COMMUNITY-BASED FISHERIES MANAGEMENT

A TRAINING MANUAL FOR WORKERS INVOLVED IN COMMUNITY-BASED FISHERIES MANAGEMENT

Student resource manual 2

CFMDP community-based management training programme

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ABBREVIATIONS

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
CBM	community-based management
CFMDP	Coastal Fisheries Management and Development Project
DT	drafting team
FMC	fisheries management committee
GM	group meeting
LLG	local level government
NFA	National Fisheries Authority
NGO	non-governmental organisation
PFO	Provincial Fisheries Officer
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
USP	University of the South Pacific
VPC	village planning committee
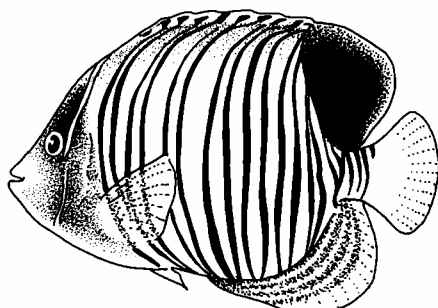
1   BACKGROUND

The Papua New Guinea (PNG) National Fisheries Authority (NFA) underwent a reorganisation process during the Fisheries Development Project (FDP) from 1999–2003, in which it was determined that provincial and lower-level government agencies should be more involved in the development and management of inshore fisheries resources.

This approach was adopted with the expectation that it would:

- build natural resource management capacity at provincial and local government levels;
- improve the effectiveness of fishery management arrangements through greater stakeholder participation in the management process;
- meet NFA's obligations under the Organic Law on Provincial and Local-Level Governments, which requires central agencies to devolve responsibility for natural resources development and management to lower levels of government;
- provide revenue raising opportunities for provincial and local governments; and
- free NFA of primary responsibility for managing numerous, dispersed local fisheries, which the Authority is not equipped to do.

To address these goals the Coastal Fisheries Management and Development Project (CFMDP) began in 2003.

The CFMDP is implemented by NFA, and funded through a loan from the Asian Development Bank (ADB). The overall aim of the project is to reduce poverty in PNG's coastal communities by promoting sustainable commercial use of inshore fishery resources by small-scale fishers. At the same time, the project aims to increase the ability of provincial governments, local-level governments, community groups, stakeholder groups and other non-governmental organisations to work together in developing and implementing management schemes for fishery resources and the marine environment.

To assist in devolving management responsibilities for inshore fisheries resources from NFA to lower-level governments, the CFMDP supports the establishment of community-based management (CBM) arrangements and assists relevant stakeholder groups in becoming more involved in the fisheries management decision-making process.

As a first step in supporting CBM arrangements, the CFMDP has developed a training programme for workers involved in community-based fisheries management. The training includes a course on fisheries management and community-based management, which was first held in October/November 2004. The first part of the course covers fisheries biology and management, and is supported by a student manual (*Fisheries management: A student resource manual*). The second part of the course covers community-based fisheries management, and is supported by this manual (*Community-based fisheries: A training manual for workers involved in community-based fisheries management*).

In addition to the student manuals, a support package for trainers has been developed for both sections of the course. The trainer guides are intended to provide additional technical background for local trainers who undertake delivery of these courses.

The fisheries management and community-based management training has been developed and delivered by the CFMDP Community Fisheries Advisers, with assistance from other project staff.

1.1 Why CBM?

Fisheries and the marine environment have always played an important role in the lifestyle and culture of the people in Papua New Guinea. With increasing fishing pressure, fisheries resources must now be managed effectively to ensure sustainability.

Government management of subsistence and small-scale fisheries is notoriously difficult, as these fisheries are characterised by a wide range of fish stocks and species, a variety of different harvesting methods, many fishers and a large number of distribution channels. This, combined with a limited budget and staff, makes research, management and enforcement beyond the scope of many governments. In addition, fishers do not easily accept restrictions that are designed to control fishing effort and fishing methods and which are imposed by governments. This lack of acceptance by fishers is compounded when what they are told does not make sense to them, in terms of the way fishers view their own problems and what they have learned through experience.

Successful management of subsistence and small-scale fisheries is often possible only by enabling communities to have some form of control over the research, management and enforcement measures appropriate to the marine resources they harvest.

In addition, fishing communities possess knowledge — which is based on their experience — that can contribute towards more enlightened, effective and equitable remedies and solutions in the management of marine resources. Many communities in PNG also have some degree of control over adjacent waters. These factors provide an ideal basis on which communities can be encouraged and motivated to manage their own marine resources.

1.2 Development of the CBM process

The process followed in this training is based on the belief that the primary responsibility for the marine environment lies with the community. The major task of CBM workers, whether employed by the government or a nongovernmental organisation (NGO), is therefore to work directly with the community and its traditional leadership structures to encourage development of a plan of action (called a **Community Fisheries Management Plan**) and to establish a **Fisheries Management Committee**. Once fisheries management plans are developed by communities, technical support and advice will be provided to a community by the fisheries agency or NGO, usually through the community's Fisheries Management Committee.

The underlying philosophy of the process is to create a lasting community-level infrastructure that will have the confidence, ability and motivation to tackle its problems. To achieve this ambitious goal the CBM workers may need to adopt a new approach and attitude to working with communities. This approach is designed to create a strong sense of ownership within the community (i.e. the community must see the process as its own, and not as a government-organised project for which they are not finally responsible).

1.3 Conditions required for CBM to develop

The community

Involving coastal communities in managing their own marine resources can be a difficult task. Communities first need to **be aware** of problems occurring in their marine area. Once communities have identified the problems with their fisheries resources and marine environment they must be **concerned** about the long-term effect of these problems on the environment and the resource users.

Finally, the community must be willing to **take action** to address their concerns about problems occurring in their marine environment.

AWARENESS   CONCERN   ACTION

For CBM to be successful, the community also needs to have some traditional, legal or assumed control over their adjacent fishing areas.

The CBM support agency

Communities that wish to take more responsibility for the management of their marine resources will need support and guidance from a relevant government or non-government agency. This is referred to in the manual as the "CBM support agency" and may involve the national or provincial fisheries agency and/or an NGO. If an NGO or similar agency undertakes implementation of CBM for the purpose of establishing community-based fisheries management plans, it is important that it works closely with the relevant government fisheries agency (for example, a provincial fisheries office).

Fisheries agencies, which have technical and scientific expertise, are usually responsible for making and implementing regulations to protect marine resources. They may consequently feel a loss of power when placing the management of marine resources in the hands of fishing communities. Fisheries agencies may believe that community-based management will be ineffective in addressing fisheries management issues, particularly as the fisheries sector becomes increasingly competitive, money oriented and technical.

In promoting community-based fisheries management, government agencies should be made aware of the benefits of CBM, which affect them directly.

The agency:

- will be seen to be active in rural areas because of the presence of staff working in villages;
- can gain both public support and respect;
- will reduce enforcement costs when communities assume responsibility for enforcing their own regulations; and
- may be credited for more effective management of marine resources.

CBM support agency staff

Ideally, a CBM team will be created to assist in the implementation and support of community-based management. The team could consist of a team leader, facilitators and recorders.

Facilitating skills are very important for those working with communities to establish CBM programmes. The word "facilitate" means "to make easy". In promoting community-based management, CBM workers must work as facilitators to "make it easy" for a meeting or community to achieve its objectives. Facilitation refers to the process of encouraging other people to give their views and take their own actions.

In this role, a CBM worker is more of a listener than a teacher. A facilitator needs to encourage groups to define problems and to propose their own solutions, without imposing his or her own views on the proceedings.

Ideally, a CBM worker should have a balance of both scientific knowledge and community facilitating and motivating skills. An understanding of biology, ecology, conservation, fishing techniques, seafood handling, seafood safety, sea safety and resource management practices is also valuable.

Tips on being a good facilitator
- Never give your own opinion when you are trying to encourage people to give theirs. You should not prompt people with your own opinions.
- Never ask a leading question such as "You have trochus on your reef, don't you?" This question may encourage people to give a positive answer out of politeness because they think a negative answer might be disappointing. It is better to ask "Do you have trochus on your reef or not?" This suggests that either a yes or no answer is acceptable.
- Never pretend that you know more than you do. If you do not know the answer to a question, reply "I don't know the answer to the question, but I'll find out and let you know". If you say you are going to find out something, then make sure you follow through on it.
- Never exaggerate. Never say, for example, that if people stopped fishing with derris root then the numbers of fish would increase quickly. Catches may increase very slowly and it may be impossible to tell people when they will see an increase. Tell people the hard truth.
- Never make promises that you can't keep. Never promise advice, involvement, or assistance if you know it can not be given or done. You will only create bad feelings for yourself or other workers from your agency when returning to that community.
- Never break appointments. Never fail to go to a scheduled meeting. If it is impossible to attend a meeting, inform those involved well ahead of time.
- Never bully or embarrass people.

The people in the communities are your clients. They need to know that you respect them. If they feel uncomfortable with you because you have embarrassed them, they will not be supportive.

Some of the most successful CBM workers are extroverted people, who like people and are good at encouraging all individuals in a group to give their opinions. A good facilitator will be comfortable in speaking to a group of people. At the same time they will be skilled in making all members of the group comfortable in giving their opinion.

Philosophy for CBM workers

CBM workers must never take an action that reduces the community's' sense of *ownership*.
CBM workers must become good *facilitators*.
Suggestions for action must come *from communities,* not CBM workers.
Community undertakings decided quickly may be abandoned equally quickly.

The project *does not give* things to people.
The project does not do things *for* people.
The project assists people to do things *for themselves*.

The CBM process will only proceed in a community if the community wants it.

CBM activities must help (certainly not harm) the most *vulnerable* people in the community.

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2   CBM PROCESS — SUMMARY

The CBM process followed here is a guideline based on a CBM process developed for Samoa. This is not the only way to foster community-based fisheries management and various stages of the process may be adapted to suit local conditions. However, the authors have found that having a basic set of steps to follow can assist CBM workers in focusing their work plan and guide a community toward a clear outcome, in this case a community-developed fisheries management plan. Without some type of guidelines it can become difficult to record, simplify and order the often wide-ranging views contained in a single community. In addition, finite steps and goals ensure community meetings don't become open-ended discussions with no clear outcome.

The CBM process is divided into three phases: first, conducting awareness raising campaigns to assist in defining community concerns regarding their fisheries resources and marine environment; second, focussing on the development of Community Fisheries Management Plans for each community participating in the programme (Figure 1); and third, concentrating on the implementation of those plans. The stages are described briefly below and in more detail in the following sections.

