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**An Assessment of Philippine Experiences in Implementing the  
Community-based Approach to Coastal Resource Management**

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## Abstract

Four case studies on implementation of the community-based approach to coastal resource management were assessed using the following parameters: level of community participation; women's involvement; sustainable use and management of coastal resources; conflict resolution; capability to address legal, policy and equity issues.

The assessment has shown that this approach has successfully promoted the sustainable use and inexpensive management of coastal resources. Community-based resource management has led to a decline in destructive and illegal fishing activities, the implementation of resource rehabilitation measures and the establishment of marine protected areas. Effective community-based enforcement of regulations of the protected areas has led to significant and quantifiable changes in the quality of reef resources.

The empowerment of fisherfolk organisations was instrumental in the success of community initiatives in coastal resource management. The knowledge, skills and capabilities of fisherfolk to manage coastal resources were developed or enhanced through the community organising process. Fisherfolk organisations were also able to devise mechanisms which promote more equitable income distribution in their communities. However, the meaningful involvement of women has yet to be integrated into the framework of community-based coastal resource management.

Community-based resource management experiences have had limited success in resolving conflicts arising from incompatible activities in the coastal zone. Fisherfolk organisations have limited jurisdiction over many coastal zone activities which affects the status of coastal resources. Government authorities have control over the management of coastal zone activities and resources. The success of the community-based approach to coastal resource management depends upon the extent of powers and jurisdiction fisherfolk organisations have as well as the acceptability of the management schemes they implement.

# **An Assessment of Philippine Experiences in Implementing Community-based Approach to Coastal Resource Management**

## **1.1 Introduction**

The coastal communities in the Philippines are faced with problems arising from conflicts in control and access to coastal resources.

One of the main problems is the degradation and overexploitation of the coastal resources. Intensive fishing pressure has resulted in overfished stocks (Silvestre, 1989). Majority of the coral reef areas has been severely degraded due to illegal fishing activities such as the use of dynamite and fish poisons. (McAllister, 1988). Siltation and sedimentation have also significantly contributed to degradation of coral reefs (McAllister, 1988; Evans, 1991; Gomez, 1991). There is also widespread conversion of mangrove areas into brackishwater fishponds for intensive fish culture.

This situation have aggravated the already marginalised conditions of people dependent on the utilisation coastal resources for their livelihood and subsistence. Small scale fishing communities in the Philippines are characterised by households living below the poverty level. The degradation of resource base has resulted in declining production and low levels of income. Furthermore, the existing social organisation and institutional arrangements in fishing communities are not favourable to alleviating the impoverished status of fisherfolk. Existing laws governing the utilisation of coastal resources are generally unfavourable to fisherfolk. There is also the problem of the lack of political will to effectively enforce these laws.

As a response to this situation, many small scale fisherfolk organisations with the help non-governmental organisations (NGOs) implemented what is referred to as the community-based approach to coastal resource management. The meaning of this approach clearly varies between organisations. There are some organisations who have clearly outlined the basic guiding principles of this approach to coastal resource management. What is common however is the emphasis on local community member's direct involvement and participation in the implementation, monitoring and enforcement of coastal resource management initiatives. This approach recognises that local people should have active involvement in matters which affect their lives and should therefore be empowered.

This paper will present an assessment of various Philippine experiences in community-based coastal resources management. This will look into how programme designs were developed and review the processes and methods undertaken in the implementation of community-based management. This paper will also evaluate the effectiveness of community-based management in addressing problems in coastal communities in the Philippines. The merits, achievements and limitations of this approach will be identified.

Community-based resource management will be assessed using the following criteria:

- i. participation and empowerment of coastal communities
- ii. women's participation
- iii. promotion of sustainable use of resources
- iv. conflict resolution
- v. response to policy and legislative issues
- vi. equity issues

Four different experiences in the implementation of the community-based approach to coastal resource management were reviewed. This included the experiences of two non-governmental organisations: Tambuyog Development Centre's Mindoro Sustainable Development Programme (MSDP) and the Community Extension and Research for Development's (CERD), Fishery Integrated Resource Management for Economic Development Programme (FIRMED). The experiences of the Nationwide Coalition of Fisherfolk for Aquatic Reform (NACFAR) - a coalition of fisherfolk organisations in Resource Management Council (RMC) piloting programme and that of Siliman University in Apo Island will be examined. This assessment relied heavily on a review of existing documents both published and unpublished.

## **1.2 Development and design of the programme**

The implementation of community-based approach to coastal resource management were mainly the initiatives of NGOs and academic institutions. These initiatives were responses to the growing poverty among coastal dwellers as well as an attempt to address the conservation and management of degraded coastal resources.

The design of Tambuyog Development Centre's (TDC) Mindoro Sustainable Development Programme (MSDP) was based mainly on a study of the poverty situation of fisherfolk in the island of Mindoro. This programme was planned with no intense participation from the community or the target beneficiaries.. Community participation to programme design was limited to the preliminary baseline study which was conducted in the area during the conceptualisation phase of the programme. The programme design and details were mainly developed by Tambuyog.

Similarly the Fishery Integrated Resource Management for Economic Development Programme (FIRMED) was developed based on the information derived from consultation between the Community extension and Research for Development (CERD) and the SAMASAKA on the Socio-economic conditions and potentials of coastal communities in Daram. Likewise there was no direct involvement of the local people in programme design.

Co (1992), refers to this planning and broad decision making as an interventionist approach. This approach in programme design is not unusual for many NGOs in the Philippines wherein the NGO acts as a proactive agent of development and change.

By contrast, NACFAR's concept of Resource Management Council was developed through a participatory approach. The concept was an integral part of the Fisheries Reform Code and was developed through a series of consultations and meetings among various fisherfolk organisations from all around the country.

On the other the Marine Conservation and Development Programme for Apo Island was developed by the Environment Centre of Siliman University and was based mainly on the then successful Sumilon Island Marine reserve. This programme was developed as a response to the impending destruction of the reef resources of Apo Island. The design of this follow-up programme was guided by the lessons learned from the previous marine conservation and education programme implemented in the island (White, 1989).

### **1.3 Programme content**

The essence of community-based approach i.e the MSDP, FIRMED, MCDP and RMC Piloting programme is people's participation in the management of coastal resources. Its emphasis is on the establishment or strengthening of fisherfolk organisations who will be responsible for the management of coastal resources.

