstelling tot in de Filippijnen, zijn er in Indonesië bijna geen NGOs of (milieu-)organisaties buiten de kerk of overheid. De betrokkenheid van zulke organisaties en 'katalysatoren' van buitenaf is echter van groot belang in het opbouwen van capaciteit en om macht en autonomie van de mensen te vergroten (empowerment), twee belangrijke aspecten van het sociale voorbereidingsproces.

In welke vorm dan ook, de institutie heeft een basisfinanciering nodig en een stabiele managementstructuur met daarin een rol van de overheid zonder daar afhankelijk van te zijn. En of de institutie nu gebaseerd is op *sasi* of niet, alle belangen en aspiraties van de verschillende groepen (vissers, *adat* leiders, lokale overheden, visserijbeheerders op hoger niveau, en milieuorganisaties) moeten erin samengebracht worden. Binnen de huidige wetgeving kunnen *sasi* en de *kewang* formele erkenning krijgen waarmee de afscheiding

van regionale, provinciale en nationale managementstructuren wordt opgeheven. Lokale instituties moeten niet alleen betrokken worden bij toezicht en handhaving, maar moeten ook partners zijn in planning en uitvoering van ontwikkelingsprojecten, het vaststellen van vispopulaties, en het uitgeven van vergunningen. Bovendien, om een plek te hebben aan de onderhandelingstafel met betrekking tot toegangsrechten voor kleinschalige vissers in open water, moeten de lokale instituties ingebed worden in grotere organisaties die werken op regionaal, provinciaal en hoger niveau.

Omdat deze managementstructuren bestaan uit meerdere partijen, is er een belangrijke rol weggelegd voor een 'facilitator' die de verschillende gezichtspunten en percepties kan vertalen van de één naar de ander. De antropoloog, gewend om milieugedrag en lokale dynamieken te bestuderen, kan helpen de cognitieve en culturele kloof tussen de verschillende partijen te overbruggen om zo tot constructieve dialogen en onderhandelingen te komen bij het zoeken naar oplossingen voor milieuproblemen.

Curriculum Vitae

Ingvild Harkes was born on the 23rd of October 1967 in Boskoop, the Netherlands. In 1988 she finished her highschool (VWO) at the Gouwe College in Gouda and went to Leiden University a year later to study cultural anthropology and, after a 6-month period at the University of Edinburgh, environmental science. This brought her to Cameroon to study fisheries management. After her graduation in 1995, Ingvild Harkes worked for the Dutch Ministry of Foreign Affairs as an associate expert and was seconded to respectively the International Center for Living Aquatic Resources Management (ICLARM) in the Philippines and the Institute for Fisheries Management and Coastal Resources Management (IFM) in Denmark to work in and study fisheries co-management systems in Southeast Asia and Africa. In 2000 she returned to the Netherlands and worked as a consultant at AIDEnvironment in Amsterdam. In 2003, the Centre of Environmental Studies in Leiden offered a part-time position to write her PhD thesis and work in several projects geared towards park and wildlife management and the establishment of regional NGO networks in West Africa. At the moment she runs, together with a colleague, the secretariat of the Pelagic Regional Advisory Committee (RAC) that was established in 2005 under the European Union in order to enhance communication and collaboration between the fisheries sector, NGOs and other stakeholders, and the fisheries managers with the objective to work towards integrated and sustainable management of fisheries resources.