Phase I   Awareness Raising Campaign

1) Awareness raising campaign
a) raise broad awareness of the marine environment
b) promote CBM

Phase II   Development of Fisheries Management Plans

1) Meet with community leaders and first community meeting
(to accept or reject the CBM process)

2) Group meetings (GMs)
(to identify problems and propose solutions)
– includes participatory survey of marine environment and resources

3) Drafting Team (DT)
(to prepare a plan with undertakings necessary to solve problems)
– includes a "stroll through" environmental assessment

6) Community undertakings may include:	→	**4) COMMUNITY FISHERIES MANAGEMENT PLAN**	←	**7) Government/NGO undertakings may include:**
local bylaws				outer reef fishing support
banning destructive fishing				technical advice/training
size limits on fish				aquaculture
fish reserves				workshops/training
environmental protection				

5) Fisheries Management Committee (FMC)
(to oversee the undertakings agreed to in the management plan)

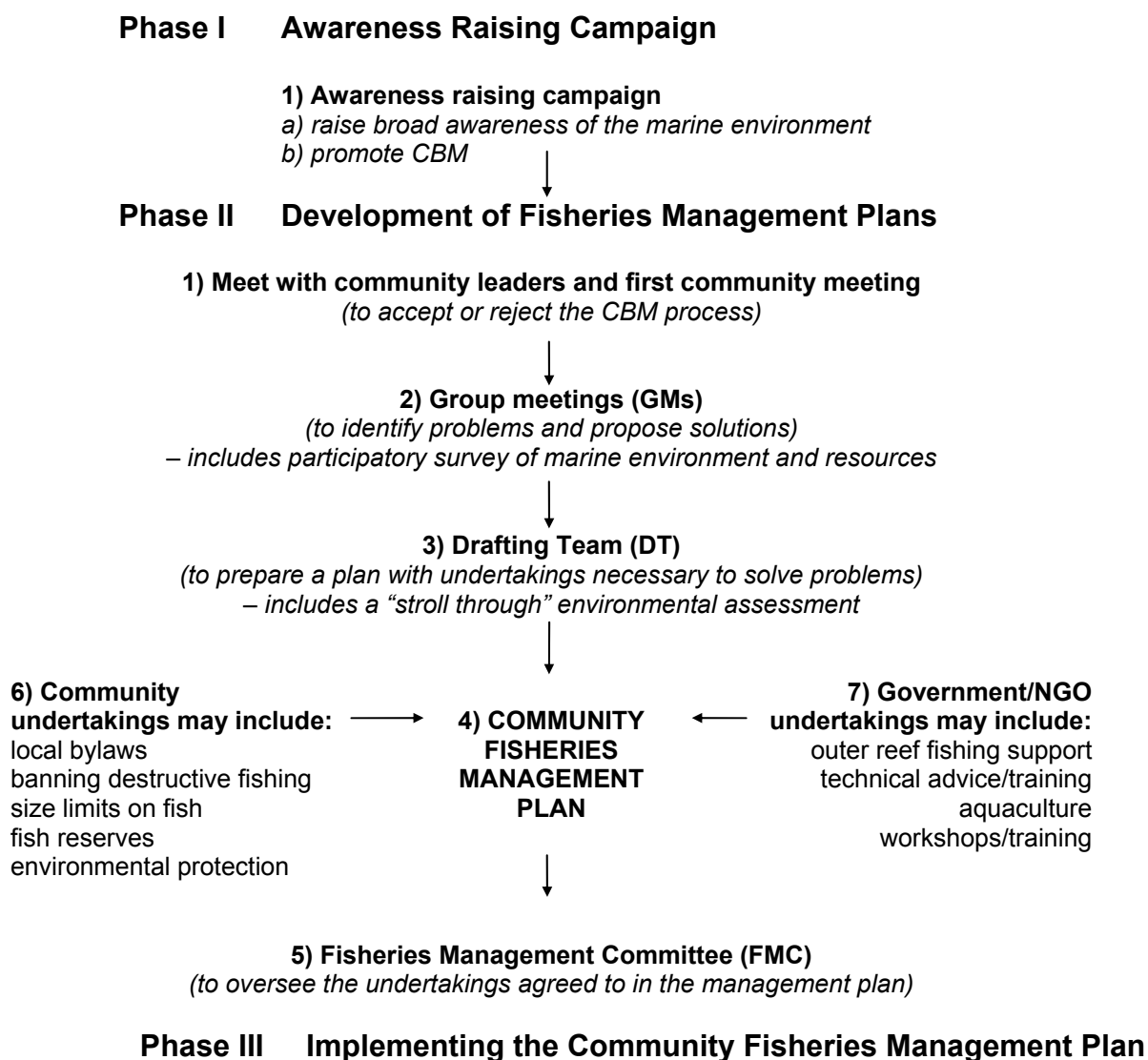**Phase III   Implementing the Community Fisheries Management Plan**

Figure 1: The CBM Process – Phase I, II and III

2.1 PHASE 1: Awareness raising campaign

Raising awareness

Implementing an awareness campaign that addresses a broad range of marine resource management and conservation issues is one of the first steps in the CBM process. The target audience includes coastal communities and other marine resource stakeholders. The awareness campaign may involve the production of radio programmes, videos, cartoon books, and posters to present to the target audience (fishers, women, children, etc.). The expected outcomes of the awareness campaign would be a greater concern about the conservation of the marine environment and fisheries resources, and a willingness to undertake actions to address marine resource problems.

Promoting CBM

Once a broad awareness campaign is well underway, the promotion of CBM may be started using some of the same methods (e.g. radio programmes, interviews, newspaper articles and information leaflets). Communities that have responded to the awareness campaign may be selected for an information meeting. This meeting would promote CBM as a method for addressing fisheries resource and marine environmental problems through presentations and distribution of materials (e.g. information sheets, plays, and songs). At this time, the CBM team would assess the community's potential to be a successful partner in the CBM programme. This involves assessing the level of community concern for the marine environment and the willingness of community members to find solutions for marine environmental problems.

2.2 PHASE II: Development of a community fisheries management plan

The CBM facilitator sets up the initial **meeting with community leaders** and subsequent **meetings with the community**. Community leaders in interested and motivated communities are contacted by a CBM facilitator. In PNG, appropriate leaders will usually include ward, local-level government (LLG), or village planning committee (VPC) representatives, or their equivalents. An information sheet on the CBM programme can be distributed to ensure the message that representatives receive is consistent. A subsequent meeting may be arranged at which the community is given basic information about the programme, and what would be expected of the community and the supporting agency if they commit to the process. If the community wants to proceed, it will be asked to call various group meetings (see below).

Group meetings may include men's and women's groups, church groups and fishers. These groups will be assisted separately to analyse the present condition of their marine environment and fish stocks, and to identify various problems, their causes, and the impact these have on the community and its people. At a second meeting (or during the second part of the first meeting, if the discussion is moving along rapidly) the groups will be challenged to identify and consider solutions to the problems they have identified. Each group will be asked to nominate several people to join a Drafting Team (DT).

The Drafting Team (DT) will hold meetings to further consider the problems and solutions identified by each community group. The DT will decide how the solutions can be made to work, and the type of support that will be required from the village and from CBM workers. At these meetings the DT (with assistance from CBM workers) prepares a draft Community Fisheries Management Plan for approval by the entire community.

The Community Fisheries Management Plan details the undertakings of both the village and the government agency or NGO supporting them in the CBM process. If the plan is accepted by the community and agreed to the government agency or NGO, then each will agree to carry out

their roles and undertakings, as spelled out in the plan. The community also appoints a Fisheries Management Committee.

The Fisheries Management Committee (FMC) is appointed by the community to administer its fisheries management undertakings. In most cases, the people from the DT will be appointed to the FMC, as they have the greatest familiarity with the management plan. Once the Community Fisheries Management Plan is formally agreed to, the CBM supporting agency (government or NGO) will maintain regular contact with the FMC and organise the technical support agreed to under the Management Plan.

The major outcome of the CBM process is a Community Fisheries Management Plan that sets out the resource management and conservation undertakings of the community, and the servicing and technical assistance inputs of the supporting agency.

2.3   Phase III: Implementing the community fisheries management plan

Once the Community Fisheries Management Plan is formally agreed to, CBM workers should maintain regular contact with the Fisheries Management Committee of each village. The role of the CBM agency will be to provide, or facilitate the provision of, technical support agreed to under the Management Plan. If the supporting agency does not keep to its "part of the bargain" the community will quickly lose interest in carrying out its own undertakings, and other communities will be discouraged from joining the programme.
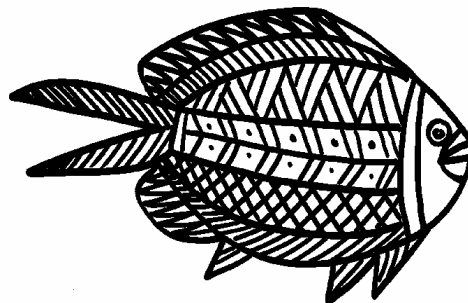
3　Awareness Raising Campaigns

Effective implementation of environmental management and conservation programmes depends on education, awareness raising and training in relevant areas. Without an understanding of the "whys and hows" of natural resource conservation, few communities will be motivated to participate actively in environmental conservation programmes. Education gives people the knowledge and skills to make informed decisions, and the ability to act on them.

In order to allow the target audience to understand environmental information, it is essential that communication and educational programmes be properly targeted, interesting, and easy to implement.

3.1　Raising broad awareness

Purpose:
- Generate a greater concern in coastal communities about the conservation of the marine environment and management of fisheries resources; and
- Develop an interest in undertaking actions to address marine resource problems.

Before starting an awareness campaign, a work plan should be prepared that lists the objective, target audience, outputs and activities.

For example, an objective might be to raise awareness of problems in the marine environment; the target audience could be fishermen, women, youth and students; outputs might be videos or plays, information sheets and posters; and activities could include community meetings, open days and school competitions.

Setting objectives, target audience, outputs and activities will help the awareness campaign keep to a budget and timeframe.

An awareness campaign should consider:

- How the message can be delivered in the most effective way.
- Short- and long-term means of addressing environmental issues.

A short-term strategy for raising awareness on marine environmental issues might be distributing information sheets. A long-term strategy might be including marine resource management in school curricula.

Numerous methods can be used by a CBM team to raise awareness of marine environmental and conservation issues.
To raise the awareness of **students** it can be useful to:

- encourage and assist educational authorities to include marine environmental studies in school curricula;
- provide scientific and technical staff to give talks on marine conservation topics to classes in local schools; and
- produce information sheets and other educational materials on marine environmental issues for use by teachers and students.

Radio is a very effective communication tool in PNG, and may be the most appropriate means for communicating marine environmental issues, as many coastal and island communities do

not have access to television. Radio presentations can include interviews with people that have expertise in specific environmental subjects, short plays in which a number of speakers address an environmental issue, or a simple broadcast of information concerning a specific topic.

The advantages of using radio as a way of raising public awareness include:

- Low cost: radio is probably the cheapest method for raising awareness of environmental issues. In some cases, if a radio station is government owned, public messages are broadcast at no cost.
- Speed: the message is delivered quickly to the intended audience.
- Reaches remote areas: most households in remote coastal communities and outer islands have radios.
- Reaches a large audience: the audience includes people who do not read or have access to television.

The main disadvantage of radio programmes is that questions cannot directly be asked of the speaker or the messages be reviewed by the audience.

Video is a very effective awareness-raising medium for delivering marine environmental messages to a target audience, because both sight and sound are used. Videos, once produced, can be widely distributed and viewed repeatedly. The main disadvantage of video productions is that they are expensive to produce. Regional organisations and NGOs have produced many videos addressing marine environmental issues. These may be available at little or no cost and can be useful in supporting an awareness raising campaign.

Printed material including newspaper advertisements and articles, newsletters, leaflets, information sheets and posters, can be used in awareness raising campaigns. The advantages of using printed material include:

- Relative permanence: written material can be kept, studied and referred to
- Ability to be directed: the written material can be distributed to a specific audience.

The main disadvantage of printed materials is cost. Colour posters, for example, are very expensive to produce. Costs for some printed materials (such as black and white information sheets) can be reduced by simply photocopying the original.