This focus on fisherfolk participation evident on the programme components. The core of the various programmes i.e MSDP, FIRMED and RMC piloting and MCDP is community organising. Community organising involves mainly the formation of people's organisations in the community. The people's organisations are considered as the vehicle for active participation in community activity and endeavours. The NGO proponents of the various programmes envisions that fisherfolk organisations will be transformed into RMCs whose major role is the conceptualisation, formulation and implementation of plans and programmes regarding the protection and management of coastal resources.

In comparison, MCDP's aimed to establish a Marine Management Committee (MMC) whose primary responsibility is the enforcement of guidelines and regulations for the established marine reserves and fish sanctuary in the area.

MMC differs from the RMCs in the sense that the former's main task and responsibility is limited mainly to the enforcement of regulations governing activities and use of resources in the reserve and sanctuary area. The RMC in contrast have a more political nature and agenda. They are guided by principles which aim to address structural problems in Philippine society.

MCDP stressed on the establishment of marine reserves as a management strategy. The MSDP, FIRMED and RMC programmes did not specify any particular resource management scheme to be

implemented by fisherfolk organisations. Although in its actual implementation, the establishment of a protected area was the primary management scheme adopted.

Another important component common among the community-based programmes is concerned with providing socio-economic projects to people's organisations. This mainly involves the implementation of projects which will enhance the production and livelihood opportunities and consequently the quality of life of people in the community. The implementation of these projects is based on the premise that these will provide alternative and augmentative sources of income for the people. The basic tenet of this approach is that availability of alternative and augmentative sources of income will facilitate the implementation and success of conservation measures and ease the exploitation pressure on coastal resources.

Research and documentation is also an important component as this will provide the needed information for planning and implementation of projects identified by the organisations. This involves the collection and analysis of the necessary information needed as input for the planning and implementation of programme activities. This includes environmental assessments as well as research on the social and economic aspects.

A continuing education programme is also an integral part of the community-based approach. Typical educational seminars include topics on the environment, the various coastal ecosystems, their functions and values as well as a discussion of the management options. Training courses on new skills are integral to the programme in order to provide the fisherfolk with the skills necessary for the various tasks they will eventually undertake when implementing community-based initiatives in resource management.

NACFAR's RMC piloting programme has not defined its programme components. It is not clear what components are necessary for the establishment of the RMCs. However it can be deduced from the report written by Regal (1993) the various activities which should be undertaken in the course of forming and RMC will include the strengthening cooperatives, environmental education and skills training and the implementation of resource rehabilitation projects.

#### **1.4 Methodology and programme implementation**

The community based approach in coastal resource management adopted the basic methodology of community organising in its implementation process.

The community organising approach is described by Hollenstiener (1979) as:

"A process which mobilises people to identify the constraints to development and improvement of the quality of life (i.e bureaucratic structures and restricted institutional arrangements), analyze and demystify them, develop a strategy

of eliminating them.... This process seeks to establish powerful people's organisations through which the disadvantaged poor can enter into the sphere of decision making. It also aims at the liberation of consciousness and the creation of actual instruments of power through mass action."

It is necessary that people have to be organised to participate effectively in development projects as participation tends to be ineffective outside of the organisational context (Uphoff et.al. 1979, cited in Ferrer, 1989a). An organisations necessary to ensure that participation is fostered on a collective basis such that all members of the community have equal access to the benefits and decision making (Ferrer, 1989a). The organisation is essential in mobilising and coordinating the human and material resources of the community in pursuit of their common interest.

Community organising is generally facilitated by a trained community organiser. Community organisers live with the people in the community and also participate in their daily activities. The main task of the community organiser is to "steer members of the community to a group formation process" (Hollenstiener 1989) and to act as catalyst and motivator.

The MSDP and MCDP programme implementation process was patterned after the basic steps in community organising. The basic steps which were undertaken during programme implementation may be summarised and simplified into the following phases: The first phase involves community integration and the conduct of community study. This involves introducing the programme to the community members and to the formal and informal leaders in the area through community meetings and dialogues. Integration also entails establishing rapport with members of the community through participation in their various activities. Community integration is essential to and facilitates the conduct of community studies - acceptance of the programme. The outcome of these studies are necessary inputs to future planning and programme activities (Hollenstiener, 1979; Ferrer, 1989a; Tambuyog, 1991).

Community studies were conducted using the participatory process. Participatory means that the people in the community are involved in the collection of data, in its processing and its analysis. Data collected for community studies include demographic information, socio-economic data, attitudes, values and beliefs of local people ( Tambuyog, 1991; Calumpong, 1993; Tiempo, 1994). Resource assessment surveys are generally conducted during this phase.

The next phase is the conduct of educational seminars and workshops. The community organiser often acts as resource person in these activities. Sometimes resource persons from other institutions and organisations are also invited. These sessions facilitate the identification and prioritisation of community specific problems and issues relating to coastal resource utilisation activities. This aspect of community

organising activities enhance people's understanding of the problems they encounter as well as facilitates the identification of solutions to these problems.

Through dialogue, meetings and workshops, key contacts and key informants are identified who can provide and/or validate information on the community and its people (Tambuyog, 1991). Potential leaders are also identified during these session (White, 1989; Tambuyog, 1991; Tiempo, 1994). This stage of the organising process eventually leads to the formation of core groups. The potential leaders often become members of the core group (Tambuyog, 1991; Calumpong, 1993,; Tiempo, 1994). The core group acts as the basic building block of people's organisation (Ferrer, 1989a). The skills and the knowledge of community organisers are transferred to members of the core group who will eventually take over the tasks of the community organisers.

After the capabilities of the core group has been tested, and when an adequate number of individuals are supportive of the goals and objectives of the programme, the core group is then expanded by the setting up and formalising of an organisation (Ferrer, 1989a; Tambuyog, 1991; Calumpong, 1993).

Once the organisation has been formed, further activities are undertaken to strengthen, consolidate and expand the organisation. These activities may involve the implementation of socio-economic projects or any other projects identified by the organisation. Skills training e.g. training on project management skills are also provided to enable members of the organisation to build their skills and confidence in dealing with activities undertaken by the organisation. This may take the form of activities referred to as local mass struggles (Tambuyog, 1992). Fisherfolk's involvement in these activities help build their skills in the day to day activities as well as in negotiations and planning. Likewise it also helps to build the confidence of members of the organisation. Consolidation of people's organisation is often achieved by continuing participation of members in education as well as activity focused projects of their organisation.

The implementation process may differ if programme proponents are already dealing with organised local groups as in the case of the RMC piloting programme and FIRMED. The basic steps of community organising remains the guiding methodology in its implementation. The activities however more focused towards the strengthening and consolidation of the already existing organisation.

## **1.5 Participation and empowerment of coastal communities**

### **1.5.1 Target beneficiaries of the programmes**

The community-based programmes aim mainly to benefit small scale fisherfolk in their communities. It is believed that this sector should have the lead role in the protection and



conservation of the coastal resources since it is their livelihood that will be most adversely affected by the depletion of coastal resources (NACFAR, 1991; dela Cruz, 1993; Tambuyog, 1991).

#### 1.5.2 Participation in conceptualisation and programme design

As mentioned before, the conceptualisation of the programme i.e. the planning and the project design are mainly the concern of NGOs with limited participation from members of the targeted communities. The initial participation of community members is limited to their participation in preliminary research (Co, 1992) or in a community meeting (Tan, 1993) aimed mainly to determine the problems and issues in the community. The design of the programme its goals and vision, its components, its implementing structure, levels of community participation, contributions fisherfolk have to make, budgetary concerns the evaluation process and criteria to be used are all determined by programme proponents. On the contrary, NAFAR's RMC concept, its structure, responsibilities and guiding principles have evolved through a participatory approach.

The decisions on when and where the programmes will start are also generally determined by the programme proponents and not by the targeted beneficiaries.

#### 1.5.3 Participation in implementation

This is the aspect where people's participation is most evident. Community members participated in preliminary programme activities such as dialogues or a series of community meetings and consultations initiated by the community organiser aimed to introduce the programme to the community.

Although the targeted beneficiaries are the fisherfolk, other social groups in the community also participated in these activities.

Fisherfolk and community members are generally motivated to participate in these preliminary programme activities due to curiosity. Rural people are often curious and want to know the intentions of community organisers. People also attend these meetings because these often served as a social occasion for the community. It is also a common notion that they may receive something from the programmes (in form of dole outs). At the onset of the FIRMED programme, the members of the organisations expected that they would be given fishing gears and vessels which they needed (Tan, 1993).

The endorsement by the informal or formal leaders of the community encouraged people's attendance to these meetings and facilitated the community's acceptance of the programmes (Calumpong, 1993; Regal 1993; Tan, 1993). The experience in Apo island has shown that the non-political leaders can be more influential the community (Cabanban and White, 1981).

The use of environmental issues as an entry point encouraged people's participation in programme activities. The issue on environmental degradation as well as problems regarding access to water resources roused community's and government official's interest and concern. The correctness of issues identified as entry point is crucial in motivating people to participate.

The conduct and the style of educational seminars are also crucial in maintaining the interest of the participants. Popular education techniques were normally used during these activities (White and Cabanban, 1981) MSDP's experiences has shown that the audio-visual medium makes environmental seminars more popular among community members (Lazarte and Tanchuling, 1993, pers communication).

The dialogues and meeting helped facilitate the identification of problems and issues as well as helped in identification of the course of action which would be taken to resolve the problems.

Fisherfolk organisations participation in special topic seminars provided them with specific and knowledge and skills needed for organisational management and project administration. Such training also provided the organisation members with the necessary skills for organised and effective local action. The training included courses on leadership, ability to form committees and conduct meetings, ability to choose capable leaders, to make informed decisions as well as to manage common funds and resources. FIRMED's education programme also included exposure trips to sites where there was successful implementation of the community-based approach to coastal resource management.

In the case of MSDP, advanced education seminars were conducted on special topics e.g. development theories to provide the fisherfolk with a framework of analysis of sectoral problems and issues.

Local people also participated through resource contributions in the form of provision of information, labour cash or material goods. Fisherfolk sometimes participated in the conduct of community research. They provided information needed for the community studies (Calumpong, 1993; Tan, 1993). Some community members i.e. the contact persons, potential leaders participated in the data collection, the processing and the analysis of research results (Tambuyog, 1991; Calumpong, 1993). Their participation in the research processes heightened their awareness of community problems and issues. Their involvement in the analysis led to better understanding of the root problems of the problems and issues they encounter.

MSDP fisherfolk organisation and the SAMSAKA members contributed their labour in the construction of artificial reefs and river clean-up activities (MSDP, 1992; Tan, 1993). Participation through resource contributions served to enhance

fisherfolk's sense of responsibility and commitment over the activities and projects they undertake.

For the MSDP, the community's and fisherfolk organisation's participation in local mass struggles e.g. dialogues, rallies, campaign and lobbying activities helped to build their skills in the day to day activities as well as negotiations and planning. Their participation also helped build the confidence of members of their organisation.

The new knowledge and skills gained by fisherfolk from participation in various programme activities facilitate the implementation of community-based initiatives in resource management. Their direct involvement in community-based management activities helped to develop a sense of cooperative spirit between members as well as a sense of responsibility and commitment to the projects they undertake. This is reflected in the vigilance and commitment in enforcing regulations by the MMC and organisation members and in their compliance to regulations in protected areas.

Participation in various programme activities helped consolidate fisherfolk organisations and enabled them to collectively decide and adopt measures to manage their resources. Consequently fisherfolk gain confidence as well as develop a sense of responsibility which is essential effective community-based resource management.

#### 1.5.4 Participation in decision making

Fisherfolk organisations generally decide on specific activities or projects to be undertaken by their organisation (MSDP, 1992; Calumpong, 1993; Tan, 1993). They also decide on the types of socio-economic projects to be implemented. Members also decide on the forms of organised actions e.g. petitions, dialogues, to take regarding specific problems.

Programme staff maintain some degree of control over the implementation of socio-economic projects identified by the organisation. For MSDP and FIRMED it remained under the control of the community organisers when the appropriate time for the implementation of these projects was. The decision of the community organiser is generally based on the level of unity, skills and knowledge attained by the organisation. In the case of FIRMED, the programme staff also controlled the schedules for implementation of socio-economic projects by SAMASAKA.