Local newspapers may be used to place advertisements, press releases and regular columns. Short advertisements with a simple direct message can be used repeatedly for maximum impact.
Media releases that are topical, newsworthy and interesting will often be used by newspapers without charge. Photographs that illustrate the message will often enhance a media release. An attention grabbing headline followed by key information in the first paragraph is most effective.

Sometimes newspapers print a regular column on a specific theme, such as marine environmental issues. This could include articles on the importance of marine ecosystems (such as mangroves), or the negative impacts of destructive fishing techniques or overfishing. This requires a long-term commitment to prepare and write articles on a regular basis.

Newsletters, consisting of one or more pages, may be used to target particular interest groups such as commercial fishers, women and youth. Newsletter may be produced and distributed on a regular basis, often monthly or quarterly, and contain articles of current interest to the specific target group. Cartoons, photographs, recipes and jokes are often included to break up the more serious information.

Leaflets and information sheets can be directed to a wider audience than newsletters and usually contain factual information on a single topic. Leaflets containing general information (such as the value of mangrove ecosystems) may remain current for years. Students find information sheets particularly useful in researching school projects.

Posters should be designed to contain either a brief, bold message or contain a large amount of information presented in such as way to attract people's attention. Large and colourful posters are very costly to produce and print.

Face-to-face interactions with people are part of any awareness raising campaign. This can include meetings, activities and displays. Meetings with community leaders, such as church leaders, teachers, village chiefs and mayors are a good way to spread the message.

Open days and public displays are useful for familiarising the public with the aims and goals of marine environmental conservation initiatives, and to keep them informed of current issues. School competitions can be organised (involving posters, or articles by students about marine environmental issues), with judging scheduled for school open days.

3.2   Promoting CBM

Purpose:
- inform coastal communities about the benefits of implementing community-based management programmes for managing their marine resources and protecting the marine environment; and
- assess the potential of coastal communities to become involved in the community-based management programme.

CBM can be promoted using some of the same methods used for raising awareness (discussed above). In this instance the information is more specific, allowing less costly forms of awareness raising media to be used. This could include radio programmes, interviews, newspaper articles and information leaflets.

Communities that have responded to the awareness campaign may be selected for an information meeting. This meeting would involve the distribution of information sheets, and plays, songs and presentations to promote CBM as a method for addressing fisheries resource and marine environmental problems. At this time the CBM team would assess the community's potential to be a successful partner in the CBM programme. This involves assessing the level of community concern for the marine environment and their willingness to find solutions to address marine environmental problems.

Communities should be selected for CBM information meetings based on:

- their response to the awareness campaign (interest may be expressed by making contact with the CBM team, for example); and
- an indication that they want to find solutions to their marine environmental problems and are motivated enough to take actions to address these problems.

Awareness raising material promoting CBM is required for information meetings. The CBM promotion materials should emphasise the need for coastal communities to assume responsibility for their marine environment. To raise community awareness about the CBM process, the CBM team can distribute relevant information sheets, perform plays and songs, and conduct group discussions.

The CBM team must assess the community's potential to be a successful partner in the community-based management programme. The assessment would involve estimating the:

- significance of the marine environment to the village,
- extent of any problems with the marine environment and fisheries resources, and
- level of concern and willingness to do something about existing problems.

After the information meetings, if a community is interested in implementing a CBM programme, and the CBM team has approved the village for participation in the programme, then the team will arrange to meet with the leaders of the community to discuss the CBM process in greater detail.
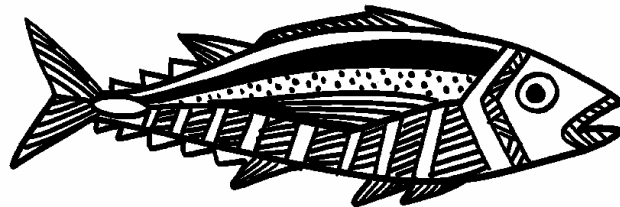
4   MEETING WITH COMMUNITY LEADERS

Purpose: establish contact with community leaders and discuss the community's potential involvement in the CBM programme.

Based on current targets, work load, logistical requirements and approaches from interested communities, the CBM Team decides which communities are interested and motivated enough to commit to the CBM process.

Materials required: Any information that has been developed on CBM should be made available; for example, an information sheet describing the CBM programme (see Appendix 3).

Responsibility: The CBM facilitator nominated as lead person for the community/area should be responsible for organising the people and materials for this and other meetings, and for maintaining and filing records. Examples of records include a CBM Programme Checklist (Appendix 1) and a Contact Register (see Figure 2).

Based on current targets, work load, logistical requirements and approaches from interested communities the CBM Team decides which communities are interested and motivated enough to commit to the CBM process.

2005 CONTACT REGISTER

Community	Initial Contact	First Meeting	Group Meetings	D T Meetings	Third Meeting
Example 1	18/2/05	2/3/05	1. 28/3/05 2. 5/4/05	1. 5/4/05 2. 13/4/05 3. 1/5/05	10/5/05
Example 2	12/4/05	29/4/05	1. 8/5/05 2. 14/5/05		
Example 3	28/4/05	6/5/05			

Figure 2:   **Example of a Contact Register for use in the office. Whiteboard markers are used to enter community names and dates on a large washable board.**

Before the meeting the CBM facilitator enters the village details on the Contact Register.

At the meeting the CBM facilitator should make contact with appropriate community leaders, including the ward member, LLG representative and village court magistrate. Contact should also be made with leaders of relevant community groups, including men's and women's groups, church groups and fishers, to discuss the CBM programme. Copies of an information sheet on

the CBM programme should be distributed (if available) to ensure that people receive a consistent message.

The process for establishing a CBM programme should be described to community leaders. It should be emphasised that the role of the CBM workers is to assist the community in developing a fisheries management plan and to establish a committee to be responsible for implementing the undertakings listed in the management plan.

The extent of the problems facing the community with respect to the overall state of the marine environment and the level of fish catches, and their willingness to do something about these problems, should be assessed through interview and observation. (A community assessment may have already been made in the form of a socioeconomic survey conducted by CBM workers or other agencies. Data provided in such a survey can assist in assessing the most appropriate communities to approach for initiating a CBM programme).

At the meeting, community leaders should be provided with sufficient information to allow them to either accept or reject participation in the programme. This information could include discussing the benefits of community management of fish stocks and the marine environment; the positive impacts that CBM has had on the marine resources in communities that are involved in the programme; and distribution of Community Fisheries Management Plans drafted and implemented by other communities. Also, the leaders must be informed that the community must be concerned and willing to take action to address marine environment and fisheries resource issues.

Some community leaders may have the mistaken belief that the CBM programme may take away some of their authority; alternatively, some may have conflicting interests (for example, shareholder in a Live Reef Food Fish export company) and therefore not wish to become involved in the programme. If community leaders decline to participate, the community should not be pressured to change its mind.

If the community leaders agree that the CBM process would be a viable approach for addressing the community's fisheries resource and marine environmental problems, the CBM team should arrange for a meeting with the entire community to explain details of the CBM programme.
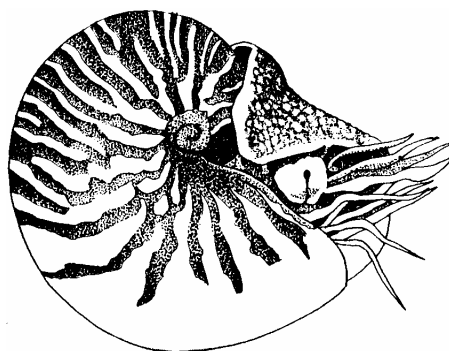
5   FIRST COMMUNITY MEETING

Purpose: explain details of the CBM programme in order to confirm the interest of the community and to seek agreement to holding group meetings.

Materials required: information sheet on the CBM programme and an example of a demonstration fisheries management plan should be made available if possible.

Before the meeting the CBM facilitator should advise relevant workers of the meeting date, and determine possible dates for future group meetings in light of future staff availability and taking into account existing commitments.

At the meeting the CBM facilitator should introduce the CBM workers, explain the programme and invite questions from the community. After explaining and discussing the programme, including what will be expected of the community and the CBM agency if they commit to the CBM process, the community should be asked if it wishes to be part of the programme.

If the response is positive, the community must approve the proposed community group meetings (see Section 6), and a date should be arranged for the first group meetings, from the possible dates discussed before the meeting. In general, it is best if meetings of each group are held on the same day. If all groups meetings cannot be on the same day it is important that they be held as closely together as possible; certainly within a single week. A few communities may be keen to continue on immediately from the community meeting to the first group meeting. This is okay if they can guarantee a sufficient number of participants for each interest group.
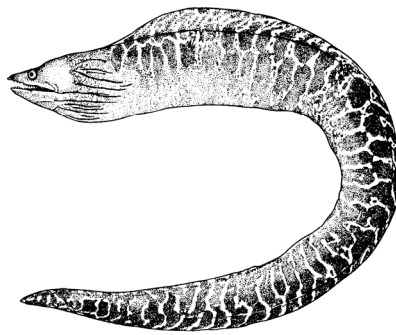
6   GROUP MEETINGS

Purpose: ensure that the entire community is involved in identifying problems and proposing solutions. The CBM process sets up meetings with key groups within the community.

Materials required: Information sheets and materials for writing and drawing in front of the group (whiteboards and felt pens or blackboards or large poster paper) should be available.

As discussed in the previous section, the community should be asked at the end of the first community meeting to select the groups most appropriate to their community (for example, men's and women's groups). The CBM team should consider the number of CBM workers needed to conduct group meetings. In some cases it may be decided that separate group meetings aren't necessary, especially if the community is very small.

If group meetings are needed, the community should be divided into separate interest groups, which usually include a men's group and a women's group. Separate group meetings allow participants to speak freely amongst equals. If a mixed meeting had been held, the women and young men would have been unlikely to speak freely in front of the titled men. It is up to the CBM facilitator and the community to assess the need for separate group meetings, taking into account the size of the community as well as cultural factors that may affect the ability of some community members to join in an open discussion.

Identification and clarification of community ideas will be promoted by constructing problem and subsequent solution trees (see Section 7) in respective meetings. The key output of these meetings will be the formation of a Drafting Team to represent the community in preparing a fisheries management plan.

6.1   First group meeting (GM1)

Before the meeting, the CBM facilitator should confirm which CBM workers are to be involved in CBM work in the new community, and advise them of the meeting date well in advance. Dates should be entered on the Contact Register.

The facilitator should ensure a recorder is appointed for each meeting. If there are not enough CBM workers to provide a facilitator and recorder for each group then someone from within the community may be enlisted to perform this task. The facilitator should ensure the recorder captures the community's ideas accurately.

If possible, the community should be contacted two or three days before each scheduled meeting to confirm all participants are available on the agreed date/time.

At the meeting the facilitator should introduce the CBM team and welcome the participants. It should be emphasised that it would be appreciated if everyone is given an equal right to speak during the meetings, regardless of gender, age or status.

The names of the participants should be obtained before the meeting starts. These names can be included in the management plan; if this is to be done it is important to correctly record everyone's name at each meeting.

The CBM programme should be explained, using a CBM information sheet (if one has been developed). Interest can be stimulated by focussing the group on their marine environment. For example, the most experienced/oldest people in the group may be asked to describe their memories of the fishing situation when they were a child. How many fish were caught, and what size and type? How often did they eat fish? They may also be prompted to talk about the

environment: what were the reefs like when they were children? Participants can be prompted to discuss the situation today in comparison with the past.