#### 1.5.1. Participation in evaluation

MSDP (1992) reported that an integral part of its community organising process was the regular reflection and assessment activities conducted by the organisation members after completion each organised activity. These activities served to motivate organisation members to reflect on the process and outcome of each activity --- to analyze what went wrong, how it may be remedied, its positive aspects, identify better solutions, define gains from the organisation etc.

## 1.6 Women's involvement in resource management

Women have important roles and contributions to the fishing economy as well as to the maintenance of the fishing household (Israel, 1991; Lachica, 1993, Tanchuling, 1993). Despite this, experience has shown that they have little involvement or participation in development programmes in fishing communities. Community organising efforts in fishing communities in the Philippines are generally directed towards the male population (Tanchuling, 1993). Even researches in these areas tend to focus their attention and base generalised conclusions solely on the fish catching activities of the male (Israel, 1991). This is attributed to the fact that these programmes are generally blind to the role and contribution of women in the maintenance of the household as well as to the overall fishing economy of the community (Israel, 1991; Tanchuling, 1993).

Fishing is generally perceived as a male dominated activity and often it is only the work of men which is regarded as "production" work. Women's work is often perceived as divorced from the production work or process. In reality however, the participation or involvement of the males in the "production" process is confined to fish capture alone.

An examination of the fishing economy i.e. the entire fish production process from the preparatory activities to fishing the actual fish capture, marketing and distribution of fish caught as well as other means of coastal resource utilisation, reveals that the women have significant roles in the fishing economy (Piglas Diwa, 1988; Israel, 1991; Lachica, 1993; Tanchuling, 1993). Some women are in fact involved in actual fishing (Israel, 1991; Tungpalan et al., 1989; Tanchuling, 1993). It has also been reported that women perform as much as 50%-70% of the preharvest and post harvest fishing activities (Israel and Sobrichea, 1992). Women also have a prominent role in the marketing and processing of fish (Tungpalan et al, 1989; Israel, 1991; Jacinto 1993; Hingco, 1993). With the recent trend of decreasing production and low levels of income from fishing, women are forced to engage in activities which augment household income. They engage in gleaning activities i.e. collection and harvesting of seaweeds, or shell fish for sale and/or for home consumption. Women often bear the burden of poverty and in some instances women may be forced by pressing needs for their family survival to make overintensive use of resources and the lack of appropriate credit and technology inputs can lead them to unsound environmental practices (Rodda, 1991).

Given women's key knowledge and involvement in resource utilisation, it is essential that their knowledge and skills are taken into account in any resource management and conservation strategy. Problems identified by women are often neglected. It must be therefore recognised that they should have significant contribution in coastal resource management.

The MSDP and RMC piloting programmes have envisioned that women and other sectors in the community would eventually be

involved in programme activities. Women's participation was recognised as a crucial aspect of the programme community organisers report that they have no idea of how to go about involving them. Women's participation to MSDP's activities was regarded as consequential rather than intended, spontaneous rather than planned (Co, 1992).

For instance it was reported that reported that women's involvement in programme activities began with most of them acting as replacements for their husbands when the latter are unavailable to attend meetings and seminars (MSDP, 1992; Tan, 1993). Eventually they became involved in projects identified by the programme (Co, 1992). Women's involvement in MCDP were confined to the following activities: replacement to their husbands in meetings; patrolling the protected areas with their husbands; caring and entertainment of visitors and the collection of fines. Women have no involvement in decision making activities nor participation in positions of power.

The inability to integrate women in community-based programmes are evident in the processes undertaken during programme implementation. The programme outline of MSDP stated that programme activities were directed to the formation of fishermen's organisation while the women and the youth will eventually be formed as support organisations. Women were not identified as the primary target and beneficiary of community organising efforts (MSDP, 1992; Tan, 1993; Regal, 1993). In FIRMED, it is not clear how women will be integrated in programme activities and in resource management. The contacts and the core groups formed were solely composed of the male members of the community (MSDP, 1992). The role of women was perceived as supporting the male activities (Regal, 1993). For the MSDP programme right from the onset of community research or social investigation, data on women's access and control of coastal resources, their roles in community affairs and their problems were not focused in (MSDP, 1992; Co, 1992).

Lachica (1993) researching on women's role in community based resource management in an RMC piloting area, reports that the women in Pasacao were aware of the issues affecting their environment and were often the ones who bore the brunt of "making both ends meet". The research revealed that women have higher perceptibility than men as to the depletion of resources and their causes. The measures needed to avert further resource depletion were also first identified and suggested by the womenfolk. Despite this knowledge women continue to be marginalised in fishing communities (Lachica, 1993). They continue to be excluded from or have minimal participation in formal structures of power, in socio-political organisations and governing bodies.

The RMCs which were implemented by NACFAR were technically and structurally male biased with the extractors (fishers) as the identified principal sectors and doers in managing coastal resources (Lachica, 1993).

Men local organisations as well as the programme staff have expressed their shared hopes that women will eventually be

involved in programme activities. However it will take more than the hopes of fisherfolk and programme staff for the women to genuinely and meaningfully participate in coastal resource management.

### **1.7 Sustainable use and management of resources.**

The sustainable use and management of coastal resources are key components of coastal zone management. The Philippine experiences in community-based coastal resource management has shown that three schemes were adopted to promote the sustainable use and management of resources. These are: i. environmental education; ii. rehabilitation of degraded ecosystems; iii. establishment of protected areas system.

#### **1.7.1 Environmental education**

Environmental education was integral to the education and skills component of the community-based coastal resource management programmes reviewed. This component was aimed at increasing the awareness of residents in coastal communities regarding the functions and values of coastal ecosystems. It was also aimed at facilitating the identification of problems and its solutions.

Environmental education seminars cover topics on basic ecological concepts, the nature, functions both ecologically and in economic terms, anthropogenic impacts on coastal ecosystems and appropriate conservation and management schemes (Seminar on Environmental Awareness (SEA) of Tambuyog Development Centre, 1992). This also covers topics on environmental laws and policies affecting the utilisation of resources. These seminars are often conducted using popular education techniques. (Cabanban and White, 1981; MSDP, 1992; SEA, 1992; Tan, 1993; Tiempo, 1994).

Environmental education seminars served to encourage people in Daram to abandon ecologically destructive practices. These seminars were also used as a strategy to introduce the concept of protected areas as a management scheme in Mindoro, Daram, Pasacao and Apo island. It was through these seminars that people in the community were able to appreciate the importance of marine reserves, fish sanctuaries, artificial reef systems and the importance of regulations (MSDP, 1992; Regal, 1993; Tan, 1993). In Apo Island, these seminars were intended to promote the active participation in community members in enforcing regulations as well as their compliance to these regulations (White and Savina, 1987).

The knowledge from these served as one of the biggest motivator for local people to participate in activities e.g. participation in campaign on illegal fishing and demonstrations, protests against trawling intrusion in municipal waters (MSDP, 1992; Tan, 1993; Regal, 1993). A better understanding of impacts of destructive activities and enabled them to present strong arguments against these activities (MSDP, 1992; NACFAR 1992 pers. comm.)

### 1.7.2 Resource rehabilitation

Fisherfolk organisations also initiated resource rehabilitation activities. The use artificial reefs (AR) is regarded as an effective resource rehabilitation mechanism (Tambuyog, 1991; Tan, 1993). This is a popular method based on the belief that these structures can enhance fish production. Likewise they also function to deter trawlers from fishing and municipal waters. These structures can destroy the nets of commercial trawlers.

SAMSAKA constructed 20 AR structures made of bamboo and acquired over 1500 tires which they converted into AR modules (Tan, 1993). There is no information available as to the number of AR structures which were constructed and launched by the MSDP programme.

No quantitative assessments has been made to assess the impacts of AR on abundance and diversity of fish stocks. Fisherfolk have claimed that the AR have enhanced levels of their fish production.

Where AR were constructed launched, fisherfolk organisation members drafted guidelines and regulations to govern fishing around and in the vicinity of AR structures (MSDP, 1992; Tan, 1993). The guidelines included provisions on who may be allowed to fish around artificial reefs and the types of fishing gears which were permitted. In most cases the regulations prohibited the use of illegal fishing methods in the AR site. Only traditional, "passive" or stationary fishing gears are allowed. These regulatory measures were also designed to promote sustainable utilisation of fish stocks around the AR (Tambuyog, 1991; Tan, 1993). This also served as a mechanism for fisherfolk organisations to establish control over a specified area.

The Philippine experiences has shown that ARs serve as efficient fish aggregating devices (Evans, 1989). To regard ARs as effective resource rehabilitation mechanism can lead to problems because they are effective fish aggregating devices and can possibly enhance the efficiency of fish capture. Where fish resources are already depleted, intensive fishing activities in artificial reef areas can aggravate the situation.

Mangrove reforestation is another type of resource rehabilitation activity embarked on the fisherfolk organisations (MSDP, 1992). FIRMED is planning on a watershed reforestation project (Tan, 1993).

### 1.7.3 Marine protected areas

The establishment of marine protected areas in the form of marine reserves and fish sanctuaries appear to be a popular management scheme for adopted by fisherfolk organisations. The RMC piloting programme, MSDP, MCDP have identified this as the principal resource management scheme. FIRMED and MCDP have

already established marine reserves and fish sanctuaries in the municipal waters.

Russ (1984, 1985) has suggested possible functions of the marine reserves. He provided some evidence that marine reserves function to maintain and possibly increase species richness and abundance as well as providing undisturbed breeding sites.

In Apo island, White (1988) has provided evidence of increase in both species richness and abundance of certain fish families in the reserve during the period 1985-1986. Those groups of fish which were target groups of fishermen showed more dramatic increase in the number of species and abundance. In a more recent report by White and Calumpong (1992), it was cited that the number of fish have increased in the sanctuary side from 1986-1992. There is no information available comparing fish abundance in the non-sanctuary side.

There are suggestions that reserves may function to export fish biomass through larval dispersal or through emigration of adults (Russ, 1984). Roberts and Polunin (1993) reported however there is little evidence that marine reserves export fish biomass. Although many important fisheries are known to move considerable distances and evidenced of enhanced catches are sparse and anecdotal (Roberts and Polunin, 1993). The knowledge of larval dispersal is still limited. The best supporting evidence so far reported comes from Alcalá's Sumilon island site. Following the breakdown of protection in 1984, catches from the part of the island which was unprotected subsequently fell (measured in catch per unit effort) suggesting that these has been enhanced by the presence of the reserve (Alcalá, 1988; Roberts and Polunin, 1993). During that period the CPUE declined by 55% for hook and line, 51% for net and 33% for trap (Alcalá, 1988).

No quantitative assessments has been conducted to assess whether the Apo Island reserve and fish sanctuary have functioned to export adult fish biomass in fishing grounds around the reserve. The only evidence so far are reports and claims of the fisherfolk who fish in the area. White and Savina (1987) has reported that fisherfolk claimed that their fish catch have increased or else have remained the same since the implementation of the management scheme during the period 1985-1986. These fisherfolk's claims should not be interpreted as an actual increase in fish catch, rather these perceptions are significant in indicating that the reserves and fish sanctuary areas do not seem to adversely affect catches (White and Savina, 1987). Tubbataha Expedition (1993) reported that in interviews with 21 fishermen from the island reports that all have attested to a significant increase in fish catch from traditional fishing areas since 1986.

By limiting and regulating activities, the marine reserves and fish sanctuary area function to protect the habitat from further damage and therefore help in the preservation of biodiversity (Salm and Clarke, 1984; White, 1987; Polunin, 1993; Roberts and Polunin, 1993).



Through the effective enforcement of the management guidelines formulated for Apo island, the reef resources in the marine reserve and fish sanctuary are thereby protected from further damage. Likewise the types of resource use activities and their entry are also regulated, thereby promoting the sustainable use of resources.

The marine reserve guidelines were enforced by the fisherfolk organisations with the participation of community members. The MMC and community members were vigilant in patrolling the reserve and apprehending violators of the reserves regulations (White and Savina, 1987).

The marine reserves and fish sanctuaries in Daram had similar regulations to those of the Apo island reserve and fish sanctuary. The guidelines for the reserve and sanctuary further prohibited trawling, purse seine and Danish seine operation in service. There is no documentation yet on the effectiveness of the enforcement of this particular regulation. and on the compliance of commercial fishers to these regulatory measures.