The group can be encouraged to consider what they think the situation will be like for the next generation (in 10, 20 or more years in the future). It is important at this first meeting to encourage all group members to express a view or recollection. The focus should not be on the most active, cooperative participants; an attempt should be made to get every person to make some comment.

Based on the comments of each group, a problem tree should be constructed as described in Section 7. Effort should be made to ensure the comments each group makes are recorded accurately.

At the end of the meeting, an exact copy of the problem tree from each group should be made on paper. This diagram must be reproduced on the board before the start of the following meeting.

At the end of the first group meeting the facilitator should explain the purpose of the next group meeting. The first group meeting (GM1) can end after a discussion of problems, but it may help to have a very brief (preview) discussion of solutions and actions to raise enthusiasm for the next meeting. This can be done by taking one specific problem and explaining its possible solution.

Alternatively, if the number of participants is sufficient and they are available and enthusiastic to continue, the facilitator and the community may decide to move straight on to the second group meeting (see next section). This may be necessary when working in remote communities, or those that are difficult to access, where the number of visits may need to be reduced because of travel costs and time constraints.

6.2   Second group meeting (GM2)

The overall purpose of the second meeting is to assist each of the groups to identify:

- How the problems (already identified at GM1) can be solved
- What actions will be required
- Which members will make up the very important Drafting Team (DT).

By the end of this second meeting, representatives will be nominated from each group to form the Drafting Team (DT). The number of representatives will depend on the number of groups, the size of the community and the availability of committed participants willing to give their time to this task.

At the meeting the participants should be reminded that the purpose of the second meeting is to find solutions for the community's fisheries and marine environment problems that were identified at the previous meeting.

The problem board from the previous meeting should be briefly reviewed, to see if participants wish to change and/or add anything, in light of their reflections since the previous meeting.

The Solution Tree (see Section 7) should be started by filling in details for solutions and actions. The steps that would need to be taken for the community to put into action the various solutions identified should be discussed, and the suggestion made that it would be useful for the community to have:

- an action/management plan that the whole community will support for many years, even if there are no further visits from CBM workers;
- full support and authority of the community leaders;
- an active, enthusiastic and well informed Fisheries Management Committee (FMC) to represent the whole village.

The group should be asked if they are convinced their community should have its own action/management plan. If they agree, suggest that a Drafting Team (DT) be set up to prepare a management plan for submission to the community. Explain the role of a DT (Section 8).

At the end of the meeting emphasise that the villagers may later think of other important problems and solutions that should be considered, and new technical information that may arise. Each group should be reminded that other groups are also meeting in the village and that they may suggest other problems or actions. It will therefore be the responsibility of the DT to:

- listen to all ideas and concerns in the village;
- seek more technical information before drawing up a management plan to submit to the community.

Each group should be asked to nominate several members to serve as representatives on the DT. The roles of the DT should be outlined (see Section 8), and it should be emphasised that the persons nominated must be very active and available Once selected, it should be suggested to the DT representatives that the first DT meeting be held that day, if possible (probably shortly after the GM2 concludes).

The whiteboard should be left as is for the DT meeting. An exact copy of the Solution Tree should be made on paper for the use of the person responsible for preparing the DT Summary Board (see Section 8).
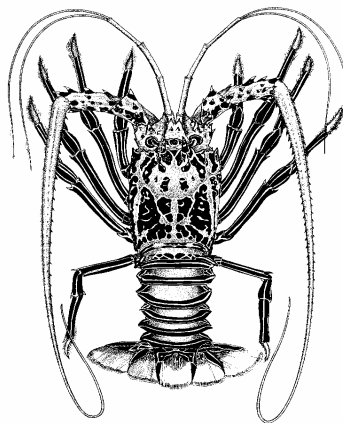
7 CONSTRUCTING A PROBLEM/SOLUTION TREE

Building a tree of problems and solutions is a simple and widely understood visual technique to get a group to analyse problems and come up with possible solutions and actions to address those problems. The use of the "tree" concept is just one technique for recording many different ideas. A tree is a useful symbol to show how one main problem (the trunk) can have a number of different causes (the root system) and lead to a large number of effects (the branches). Now it is more common to use a simplified diagram or flow chart.

As discussed in the previous section, group meetings are conducted in a community to ensure the whole community is involved in identifying and considering appropriate solutions to the community's main fisheries and marine environmental problems. The problem/solution tree sets out a number of different levels (problems, effects, solutions) in a clear way and assists the group in organising and recording conflicting views on an issue. Separate meetings may be used to first examine problems and then solutions.

At group meetings the key task of the facilitator is to ensure that villagers carry out a detailed assessment of their marine environment and that the end result is owned by the community (i.e. the community, and not the CBM workers, have done the work and identified their problems, solutions, etc.).

Constructing a problem/solution tree is simply a means of:

- helping participants examine the condition of their fisheries and the marine environment;
- discussing the causes of these problems in a logical, systematic manner; and
- discussing possible solutions.

The task of the CBM workers is simply to facilitate the process and, as far as possible, to avoid making suggestions.

One of the drawbacks or weaknesses of this method is that it can get bogged down in discussions of "what constitutes a problem" or "what is an effect." The method may make people painfully aware of the complexity of issues, and discourage them from further action. It is up to the facilitator to keep the discussion on track and to assist the group in keeping the ideas simple and easily understood by everyone.

7.1 The problem(s)

The facilitator should stand in front of the whiteboard and ask the group to describe the problems affecting the village's marine environment. This is a "brainstorming" session and all members should be encouraged to voice their opinion. Everyone should be expected to make a contribution. Brainstorming is based on a freewheeling offering of ideas started by an open-ended and sometimes provocative question put forward by the facilitator, such as "what problems do you face in managing natural resources?" or "what are the main problems you see in your marine environment and resources?"

Opening statements and questions should be general and not leading; the facilitator should not stress or overemphasise a point of view that could bias the participants. For example, the facilitator should not ask questions such as "you have a lot of problems with your natural resources don't you?" This is a leading question in that the obvious answer is "yes".

It should be clear that brainstorming is a free and non-committal way of exploring ideas; no one commits him or herself to something just because they have mentioned it in a brainstorming session. It is important to stress that "all ideas are good ideas" during a brainstorming session. If

some people do not agree with someone else's point, they should give what they think is a better idea.

The facilitator should accept only additional contributions during brainstorming, not disagreements or arguments, which should be postponed until the discussion afterwards. The facilitator should also encourage fresh ideas rather than repetitions of earlier items. Over-talkative participants may need to be calmed down, and silent participants can be asked directly for their views and ideas.

As each problem is described it should be summarised on the whiteboard.

Before asking for the next problem, the facilitator should check that the participants are satisfied that the previous problem has been satisfactorily summarised. The facilitator should continue to ask for problems and record each one on the board. As many participants as possible should be invited to suggest problems.

7.2   Identifying the key problem

The main purpose in identifying a key problem is firstly, to simplify and order the various problems in the community and secondly, to ensure that they end up a key problem they can address themselves. This is especially important if the group has been identifying a number of large problems which may be beyond the scope of the community or the CBM support agency to do anything about – for example, major logging activities or pollution from large towns.

After all the problems have been recorded, the facilitator should ask participants to look again at what has been listed on the board and decide which of the problems is the most important or key problem. Until this time the facilitator will have made very little comment other than seeking suggestions; now, however, he or she must be more active in challenging participants to identify the key problem. This is normally done simply by asking simple questions: "why?" and "how does this affect you?"

This is normally done simply by asking the questions, **Why?** and **How does this affect you?**

Example:
"Why is *dynamite fishing* a problem?"
Answer "Because it kills too many fish, corals and other animals."
"How does this affect you?"
Answer "Because it leads to *a scarcity of fish".*

In this example, dynamite fishing is the cause of a major problem for the community, the scarcity of fish, rather than a key problem itself. This can be explained further by looking at how dynamite fishing affects an individual: "unless it directly affects me (through leading to a scarcity of fish) I may not necessarily see it as a problem".

Because the goal is to finish with a single key problem, the facilitator examines, in turn, each of the items earlier listed as a problem, and tries to identify a key problem linking them all. At the end of this process there should be one key problem, such as *lack of fish or shellfish*, which most of the other problems that were identified earlier are contributing to. For example, dynamite fishing, marine pollution, sedimentation, overfishing, and habitat destruction are all problems in a community mainly because they eventually lead to a *lack of fish or shellfish*.

It may not be possible to directly link some problems to the key problem (e.g. to link *rubbish on the beach* to a *lack of fish*). The facilitator should agree that this is a problem but should then

ask participants if it is as important a problem as a lack of fish. If the answer is *no*, then the facilitator may suggest to the group that they consider it again later after they have dealt with the most important problem.

The key problem should be written in a prominent section of the whiteboard, at the very top for example, with all the linked problems below it.

7.3   The effects

The facilitator should then ask the group what the effects of the key problem are. That is, what are the impacts, on people's lives or on the community? This helps the group to look at the negative impacts of marine environmental problems, and at how addressing those problems may have a positive impact on their lives. Generally, the effects of a key problem such as a lack of fish or shellfish will be a lack of food, income or employment in the community. The effects may be written alongside or above the key problem.

7.4   Solutions and actions

Solutions are normally tackled at a second group meeting on another day, although if the number of participants is sufficient, they are available and enthusiastic to continue, the facilitator and the community may decide to move straight on to the second group meeting.

The first step in examining solutions to the problems can be to examine a solution to the key problem. For example, if the key problem is *lack of fish*, then the key solution will be *sufficient fish*. Instead of calling it the *key solution*, however, a more suitable name here is *goal,* since this will become the goal of the eventual fisheries management plan.

It is very important that participants are challenged at this stage to consider every possible solution and action. The facilitator should explain that solutions are nothing more than fine words unless action is taken to make them happen. The more actions considered at this point, the more material the Drafting Team will have to work with when they come to drafting the management plan. Examples of actions to achieve solutions to specific problems can include:
- reduce destructive fishing methods by enforcing regulations and raising awareness;
- reduce fishing pressure by banning the use of underwater torches at night for fishing;
- increase broodstock and fish/shellfish numbers by setting up a fish reserve;
- reduce pressure on lagoon marine resources by encouraging fishing offshore (deployment of FADs, training).

Community actions that may be listed in a management plan are covered in more detail in Section 9 addressing The Community Fisheries Management Plan.

PROBLEM TREE

Key problem and effects	Less fresh food	**KEY PROBLEM: LACK OF FISH/SHELLFISH**	Less income

Problems	Overfishing	Not enough fish to breed	Use of destructive fishing methods

SOLUTION TREE

Goal: Sufficient fish/shellfish

Solutions and actions	Less people fishing in lagoon	More fish breeding in lagoon	Reduce use of destructive methods

a) Encourage fishing offshore b) Develop fish farms	a) Declare fish reserve b) Set fish size limits	a) Ban use of dynamite, poison rope b) raise awareness

Figure 3: *Example of a simplified problem/solution tree.*

8   DRAFTING TEAM MEETINGS

Purpose
The purpose of the DT meetings is to bring together all the suggestions from the various group meetings held in the community, and decide how to unite them into a single management plan that can be presented to the community for approval. Three DT meetings will normally be required to achieve this. ACBM facilitator is needed to guide the DT in their work.

Meeting 1
Combines the findings of the previous group meetings, confirms the goal of the plan, gathers data (Baseline Questionnaire, Appendix 5), records existing community rules.

Meeting 2
Begins to draft the management plan and obtains any additional detailed information required. DT Meetings 1 & 2 may be combined if all the members agree.