In an assessment of the status of resources in protected areas, Calumpang (1993) reported that for Apo island, the biological conditions of the coral reefs in the marine sanctuary area did not significantly change over the eight year period 1984 - 1992. as compared to the non-sanctuary area side which showed an increased percentage of soft coral growth and sediments. There is no evidence of damage due to fishing in the reserve area, although there were some corals broken by boat anchors Tubattaha expedition, 1993).

For the marine reserve and fish sanctuary established in Daram in 1991, no reports have been released on the impact of the establishment of the reserve and fish sanctuary on fish diversity and abundance or status of reefs in the protected areas. Fisherfolk have testified that fish catches have significantly increased since the setting up of the marine reserve and fish sanctuary.

The use of the marine reserve as a strategy for managing coral reefs in the Apo island reserve was able to achieve its goals. The protection of the reefs has resulted in increased biomass, diversity of fish (White, 1988). The reserve also served to maintain the reef conditions and prevented further damage to the ecosystem. Qualitative evidence suggests that the reserves were responsible for enhanced yields of fishermen (White and Savina, 1987).

This suggests that the marine reserve and fish sanctuary strategy are effective mechanisms in conservation and management of reef resources. The effective enforcement of regulatory measures has also served to promote the sustainable use of reef resources. On its own however, this scheme has limited scope in addressing the other problems associated with the conservation and management of coastal zone resources. Reserves do not deal with underlying problems which help sustain illegal fishing activities e.g. the use of

dynamite and fish poisons. Nor will this type of management scheme be able to address the problems of pollution and siltation. There is no information yet available as to the effectiveness of enforcement regulations against commercial fishing intrusion. Simply limiting the entry of commercial fishing vessels in a particular area also does not address the underlying causes of overfishing.

### **1.8 Conflict Resolution**

Coastal zone resources are often subject to multiple use which give rise to conflict among various users. An effective coastal resource management approach should therefore be able to resolve conflicts among various users through the formulation and enforcement of regulatory measures. Ideally these regulations should promote multiple and compatible coastal zone activities.

In the Philippines, there is major conflict between large scale fishing operations and small scale municipal fishing. This arises from the encroachment of commercial fishers in municipal fishing waters. Under PD704, the marine coastal waters have been zoned so that commercial fishing operations are prohibited within 7 kilometres from the shore. However commercial fishing continue to operate in this area posing unfair competition to small scale fishing. This problem is mainly a consequence of the inability of the government to effectively enforce existing fishery laws.

In an attempt to address this situation, organised fisherfolk initiate dialogues and consultations with local government officials and law enforcement agencies to inform them of the problems arising from violation of the law and to lobby for effective law enforcement. They have launched public awareness campaigns to solicit public support for their demands. They have also launched mass actions such as demonstrations, protests, and petitions aimed at pressurising the local officials to implement necessary measures to address their demands. As a response to these activities, local government officials formulated resolutions, ordinances banning commercial fishing operations in municipal waters. It is ironic though that there are already existing national laws that govern this issue and yet local officials still respond to the problem with the formulation of a similar law. The formulation of these local ordinances does not address the root problem which is the failure of law enforcement.

The lack of adequate manpower, equipment and logistical support as well as corruption are the main constraints to effective law enforcement (Cepe, 1991; Kalagayan, 1991).

Local officials try to involve the fisherfolk organisation in law enforcement. FUERSA members were deputised by local government authorities in their areas to help in enforcement of environmental and fishery laws (Regal, 1993). They were even provided with motorised boats to pursue violators. Deputised fisherfolk are able to apprehend the violators,

arrest them, however there are very few cases when these violators are eventually prosecuted by local authorities.

With the inability of government authorities to effectively enforce laws, there are instances when fisherfolk organisations resorted to illegal means of resolving conflict to prevent further violations of the law. Some organised fisherfolk have resorted to using firearms and homemade bombs to threaten commercial fishing operators from fishing in municipal waters.

Resource use conflicts also arise between small scale fishers and those who engage in illegal fishing methods. There are existing laws and prohibitions with corresponding penalties however they persist. They continue primarily due to poor law enforcement as because these illegal fishers have institutionalised certain arrangements which help sustain their illegal activities. (Hingco, 1988; Hingco and Rivera, 1991; Galvez et.al., 1989).

Community-based management use environmental education seminars as a strategy to resolve conflicts. Through these seminars illegal fishers are encouraged to abandon destructive fishing practices. In Daram the environmental seminars were instrumental in lessening the illegal fishing activities (Tan, 1993).

Through the establishment of the marine reserve and fish sanctuary in Daram and in Apo island, community-based management tries to delimit and control entry and utilisation activities in specially demarcated areas. The effective enforcement of these regulations will function to eliminate undesirable and conflicting fishing activities within the protected zone. Ironically the establishment of the marine reserve scheme itself may lead to further conflicts since the establishment of this protected area will preclude certain prior uses which were deemed incompatible with the reserve's objectives (Polunin, 1993).

The enforcement of marine reserve regulations which prohibit illegal fishing methods, has been successful in the case of the Apo island reserve (White and Savina, 1987; Calumpang, 1993). The acceptance of the marine reserve and fish sanctuary concept as well as the compliance to existing regulations was facilitated by continuous environmental education seminars (Cabanban and White, 1981; White and Savina, 1987). There is no information as to the effectiveness of enforcement of marine reserve regulations in Daram marine reserve. There is also no information on the degree of compliance of other adjacent coastal communities to regulations set by organised fisherfolk on their common fishing grounds. Neither is there any information as to the success of the enforcement of regulations against the entry of commercial fishing vessels in the marine reserve area.

There are several factors which determine the success of regulatory measures in protected areas. First, success will depend on the level of public acceptance and support. Second

it will depend upon the effectiveness of enforcement i.e. monitoring and surveillance mechanisms, enforcement of penalties as well as the resources and capabilities of groups enforcing it.