Meeting 3   Finalises the draft management plan, map, etc. Although three meetings may be enough to combine all the information and draft a management plan, the team should feel free to take more time if needed. It is important that nobody feels rushed to reach decisions.

Method

The work of the DT primarily involves developing and refining the concerns and conclusions raised in the group meetings. DT meetings will also make use of additional information, in the form of a baseline questionnaire (Appendix 5), the results of group map work, and a village "stroll through" environmental survey (Appendix 4); this information will contribute to the background information for the management plan.

The role of the DT is to:

- bring together and represent the views and ideas of all community groups;

- develop the actions identified by the groups so that they are realistic and achievable (this will probably involve gathering further information, both in the village and from the supporting agency);

- draft a management plan for the community's fisheries and marine environment;

- discuss and promote the draft plan among all villagers, and especially with those who might be negatively affected; and

- present the draft management plan to the community for consideration and agreement.

Three DT meetings will normally be required to achieve this. A CBM facilitator will be needed to guide the DT in their work. Material required for the DT meetings includes baseline questionnaires, village "stroll through" environmental survey forms, and information sheets.

Materials required for meetings
Baseline Questionnaires, Stroll Through Survey form, and Information Sheets.

8.1 First DT meeting

Between the conclusion of GM2 and the commencement of the DT meeting, the CBM workers should help summarise all stages of the problem/solution trees on a single summary board, making sure all proposed solutions and actions from the various groups are included on this summary board.

At the first DT meeting, the facilitator should briefly review the five main tasks of the DT (see boxed text above regarding the role of the DT), and explain that the DT's major task will be to produce a draft management plan. It should be emphasised to members that over the weeks following the first meeting, they will be responsible for promoting the idea of a management plan to the community.

The facilitator should encourage the DT to discuss their future vision for their marine environment. For example, how would members like to see their lagoon in 10 years' time? Do they want: a secure supply of additional fish? bigger fish? increased income from fish or, fewer sales but more fish for consumption? Does the community want to stop or slow harvest declines? Do they want to restore degraded marine areas and/or resources?

Members should be encouraged to view management as an ongoing process, one that may need to change over time to adapt to changing circumstances.

Setting the goal of the Community Fisheries Management Plan

A goal, aim or objective is something that we think is worthwhile, and are prepared to work at to achieve. A typical community goal might be "to protect the marine environment and to improve stocks of fish and shellfish through better management."

The community should be asked if they wish to adopt this or some similar goal as the goal of their own management plan. If they do not, they should be asked to suggest another goal that addresses their concerns for their marine environment.

DT members should be reminded at this point that once it approves a management plan, the community would be expected to appoint a permanent Fisheries Management Committee (FMC), whose main role would be to ensure that the plan comes into effect. In most cases the DT members would be the best choices for the FMC.

Copies of the baseline questionnaire (Appendix 5) should be distributed during the first DT meeting. The baseline questionnaire is used to put together information for the background section of the management plan. The questionnaire may be completed by the Drafting Team during their first meeting, or taken away to be completed before the start of the second DT meeting.

The summary board should be presented to the group, with an explanation that it is a combination of the separate problem/solution trees from the individual groups. Each group member should be asked if this summary accurately reflects all the groups' views. The summary may need to be modified until all members are satisfied. The next step will be to review the various solutions or actions proposed, decide which are the most important, and which will be acceptable to the whole community.

DT members must provide full details for each agreed priority action so that these can be incorporated into the management plan. If possible, the DT should work through all of the priority actions during the first meeting. If members lose concentration after a long day of

meetings the facilitator should either suggest the meeting take a break, or that further discussion be postponed until the following meeting.

If the discussion can be completed in the first meeting members should be advised:

- They will have an opportunity to review the proposed action at the start of the next meeting.
- They should study any of the Information Sheets which are relevant to the proposed actions.
- Before the next meeting they should discuss the proposed actions with as many other members of the community as possible – especially with community leaders, fishers and those people most likely to be interested or affected.
- DT and CBM workers will need to conduct *preliminary investigations* of sites or schemes that the community may be considering. These sites may be, for example, beaches that are eroding, mangroves which are threatened, or areas of fresh water that have potential for aquaculture. This may be done in the form of a "stroll through environmental survey" (Appendix 4).

"Stroll Through" Environmental Survey

The "stroll through" environmental survey is best undertaken at the end of the first Drafting Team meeting, and involves CBM workers accompanying DT members on a stroll through the village to look at possible sites of interest.

The purpose of the "stroll through" survey is to:

- prompt community discussion of environmentally critical areas;
- allow CBM workers to make best use of appropriate technical knowledge in meetings;
- avoid having the committee waste time on unrealistic options;
- provide background information for inclusion in the community fisheries management plan (this may include, for example, a first draft of the village map required in the third DT meeting).

See Appendix 4 for more details of the "stroll through" environmental survey

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Emphasise to members that over the next few weeks it will be their responsibility to promote the idea of a management plan to the community. At the end of the first Drafting Team meeting the DT and CBM workers should agree on a date and time for the next meeting. Emphasise the importance of all DT members attending the meeting to help gather information for the management plan.

After each DT meeting the CBM workers should put together results of the meeting in a simple, clear summary sheet to give to members at the beginning of the next meeting (to show what has been discussed and/or decided previously).

Reconstruct the summary board before each meeting starts. The summary should be quickly reviewed and checked with the DT members. Give all members a chance to bring up any new actions and/or make changes to the board..

CBM workers must also be able to identify any "gaps", that is, any missing details that will be needed for the management plan to work.

8.2 Second DT meeting

The purpose of this meeting is to:

- finalise the management plan goal;
- familiarise all DT members with the nature of a community management plan;
- begin drafting the plan; and
- allocate work among members to ensure that the plan is completed by the end of the final meeting.

At the beginning of the second meeting, the facilitator should explain the purpose of the meeting, summarise progress made in the previous meeting, and seek any corrections, revisions or new ideas from members that can be added to those discussed at the previous meeting.

Once agreement has been reached on the management plan goal, preparation of the draft management plan should begin. The purpose of the management plan and its contents can be explained through reference to the five headings described in Section 8.

It should be explained that the plan should contain a map of the village marine area and a request made that one or two appropriate members begin work on this immediately.

> *Note:* if no members of the DT are confident in drawing a map they should be encouraged to identify others in the community who may be skilled (such as school teachers). Including others can be a benefit, as the more people that are involved in the preparation, the more the management plan will be owned by the village.

The DT should work through each section of the plan, ensuring a member(s) is nominated to gather each additional piece of information that is required. Before the end of the meeting members should be asked to advise of their progress on the baseline questionnaires distributed at the first meeting. A check should be made to see if problems have arisen in completing the questionnaire and to ensure all information will be collected before the following meeting.

Using information collected in the second group meeting, the DT must also determine the most appropriate actions to address problems, agree on penalties for offences and decide who will be responsible for enforcing or implementing the actions.

At the end of the meeting the facilitator may invite the group to travel to the CBM main office for the third (and possibly final) Drafting Team meeting. Such an invitation should only be made if the facilitator is confident that the group has already developed a strong sense of *ownership* of the process, and that this sense of ownership will not in any way be reduced by having to work on the plan in the office.

> *Note*: Holding the meeting in the CBM supporting agency office would accelerate the process of collating information, completing maps of the village area, and writing rules to complete the draft management plan. A typist could be made available to assist them and the draft plan could be written and altered until all members are satisfied. While at the office, members could also call on expert technical information from other staff if required. The output of the meeting should be a final draft management plan.

8.3 Third DT meeting

At the beginning of the third Drafting Team meeting the facilitator should explain that significant work will be necessary and very careful attention must be given to the content and wording of

the Community Fisheries Management Plan. A review of progress on the management plan since the last meeting should be made and members asked to present any additional information they have collected. The map should be reviewed to ensure everyone is satisfied with it.

The DT should systematically work through each section of the management plan until consensus is achieved on all aspects, and all members are satisfied with the draft plan. More meetings may be required to ensure that all members of the DT are satisfied.

It should be explained that if last minute changes are required then the CBM workers must be notified within the next three days (more if needed). This is to allow final copies to be made and given back to the DT for distribution to key leaders well before the final community meeting.

The Joint Review, which is to be held six months after acceptance of the management plan (see Appendix 8), should be discussed. The Joint Review provides both the supporting agency and the community an opportunity to review the success of the Management Plan and the effectiveness of the Committee.

The final community meeting should be discussed, and members reminded that the tasks of the community at the final meeting will to approve or suggest changes to the draft management plan and to appoint a Fisheries Management Committee.

At the end of the meeting a date should be arranged with the Drafting Team for the final community meeting. The final community meeting should ideally be held shortly (but not less than one week) after the final DT meeting. DT members should decide who will present the Community Fisheries Management Plan at the meeting and which community members should receive copies of the plan before the meeting.

Although DT members may request it, CBM workers **cannot** present the Plan to the community, because it is the community's plan, not the supporting agency's. CBM workers will, however, be present at the meeting to give support, and answer technical questions.

Following the third DT meeting, CBM workers must ensure that the final draft of the Community Fisheries Management Plan is typed and duplicated. A number of copies should be made (depending on the size of the community), with additional photocopies prepared if there is likely to be a large demand.

At least five days before the scheduled final meeting, the CBM facilitator responsible for the community should deliver covered copies of the draft Management Plan to the DT for immediate distribution to all key community members. To emphasise the importance of this, the CBM facilitator should offer to accompany members while they deliver the document.
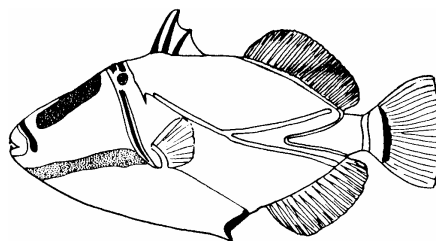
9 THE COMMUNITY FISHERIES MANAGEMENT PLAN

9.1 Contents of the management plan

Throughout the CBM process the facilitator should make it clear that a management plan is a document describing actions needed to achieve a certain goal. In the case of the CBM programme, the Community Fisheries Management Plan must include all the proposed tasks, for both the community and the supporting agency. When the plan is presented to the Final Meeting, the community may agree to it as it is, agree to it with some changes, or ask for it to be re-submitted after major changes. At the Final Meeting the community will also appoint a Fisheries Management Committee (FMC) to supervise implementation of the management plan.

The management plan lists the actions recommended by the DT, and shows how the solutions identified in the problem/solution trees will actually work. The draft management plan should contain clear recommendations for specific actions, and rules to help solve the community's fisheries and marine environmental problems. The DT will have also discussed and drafted appropriate penalties that apply when regulations contained in the plan are infringed. The plan will also specify who will be responsible for enforcement, and carrying out actions listed in the plan. The community will be in a better position to approve a plan that contains clear, strong recommendations.

The contents of a Community Fisheries Management Plan are:

Background (physical description of village). These are general details about the population and area of the village that come from a baseline questionnaire (Appendix 5), to be completed by the Drafting Team. A map of the fishing area should also be included, with problem areas noted and proposed sites for reserves or shellfish introductions marked.

The Marine Environment and Resources This section should discuss the importance of marine resources (economic, nutritional, social) to the village and give its geographical and social limits (e.g. length of the coastline and number of fishers). It should also give a brief history of the village's fisheries and the marine environment, including a list of any regulations already in force.

Problems, Solutions and Effects This section should present a summary assessment of the state of the community's marine environment and resources, and list the priority problems, their effects and possible solutions. The final problem tree may also be included.