Other coastal activities which conflict with small scale fishing are intensive aquaculture (Fortes, 1983; Zamora, 1989) and pollution due to discharge of untreated sewage and industrial effluent (Hingco, 1990a). There are existing laws which regulate these activities but as with other regulatory measures they are not enforced effectively. In other areas e.g. coastal communities of Manila Bay, fisherfolk organisation take action through protests and demonstrations calling for more effective enforcement. However there is little that community-based initiatives are reported to have done to resolve conflicts arising from incompatible activities in the coastal zone. The fisherfolk organisations have limited jurisdiction over the management of coastal zone activities. The power to effect an integrated coastal zone plan promoting multiple and compatible coastal zone activities rest on government authorities and not with fisherfolk organisations or fishing communities.

The existing people's organisations can lobby for better enforcement of existing regulations and for local authorities to create a more effective and integrated coastal zone management plan.

### **1.9 Legal and Institutional issues**

There are many existing laws and policies governing the utilisation of coastal resources and the management activities and the use of the coastal zone. For example PD 704 remains the major fishery law. PD 1219 provides for regulations regarding the utilisation and conservation of coastal resources and the DENR Administrative Order (AO 15 provides for the rehabilitation and conservation of remaining mangrove resources. The National Pollution Control Commission under the Environmental management Bureau enforces regulations on water quality. Different agencies are responsible for the enforcement of the regulatory measures which are provided in these laws.

There are various agencies which exercise control over the coastal area and its activities. Apart from the above mentioned agencies, there are still other agencies with direct responsibilities over the use of the coastal zone e.g. port development, shipping and navigation, flood control industrial development, transportation, etc. Given the large number of agencies with legal responsibilities over the coastal zone, differences may as well overlaps over their jurisdiction. This can then give rise to disagreements between agencies on how coastal zone resources and activities will be managed.

Effective enforcement of these laws remain a primary problem. Enforcement is often inefficient or even non-existent partly due to institutional weakness to effectively monitor the violations and the lack of political will to enforce the

penalties (Hingco, 1988; Ferrer, 1989a Galvez et.al.). They are also unable to effectively enforce the regulations due to existing socio-cultural and economic arrangement which serve to sustain these illegal activities (Hingco, 1988; Galvez et.al. 1989). The failure of enforcement agencies to address these factors sustain the proliferation of illegal activities and the violation of existing regulations.

PD 704 has been severely criticised by fisherfolk organisations and NGOs for not addressing the needs of marginalised fisherfolk. Not only are regulatory measures and prohibitions not effectively enforced, but this law also contain provisions which are unfavourable toto small scale fisherfolk. For instance this law is biased towards large scale commercial production for export instead of meeting the needs of the local population i.e. promotes intensive aquaculture production. This thrust does not consider the sustainable use of mangrove resources nor the adverse ecological impacts of this activity. One other provision is the granting of concessions to companies or investors for fry gathering in municipal waters. This allow the latter to control and monopolise the market of bangus (*Chanos chanos*) and prawn (*Peneus monodon*) frys.

As response to the abovementioned legislative and institutional conditions, fisherfolk organisations have initiated consultative meetings with local government officials, have conducted public awareness campaigns calling for better enforcement of laws and regulations governing fishery and coastal resource utilisation. An outcome of this meeting is a case i.e. FUERSA, wherein fisherfolk organisation members were deputised by the DENR and the DA to help in law enforcement. There is no information available yet as to the success of the law enforcement efforts of these fisherfolk organisations.

Fisherfolk organisations have also established marine reserves in an attempt to establish control over resource use activities in specified areas while promoting sustainable use of resources. So far these initiatives in Daram and Apo island have gained the support of local government officials. Fisherfolk organisation in Daram and Apo island have successfully lobbied for the formulation of municipal laws and ordinances supporting the establishment of marine reserves and its regulations (White and Savina, 1987; Tan, 1993; Calumpang, 1993).

FIRMED,MSDP and RMC piloting programme hope to establish RMCs which will be responsible for the control and management of coastal resources. They envision that the RMCs will assume the principal role in conceptualising, implementing plans and programmes for the development, management of fishery and coastal resources. They will also ensure the effective implementation of plans and enforcement of regulations formulated. It is envisioned that the RMC serve as institutions of political power for fisherfolk.

Given the designated responsibilities of the RMCs, clashes or jurisdictional conflicts may arise between them and the existing government agencies which presently have the jurisdiction over the management of coastal resources. The guiding principles of the RMCs, its proposed programmes and its plans, may contradict or oppose the existing government policies and resulting in policy conflicts.

Given the above constraints, the success of community-based management initiatives will depend upon whether the schemes or programmes initiated will conflict with the existing development thrusts and policies for coastal resources management of the present governing bodies. The acceptability of this management scheme and its political support is crucial to the success. Public support and acceptance of specific regulations and initiatives will facilitate the successful implementation of programmes and plans. Fisherfolk organisations have to win the support of existing agencies and local power holders to enable them to implement their proposals. Public support can help rally and pressure existing authorities towards the acceptance of particular proposals or management schemes.

The effectiveness of community-based initiatives will also depend upon the extent and powers and jurisdiction acquired or bestowed upon fisherfolk organisations. For as long as fisherfolk organisation's initiatives do not threaten the interest of existing governing bodies and power holders, they will continue to function. The RMCs instance, the extent of powers and control and jurisdiction they will have will be largely determined and dictated by the existing socio-economic conditions and political climate in the country. Given the existing socio-economic and political structures in the Philippines, it may be unlikely that the power holders who have the access to and the control over resources of the country, will readily relinquish or surrender their powers for the benefit of the poor majority.

New laws and development policies under the present President favour the participation and empowerment of fishing communities. For example, the Local Government Code (LGC) promotes decentralisation and the autonomy of local government units. It also provides for representation of NGOs and people's organisations in local government units. Despite this reforms however it remains that the assertion of the rights of people's organisations is crucial to the fulfilment of their demands and needs.

### **1.10 Equity issues**

The present environmental situation in the Philippines has shown that the degradation of coastal and marine resources is mainly due to intensive and unsustainable activities of those who have the economic means and the political control and power. The primary reason for the widespread destruction of the mangrove areas is its conversion into brackishwater fishponds (Fortes, 1983; Zamora, 1989). The capital intensive nature of this type of operations, make it an activity which

is controlled and dominated by the economic elite. Intensive fishpond operations have further adverse environmental consequences e.g. pollution, acidification etc. (Beveridge, 1994). Extensive logging operations has resulted in massive erosion and therefore the sedimentation of coastal waters. Heavy sedimentation is also attributed to mining operations which dump mine tailings into the water ways. (Evans, 1991a; Tan, 1991). Both these activities have led to extensive loss of coral cover in the Philippines (McAllister, 1988; Gomez, 1991). Overfishing is a consequence of excessive fishing effort and the capture of juveniles. This is due to the use of fine mesh nets and the use of explosives in fishing (Silvestre, 1989). The mesh size used in many largescale commercial fishing operations is often smaller than the estimated biologically optimum mesh size which is 2 - 3 cm. (Silvestre, 1989). The development of baby trawlers which use over small mesh size nets (2 cm) has further led to increased efforts in demersal fisheries (Pauly and Chua Tia-Eng, 1988). The increasing of trawlers has completely dissipated the economic rent potentially available from the resources and is actually in the process of reducing total catches (Silvestre, 1989). The claims of small scale fisherfolk is therefore rectified in blaming commercial fishing operations in municipal waters for the rapid depletion of fish stocks.

Those who have the political power generally lack the political will to effectively enforce present regulations governing the coastal zone activities. Government authorities will unlikely step up enforcement measures on the encroachment of commercial fishing operations in municipal waters when these activities generate substantial export earnings for the country.

The above mentioned factors are instrumental to the degradation and decreasing productivity of coastal resources which small scale fisherfolk depend on for livelihood and subsistence. This situation aggravates poverty in coastal communities.

The poverty of fisherfolk is further aggravated by their lack of access to land resources since these are again controlled by the economic elite. There are also existing exploitative and oppressive economic relationships which prevent fisherfolk from obtaining maximum benefits from their production activities. In many cases, existing marketing and credit arrangements are unfavourable to and are considered exploitative. Fisherfolk also lack the mobility to transfer into more profitable economic endeavours due to the absence of opportunity, lack of capitalization and low level of education.

These conditions has driven small scale fisherfolk to intensify their resource utilisation activities and in some cases has even compelled them to resort to illegal and destructive activities in order to increase their production. In this situation, the resource degradation problem will continue to persist in a vicious cycle. It may be concluded therefore that the many problems of resource depletion and

environmental stress arises from the disparities in economic and political power.

The sustainability of resources cannot be isolated from the issue of equity. Those who have economic and political powers have access and control over the use of coastal zone and its resources. Their exploitative activities has led to resource depletion and environmental degradation while the social and economic costs of their activities are borne by the impoverished majority. It is a challenge therefore for fisherfolk organisations how to address not only community level issues but the structural macro-economic and political issues.

In terms of addressing equity issues, community-based initiatives were successful in devising measures to free fisherfolk from exploitative and oppressive economic and social relations e.g. local marketing and credit arrangements. SAMSAKA and MSDP were able to create alternative marketing arrangements for their produce in order to maximise income. Both fisherfolk organisations started alternative credit projects which released their communities from exploitative and usurious credit arrangements.

Through the establishment of the marine reserves and fish sanctuaries in their localities, fisherfolk organisations have established some degree of community control over the coral reef resources in their area. The construction of artificial reefs was also a mechanism to establish control over the use of resources. Regulations and guidelines formulated define fishing and use rights in these areas.

### **1.11 Summary and conclusions**

Community-based coastal resource management has been initiated mainly by NGOs and academic institutions in order for organised fisherfolk to gain control over the use and ensure the sustainability of resources in the coastal zone. In doing so they also aim to alleviate the growing poverty among fisherfolk in coastal communities. This approach to coastal management establish and strengthen fisherfolk organisations who will be responsible for the management of coastal resources. This is based on the premise that coastal communities need to be organised and empowered in order that they may effectively manage the resources which they depend upon for livelihood and subsistence.

The assessment of the community-based coastal resource management experiences has shown that fisherfolk have limited participation over the preliminary design and planning of community-based programmes. Their participation are focused mainly on the programme implementation process. Fisherfolk's involvement in community organising process has led to the empowerment of their organisations. Through educational seminars, training courses, dialogues, discussions, fisherfolk have developed and enhanced their knowledge, skills and capabilities necessary for the successful implementation of initiatives in resource management. Fisherfolk are generally



responsible for decision making activities of the projects they wish to implement. They also have direct involvement over the implementation, monitoring and enforcement of resource management schemes they implement.

Activities leading to community-based resource management are generally male-biased. Community organising activities are directed mainly to the male fishers in the community. There has been little recognition of the role, contributions and the potentials of women in resource management.

Community-based initiatives have promoted the sustainable use and management of coastal resources. The knowledge gained from the environmental education programmes has motivated fisherfolk organisation members to abandon unsustainable and ecologically destructive activities. This has also encouraged the implementation of resource rehabilitation measures e.g. mangrove reforestation, construction of artificial reefs. Guidelines were formulated and functioned to regulate and control fishing activities around the artificial reef area. These regulatory measures were designed to promote sustainable harvesting of fish stocks in the site.

The principal resource management scheme implemented was the establishment of marine reserves and fish sanctuaries. Through this scheme fisherfolk organisations have attempted with some success to establish community control over resources within a designated area.

The marine reserve and fish sanctuary scheme has been an effective strategy for regulating fishing activities while simultaneously promoting the sustainable use and conservation of reef resources. The quantitative assessments has proven that effective community-based enforcement of regulatory measures has led to significant changes in the quality of reef resources in the area. However this type of resource management scheme is unable to address other problems arising from incompatible activities in the coastal zone e.g. pollution, siltation etc.

Fisherfolk organisations have devised measures to promote more equitable income distribution within their community. Through collective efforts, they were able to eliminate exploitative marketing and credit arrangements in their community thereby maximising benefits derived from their labour.

Community-based resource management initiatives have limited powers and control in resolving conflicting resource utilisation activities in the coastal zone. Experience has shown that RMCs and MMC have limited jurisdiction over the management of coastal resource utilisation activities. Government authorities still maintain the overall control and jurisdiction over the management of coastal zone and its resources.

The success of community-based initiatives in resource management depends upon the acceptability of the schemes and

programmes initiated as well as the extent of control and powers which will be bestowed upon fisherfolk organisations.

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