The Management Plan This section gives the goal of the management plan plus a brief description of meetings held and names of people involved in preparing the plan. The names and even photographs, of all the participants of the Group Meetings may also be included (the community should be responsible for organising and providing any photographs).

Undertakings This is the most important part of the plan, as it lists the actions that the village will undertake to solve its fisheries and marine environmental problems, and the support that will be provided by the CBM agency.

9.2   Undertakings

The Community Fisheries Management Plan will list actions required to address marine environment and fisheries resource issues raised by the community. These actions include the agreed tasks or undertakings of both the community and the supporting agency. The tasks will vary in each case but will include community actions, village/LLG/ward regulations, and government/NGO actions in support of the community. If the management plan is accepted by the community, both the community and the supporting agency will then be responsible for carrying out their commitments.

This section of the management plan should also include the penalties for offences relating to each of the actions, and a corresponding list of who is to be responsible for enforcing or implementing the actions.

Some examples of actions taken by communities, including those involved in CBM in New Ireland Province, include:

- banning the use of dynamite, chemicals and plant-based poisons to kill fish;
- banning the use of destructive fishing methods such as breaking corals;
- banning the dumping of rubbish on the beach or removal of sand from the beach;
- banning the cutting of mangroves;
- banning the use of over-efficient methods of fishing such as underwater breathing apparatus (scuba), or use of torches at night;
- banning the anchoring of boats on the village reef area;
- limiting the number of gill nets that can be used on the reef area;
- banning the catching of some types of fish or shellfish smaller than a minimum size;
- banning the capture of berried lobsters or crabs;
- enforcing seasonal closures of the village reef area to protect some types of spawning fish;
- creating a fish reserve in the lagoon to allow fish numbers to increase;
- creating fish ponds or nurseries for aquaculture initiatives;
- undertaking a six monthly review of the Management Plan.
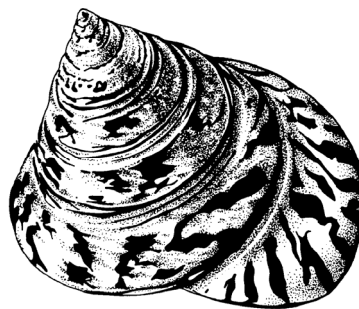
10 COMMUNITY ACCEPTANCE OF THE MANAGEMENT PLAN

10.1 Final community meeting

The purpose of the final meeting is to allow the DT to present the draft management plan to the community and to allow the community to accept the draft plan or agree to make certain changes before acceptance.

The final community meeting is critical because it is at this point that all of the previous work is either accepted or rejected. There is little chance of rejection, however, if DT members have been thorough in their preparation of the plan and have taken enough time to discuss the proposals with key community members and with any other villagers that might be directly affected.

The two major outcomes of this meeting are:
- acceptance of a *Community Fisheries Management Plan*
- nomination of a permanent *Fisheries Management Committee* (FMC).

If possible, the meeting should also discuss:
- How the FMC is to report progress to the community.
- What form of awareness program should be developed to create enthusiasm for the management plan and to publicise any new community regulations.
- The Six-Monthly Management Plan Joint Review (Appendix 8).

Note: key community members should receive copies of the draft Community Fisheries Management Plan at least five days before the scheduled final meeting. These should be delivered via the president of the DT. The number of copies required will depend on the size of the community. It is important to ensure that copies be given to all key community members, not just the community leaders.

The key people at the final community meeting will be the DT members, and it will be their responsibility to present the management plan and answer questions. The role of the CBM workers at this meeting is to clarify any technical matters and to demonstrate, through their presence, that their agency is prepared to make a serious commitment to the community. Responsibility for the smooth conduct of the meeting rests with the CBM facilitator and he or she should be present in the community well in advance of the meeting in order to support and reassure the DT.

Once the community has accepted the draft plan or agreed on any desired changes, they should discuss the nomination of a Fisheries Management Committee (FMC). In most cases members of the Drafting Team will go on to become members of the FMC.

10.2 Launching the community fisheries management plan

Once the community has agreed to the draft management plan presented to them at the final community meeting they are ready to formally "launch" the plan. If the community accepted the plan subject to certain changes being made, then the Drafting Team and CBM workers will meet once more to include those changes and finalise the draft. The final copies of the management plan should be presented in an attractive, bound format to emphasise that it is **an important community document**.

The purpose of the launching is to allow the FMC to present the final version of the Community Fisheries Management Plan to the community in a formal and culturally appropriate meeting. Relevant stakeholders should be invited to the launching to emphasise the importance of the occasion and to keep everyone informed of the plan's existence. Such people may include representatives from Provincial Fisheries, Provincial Legal Office, Ward, LLG and VPC.
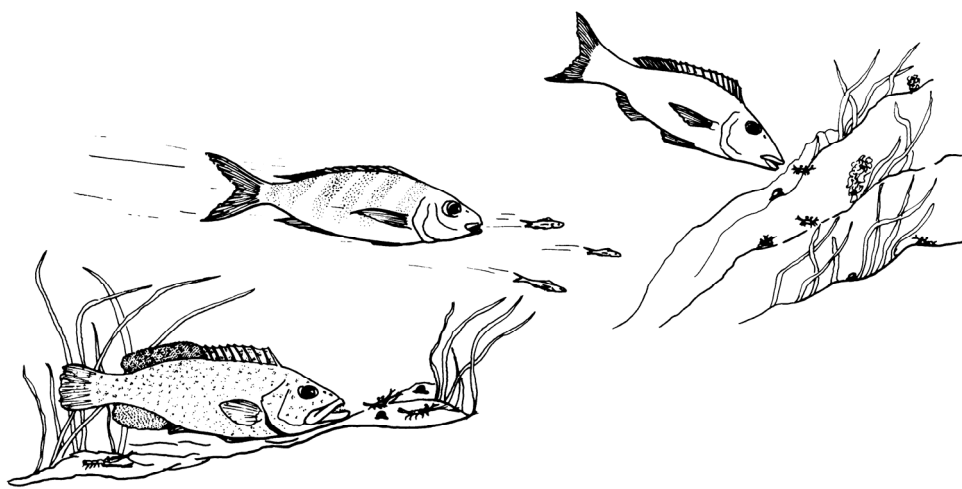
11 IMPLEMENTING AND SUPPORTING THE MANAGEMENT PLAN

Completing and agreeing on a Community Fisheries Management Plan is an important step, but it is **not** the end of the task! Once the management plan has been formally agreed to, CBM workers must maintain regular contact with the community's Fisheries Management Committee, and work closely with other agencies to provide the technical support agreed to under the management plan. CBM workers should also keep communities informed of other programme tasks, including, for example, dates of surveys for fish reserves. If the supporting agency does not complete its agreed tasks, the community may lose interest in carrying out its own undertakings, and other communities could be discouraged from joining the programme.

11.1 Gaining legal recognition for community fisheries management plans

Under CBM, rules and regulations (fisheries management measures) are enforced by communities. Under such community-based management, fisheries regulations are more likely to be effective as they are enforced by communities with a direct interest in their continuation and success.

Community rules and regulations are set by members of a community, and are therefore usually only applicable to members of that community. In cases where people from outside a village come into local waters to fish, the community may be powerless to insist that the visitors obey local rules. However, there may be customary ways of dealing with this problem, including negotiations with the home villages of offenders. In PNG, the Organic Law gives the provincial government the power to make laws on fishing and fisheries, and LLGs are given the power to make laws regarding the local environment.

In both these cases the law-making powers are subject to any higher regulations. For example, the provincial government cannot make a fisheries law that contradicts a national fisheries regulation or the Constitution, and an LLG cannot make a law that contradicts a provincial law, a national law or the Constitution. It is very important to keep this in mind when supporting communities in drafting a fisheries management plan. It is up to the facilitator to advise the community on what may and may not be included in the plan.

If there is any doubt, then the facilitator should advise the community that he or she will seek guidance from an appropriate authority before proceeding – this may be the provincial legal adviser and/or NFA.

> *Note:* it is a good idea for CBM workers to research current fisheries regulations and other appropriate information before starting work in communities. A folder containing material on regulations can be a useful reference when working in the community.

11.2 Keeping records

This manual discusses various ways of keeping track of the process and maintaining information on communities involved in the CBM programme. Collecting information is important, but only if it is used in a positive way. Little is gained in expending a lot of time, resources and money on collecting baseline data or basic information if this is simply filed and never used.

Several of the forms mentioned in this manual are designed to enable the supporting agency to maintain records to allow the smooth running of the process, especially as more and more

communities become involved. The CBM Programme checklist (Appendix 1), for example, allows CBM workers to keep track of what has and hasn't been done in a community. The Contact Register (Figure 2) should be large and easily visible to all CBM workers, to ensure they don't make commitments to communities on dates that may already be set aside for other meetings.

Don't rely on memory to tell you what has and hasn't been done in a community.

Record-keeping and filing allows new staff members to walk in at any stage of the process and know what is going on with each community. This is especially important when staff members go on leave or change jobs. It means the process and the information collected are not reliant on one person.

Other record-keeping methods, such as the baseline questionnaire and "stroll through" assessment (Appendix 5 and Appendix 4) gather information for eventual inclusion in a management plan.

"Before and after" information is gathered to enable us to assess the impact of the CBM process on a community.

Community file
A file should be kept for each participating community, and added to as information is collected. All the forms referred to here should be kept in a file for that particular community. In addition, notes should be kept on anything of interest (positive or negative) that occurs during any trip to a community, and added to the file for later reference.

Household survey
The household survey has been designed to collect social, economic and marine resource data on a large number of villages in PNG, not just those villages that become involved in the CBM programme.

In the short term, the household survey allow assessment of the significance of the marine environment and fisheries resources to a community; the extent of any problems with the marine environment; and the level of awareness and concern about existing problems. By conducting another household survey in the future, it will be possible to make a comparison of changes over time in a community. This may provide an assessment of the impact of the CBM programme.

CBM checklist – Appendix 1
A CBM Checklist can be kept on file in the office for each village or community starting the CBM Program. The checklist makes it possible to keep track of each step of the process in a community, and ensures that any requirements (such as distribution of information sheets, or completion of surveys, etc.) have been carried out at the appropriate time in the process.

Stroll through environmental assessment – Appendix 4
The stroll through environmental survey collects information for inclusion in the management plan. The stroll through survey involves CBM workers and community DT members walking through the area, examining and noting environmental features that have been discussed in meetings, or should receive community attention. The purpose of the is to**:**

   a) prompt community discussions of environmentally critical areas;
   b) give CBM workers a practical grasp of areas discussed, and allow them to make best use of appropriate technical knowledge in meetings;

c) avoid having the DT waste time on unrealistic options; and

d) provide background information for inclusion in the community fisheries management plan.

The stroll through survey could be initiated by the facilitator saying *"You have suggested several actions which involve particular areas in the community. Can you take us on a walk around the area so that we can see and discuss some of these places?".* It should be remembered that the purpose is to make an initial assessment of the likely success of a proposed action, and not a detailed scientific assessment. In some cases research staff may have to visit the community to make a more detailed assessment.

Baseline questionnaire – Appendix 5
The baseline questionnaire, along with the stroll-through environmental assessment, is used to put together information for the background section of the management plan. The questionnaire collects information basic information about the community as well as perceptions on the state of the fisheries resources and the marine environment.

Contact register – Section 4
The contact register can take the form of a large whiteboard, blackboard or poster that can have information added, changed and easily erased. The contact register should be displayed in a part of the office that is easily accessible and visible to everyone. This enables CBM workers to keep track of dates of meetings in participating communities and to avoid clashes with other commitments.

Work plans and response to new requests
CBM programme target areas and villages for 2005 **Appendix 6**
As the CBM programme progresses it is likely that, through word of mouth and awareness programmes, more and more communities will contact the office to ask become involved in the process. It is important at this stage to not take on more work than is possible given the limitation of staff and resources. It is better to concentrate on working thoroughly in a few communities than doing a small amount in a large number, and being unable to maintain the work properly in any of them. If a community feels there is a lack of support after the initial enthusiasm, their motivation and willingness to act will quickly weaken.

For these reasons it is important to maintain a realistic work plan and use this to respond to new requests in an appropriate manner. The CBM Programme Target Areas and Villages for 2005 in Appendix 6 gives an example of the sort of work plan that could be kept for New Ireland Province. The comments section may include brief information about reasons why either the CBM agency or the community may wish to participate in the process (important marine environmental areas for example, or particular problems that need to be addressed), or it may be used to comment on communities that have approached the CBM agency for assistance, perhaps even before the CBM program started.

CBM programme monthly planning calendar **Appendix 7**
The monthly planning calendar is another method of keeping a day by day account of important dates and tasks throughout the month. The calendar should be updated regularly as dates change or tasks are completed. The calendar also helps CBM workers to plan work around weekends and public holidays.

11.3 Working with the fisheries management committee
The Fisheries Management Committee (FMC) is appointed by the community to:
- administer the fisheries management undertakings of the community;
- make arrangements for the inputs of the supporting agency; and
- keep the community informed of progress.

Once the Community Fisheries Management Plan is formally agreed to, the CBM workers of the supporting agency will maintain regular contact with the Fisheries Management Committee for two main purposes:

- to provide all the technical support agreed to under the Management Plan
- to support, encourage and strengthen the FMC itself.

As soon as possible after the launching of the management plan, the CBM workers could visit the FMC to help the FMC develop an *Action Plan*.

The **Action Plan** should be based on the undertakings outlined in the management plan but should specify which areas will be given priority attention and exactly who will be responsible. The CBM facilitator working with that community will be expected to report on the progress in implementing the Action Plan at each monthly CBM agency meeting (see next section and Appendix 6).

11.4 CBM agency meetings

To ensure that the CBM programme is carried out as planned, a review of progress in all communities involved in the program should be given at all CBM agency meetings.

A regular schedule of meetings should be decided upon by the supporting agency – usually a monthly meeting is useful to keep everyone up to date. If possible, meetings should be scheduled at a time when other field workers and relevant agency members can attend.

The main purposes of the meetings are to:

- review and assess progress of the past month. If tasks set during previous meetings have not been completed by the due date, the person(s) responsible should explain why.
- review Action Plans/Management Plans in all programme communities. Has the community progressed with its agreed undertakings? Has the supporting agency progressed with its agreed undertakings?
- set a plan for the coming month (see Appendix 6). All tasks set must include the name of the person(s) responsible and the completion date for the action.

11.5 Alternative income generation options

Whether community-based or not, fisheries conservation and management measures may cause a short-term decrease in catches. Coastal communities often depend heavily on seafood for income and food. Overfishing in some communities is often the result of the lack of other income opportunities. For community-based management to be successful in those communities it will be necessary for the CBM programme to include the promotion and development of alternative sources of income and seafood.

Alternative income earning options include:

- inshore fish aggregation device (FAD) deployments;
- bait fishing for the tuna longline fishery;
- village level aquaculture operations;
- aquarium fish operations;
- valued-added fish products;

- sports fishing; and
- ecotourism.

Inshore fish aggregation devices (FADs) and bait fishing
Encouraging fishers to capture pelagic species rather than inshore fish and invertebrate species can reduce fishing pressure on over-harvested reefs and lagoons. Various pelagic species found near inshore reefs and lagoons are known to aggregate (collect in large numbers) around inshore fish aggregating devices (FADs). These devices have proven to be very effective in reducing fishing effort on inshore fisheries resources. In Samoa, commercial inshore fishing activities were significantly reduced with the introduction of FADs in the 1970s.

As an alternative option for income, inshore FADs could be deployed in depths ranging from 20–100 meters in suitable areas near coastal communities involved in the CBM programme. Training could be conducted in various techniques to catch pelagic species known to aggregate around inshore FADs such as big-eye scad, trevallies and Spanish mackerel. Inshore FADs can be fabricated with inexpensive materials that can be found or purchased locally.

As part of the inshore FAD programme an exploratory project could also be implemented to test the potential of baitfish species for the tuna longline industry.

Village-level aquaculture
Village-level aquaculture is one way of ensuring that communities involved in CBM programmes continue to have a source of seafood and income. Aquaculture of food and non-food species can provide a small-scale business for the community. Village-level aquaculture can also be introduced to restock overfished species. Restocking sedentary species such as sea cucumbers, giant clams, trochus and green snails can be particularly successful. Some marine species may also be moved from an area of abundance to an area that has been overfished. These species may be kept in a marine reserve set up by the community

Aquarium fish trade
If the tropical aquarium fish trade is managed in a sustainable manner it could provide an alternative income to fishers in coastal communities. The negative side of the aquarium trade is the illegal use of cyanide by some collectors to stun tropical fish. This poisonous chemical kills smaller fish, irreparably harms corals, and is dangerous to divers. Many of the tropical fish species targeted for the aquarium trade are also territorial and very susceptible to overharvesting.

Fishers in coastal communities could be trained in sustainable methods for capturing aquarium fish. With further research there may be potential for grow-out of valuable aquarium species such as banded cleaner shrimp and juvenile painted lobster.

Value added fish products
Beche-de-mer processing is well-known to the fishers in Papua New Guinea. Beche-de-mer have been collected, boiled, slit, re-boiled, gutted, smoke-dried whole, bagged and then exported to Asian markets for about 100 years. In earlier times, European or Asian beche-de-mer merchants would use local labour to collect and process beche-de-mer. Now, local fishers sell their product to local buyers but the processing technique has not changed over time. The majority of fishers do not know the process for producing a high-quality beche-de-mer product, and therefore receive a low price for low-quality beche-de-mer.

With slightly more effort, beche-de-mer fishers can add value to their product. Rather than selling whole, uncleaned and dry beche-de-mer, fishers can process them and receive a higher price. Training in processing techniques to achieve a higher quality beche-de-mer product could be offered to interested fishers.

Eco-tourism

Eco-tourism can offer a way of providing income to coastal communities and can assist in financing the establishment of a conservation area. Eco-tourism, when properly planned and executed, can add value to the local community by supporting the local culture as well as protecting the environment. As a means of replacing marine resource exploitation coastal communities involved in the CBM program could implement marine-based eco-friendly tourism projects.

Potential eco-tourism opportunities include activity-based attractions and cultural attractions. Often two or more of these may be combined to give the tourist a more interesting experience.

Activity based attractions
- Scuba diving: Papua New Guinea is considered to be a top dive destination with excellent drift dives, the regular presence of large fish, schools of fish, sharks and turtles, the abundance of coral and marine biodiversity and the presence of WW2 relics.
- Scenic cruises: there may be potential for small-scale cruise operations.
- Guided river trips: the possibility of river access to inland areas.
- Game fishing development: the potential to establish commercial sports fishing (billfish, bonefish, bass, mackerel).
- Guided walks: village-based guided walks through mountain terrain.
- Speleology: limestone sinkholes and caves offer an array of opportunity for cave exploration and cave diving;

Cultural Attractions
- Malagan culture in New Ireland for example: the unique nature of Malagan culture and associated art is viewed as a significant potential tourist drawcard.
- Cultural heritage trails: the rich multi-cultural history of Papua New Guinea could be promoted with heritage trails.
- Historical sites: potential for tours and site visits to the abundance of historical sites associated with German and Japanese presence.
- Shark calling: promotion of traditional activities such as shark calling at Kontu.

To promote eco-tourism as an alternative income generation option the CBM agency could provide technical assistance to:
- Identify accessible marine biodiversity attractions with tourism development potential;
- Identify key infrastructure requirements to support eco-tourism;
- Identify priority eco-tourism development activities in sites that are managed by coastal communities involved in the CBM programme and document the necessary inputs required to facilitate activity development;
- Prepare preliminary environmental impact assessments in relation to each prioritised eco-tourism development activity;
- Identify technical training requirements to provide service and activities to eco-tourists;
- Identify information technology systems in communication, marketing and promotion for eco-tourism initiatives;
- Analyse the constraints to marine based eco-tourism development and consider possible ways to overcome constraints.

12   EVALUATION TECHNIQUES AND MEASURING SUCCESS

12.1   Review of fisheries management in participating communities

Throughout the implementation of the management plan, CBM workers should meet with FMC members at regular intervals to evaluate the results of management plans and agreements. More formal evaluations, such as the Joint Review (Appendix 8), can be carried out at prearranged times.

Communities should ask themselves whether they have made progress in implementing and achieving the goals of management plans and agreements. They should also ask themselves whether any conditions have changed, whether lessons have been learned from experience and whether the process is on the right track.

On the basis of discussions and more formal evaluations, the community can decide whether the management plan needs to be modified, and if so how and by whom.

12.2   Indicators for CBM success/failure

An *indicator* is a sign used to measure existing conditions or change in a particular area. For example, knowledge or lack of knowledge of the existence of a management plan in a community could be an *indicator* of the success or failure of the FMC to motivate and inform the community.

Surveys often ask a question or a number of questions that indirectly give information on a particular indicator. If, for example, a community member was asked "Is your FMC doing a good job?" the answers might be biased, based on what the person being questioned thinks the interviewer wants to hear, or on personal issues they may have with one or more FMC members. If, however, one asks a number of questions that indirectly give information on the FMC, the responses are more likely to contribute to a realistic picture of the situation. This is especially the case if the questions asked have only a yes/no answer, as in:

"Do you know whether this community has a fisheries management plan?"
"Do you know whether this community has a Fisheries Management Committee?"
"Are you aware of any community rules on fishing in this village?"

Some examples of indicators for CBM success
Knowledge and understanding about the CBM process, management plans, agreements, rules, about the CBM goals and schedule of events, about the management responsibilities assigned to members in the community.

Existence of regular means of exchanging information and distribution of management information (meetings, supporting agency visits to the community etc.)

Good relationship between the community and supporting agency – ease of communication.

Availability of CBM workers to assist during meetings and mediate conflicts

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Active participation of the community in the preparation and implementation of management plans – attendance at meetings, participation in discussions, willingness to take on responsibilities.

Existence of finalised community management plans.

Existence of CBM organisations (Drafting Team, Fisheries Management Committee etc.).

Degree to which community members keep to and comply with their agreed entitlements and responsibilities.
Some examples of indicators for CBM success (cont'd)

Degree to which community members are satisfied with the management plans and FMC.

Availability of competent people to clarify information in the plan and mediate in the event of conflicts during implementation of the plans and agreements.

Communities committed to and active in promoting political and legal changes to assist the implementation of management plans and agreements.

In time, plans and agreements are extended in both geographical scope and complexity, including increasing numbers of communities asking for assistance in initiating the CBM process in their area.

In time, the community management plans, agreements and organisations are progressively "institutionalised" in society – given more formal recognition by government, accepted as a valid and successful alternative to government management of local resources.

12.3 Conducting joint reviews

The joint review form is based on one used in Samoa (Appendix 8). The purpose of the review is to assist the Fisheries Management Committee in reviewing its performance and to make any necessary improvements.

The review aims to measure how effectively the Community Fisheries Management Plan has been used by the community, and how well the community has carried out its own undertakings. The review should also give the community a chance to comment on the performance of the government or NGO assistance with the CBM process, and whether they have carried out their undertakings as set out in the management plan.

The joint review is divided into five sections:

Community file information
This section should draw on information collected throughout the CBM process in the community and include assessments from other projects or visitors to the community.

Interview with FMC members
This section evaluates the performance, effectiveness and motivation of the FMC, and the effectiveness of the management plan. It should include a detailed examination of each undertaking set out in the management plan, including those undertakings agreed to by the supporting agency.

Interview with other community members
This section evaluates the effectiveness of both the plan and the FMC in raising community awareness and action.

Observations by CBM workers
This should include general observations on the state of the marine environment and any projects begun under the CBM programme (e.g. fish reserves).

Assessment of CBM supporting agency performance
This section is intended to give the FMC a chance to assess the performance of the supporting agency and to bring up any areas of concern.
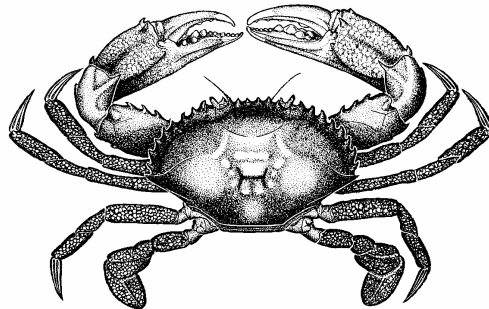
LIST OF WRITTEN RESOURCES

King, M.G. 2003. From mangroves to coral reefs: sea life and marine environments in Pacific Islands. South Pacific Regional Environment Program. Apia, Samoa.

King, M.G. and Lambeth, L. 2000. Fisheries management by communities: a manual on promoting the management of subsistence fisheries by Pacific Island communities. Secretariat of the Pacific Community, Noumea, New Caledonia.

Romero, F.G., Kadlecik, L., Alvarez, A.A. and Pratt, V.R., unknown publication date, CREST Coral reef education for students and teachers manual. International Marinelife Alliance – Philippines. Manila, Philippines.

USP/SPC 2001–2002. Community Fisheries Training Pacific Series 1–8. University of the South Pacific, Suva, Fiji; and Secretariat of the Pacific Community, Noumea, New Caledonia.

Watt, P. 2001. A manual for the co-management of commercial fisheries in the Pacific. Secretariat of the Pacific Community, Noumea, New Caledonia.
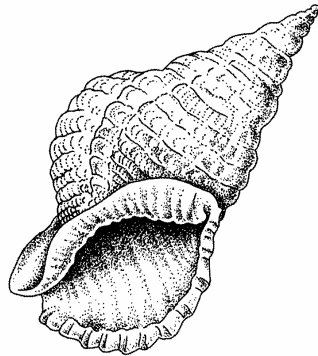
APPENDIX 1   EXAMPLE: CBM CHECKLIST

CHECKLIST for Community/Village of:

Name of CBM worker responsible for this community/area ---

Initial	Date	*CBM worker to enter initials when done:*
Informal	Information Sheet 1 given out?	[ ]
Contact	Assessment Sheet done?	[ ]
	Leader's approval to proceed?	[ ]
	First meeting date arranged?	[ ]
		Entered on Contact Register?

[   ]

	Date....................	Community decision - circle one > [Y] [N]
First Community	*If NO, no further action - delete from Register*	
Meeting	*If Yes:* File started in Office?	[ ]
	Information Sheet No. 1 given to members?	[ ]
	Management Plan (demonstration) discussed?	[ ]
	Group Meetings arranged?	[ ]
	Dates entered on Contact Register?	[ ]

GROUP
MEETINGS | Men's | Women's | Other [...............................]

	Men's	Women's	Other	
GM1: Date >	|..........................	|..........................	|..........................	Video viewed? [ ]
Facilitator >	|..........................	|..........................	|..........................	Info. Sheets given? [ ]
Recorder.>	|..........................	|..........................	|..........................	Main problem ID ? [ ]

After meeting: Set date for GM2 meeting > [..............................]

	Men's	Women's	Other	
GM2: Date >	|..........................	|..........................	|..........................	Video viewed? [ ]
Facilitator >	|..........................	|..........................	|..........................	Problem confirmed ? [ ]
Recorder.>	|..........................	|..........................	|..........................	Solutions identified? [ ]

                After meeting: Set date for DT meeting > [...............................]

----

3 Nominated	1)..........................	|..........................	|..............................
Representatives	2)..........................	|..........................	|..............................
for DT	3)..........................	|..........................	|..............................

Drafting Team (DT) - *Note- DT2 and/or 3 may be held in Head Office*

DT1 date >	|..........................	Summary Board recorded and filed? [ ]
Facilitator >	|..........................	List of participants recorded and filed ? [ ]
Recorder >	|..........................	

After meeting: Carry out a "stroll through" environmental survey with DT members.
                Discuss and agree on date for next DT meeting - date decided is   [.................]

DT2 date >	|.........................	Questionnaire completed and filed? [ ]
Facilitator >	|.........................	Most actions detailed? [ ]
Recorder >	|.........................	List of participants recorded and filed ? [ ]

After meeting: Agree on date for DT3 - date decided is   [.................].
Complete first draft of Management Plan.

DT3 date >	|.........................	Last of actions detailed ? [ ]
Facilitator >	|.........................	Map completed and filed ?[ ]
Recorder >	|.........................	List of participants recorded and filed ? [ ]
		Video viewed? [ ]

After meeting: Complete second draft Management Plan for DT approval on >   [.................]
If possible, confirm intended date for community presentation by DT >   [.................]

                    Community   Date ....
                    Approval of   *Names of key villagers at Meeting:*   ....
             Management Plan

                                                                  ....

   ....

   ....

   ....

                        Names of CBM workers at meeting

   ....

   ....

   ....

   ....

   ....

Plan agreed to? [YES] [NO] - if NO give explanation and/or requirements to proceed.

                    Launching   Date ....
                        of
             Management Plan

APPENDIX 2   INFORMATION SHEETS

EXAMPLE: Information Sheet 24: List of Titles Available

The following is a list of suggested subjects for information sheets to support the CBM process in PNG. If possible, information sheets should be printed in English on one side and Bislama on the other side. The list may be further developed as more issues are identified.

No. Date	Title	Authors	Tok Pisin	Eng
1. Nov 04	**Community Based Management**	PW, JA		
2. Nov 04	**Basic Marine Biology & Ecology**	JO		done
3. Nov 04	**Destructive Fishing Methods**	LPL		done
4.	**Fishery Rules and Regulations**			
5.	**Fish Reserves**			
6.	**What is Overfishing?**			
7.	**The Beche-de-Mer Fishery**			
8.	**Participatory Fisheries Management**			
9.	**Community-Based Fisheries Management**			
10.	**Marine Debris**			
11.	**Destruction to the Marine Environment**			
12.	**God and the Environment**			
13.	**Marine Resource Profiles**			
14.	**HIV/AIDS and the Fisheries Sector**			
15.	**Safety at Sea**			
16.	**Resource Enhancement**			
17. Nov 04	**Fish Aggregation Devices**	PW		done
18.	**Fishing and the Tourist Trade**			
19.	**NFA**			
20.	**Live Reef Fish Trade**			
21.	**Ciguatera Fish Poisoning**			
22.	**Spawning Aggregation Sites**			
23.	**Traditional Fishing and Management**			
24.	**List of Information Sheet Titles Available**			

Information Sheet 24, NFA Coastal Fisheries Management and Development Project. One of a series of radio programmes and information sheets produced in the interests of community awareness.

APPENDIX 3 COMMUNITY-BASED FISHERIES MANAGEMENT

INFORMATION SHEET No. 9

Fishing and the marine environment have always played an important role in the lifestyle and culture of people in the Pacific. Catches of seafood, fish, seaweed and shellfish from the lagoons and reefs have been declining in several island countries. Reasons for the decline of inshore catches include overfishing, use of more effective fishing methods, destructive fishing methods and environmental disturbances.

As fishers will often compete with each other to catch as many fish as possible there is a need for some kind of management to control their fishing activities and conserve fisheries resources.

In most Pacific island countries governments are responsible for making rules and regulations to manage inshore fish stocks. Often there is difficulty in enforcing these regulations as inshore fisheries involve a large number of fishers, many fishing techniques and small individual catches of a great variety of species.

Government enforcement is particularly difficult in countries such as Papua New Guinea that have large coastlines and many isolated islands. This combined with limited budgets, and staff makes management and enforcement beyond the capabilities of many governments.

Allowing communities to have some form of control over the management and enforcement of their fisheries resources is often the only way inshore fisheries can be successfully managed.

Fishing communities have knowledge based on their experience that can contribute towards more appropriate remedies and solutions to address marine resource management problems.

When a community takes the responsibility for making its own rules and enforcing those rules to manage its marine resources, this is called **"community-based fisheries management".**

In order for communities to manage their fisheries resources, they must have:

- an awareness of problems with the marine environment and fisheries resources;
- a concern for these problems and their effects on the community;
- a desire and willingness to take actions to address these problems;
- some traditional, legal or assumed control over their adjacent fishing areas;
- the power or organisation to make and enforce their own regulations

The types of inshore fisheries regulations and controls that may be imposed by communities to manage inshore fisheries resources include:

Limiting the number of fishers
Limiting the types of fishing gear
Banning destructive fishing
Closed areas and seasons
Minimum mesh sizes
Size limits
Rejection of females, or spawning females
Catch quotas
Protecting the marine environment

Regardless of national legislation and enforcement, the responsible management of fisheries resources will only be achieved when fishing communities themselves see it as their responsibility rather than that of the government

APPENDIX 4 "STROLL" THROUGH ENVIRONMENTAL ASSESSMENT

The "stroll through" environmental survey provides an opportunity for CBM workers and community DT members to jointly walk through the village examining and noting environmental features that have been discussed in meetings, or that should receive community attention. The purpose of the stroll through survey is to:

a) prompt community discussions of environmentally critical areas;
b) give CBM workers a practical grasp of areas discussed, and allow them to make best use of appropriate technical knowledge in meetings;
c) avoid wasting DT time on unrealistic options; and
d) provide background information for inclusion in the community management plan.

The stroll through involves the Facilitator and Recorder walking around the village with members of the DT after the first meeting. This could be initiated by the Facilitator saying "You have suggested several actions that involve particular areas in the village. Can you take us on a walk around the village so that we can see and discuss some of these places?" Remember, the purpose is to make an initial assessment of the likely success of a proposed action, NOT a detailed scientific assessment. In some cases, it will be necessary to suggest that research staff visit the village to make a more detailed assessment.

The following notes are meant to act as a guide to "where to look" and "what to ask" in some of the common areas of interest.

Erosion: If the community says that it has a problem with erosion, walk to the beach and ask to see the areas affected by erosion.

Has there been a recent increase in erosion?   [YES] [NO]
if yes, in which year was this increase first noticed?   [..................]
if yes, why do you think erosion has increased?

……

……..

……

What problems is erosion causing? ....

Closed Area: If the community is interested in establishing a closed area, ask to see the proposed area.

As you view the proposed area ask questions or check details on the following.
What is the approximate area (square metres) of the proposed Closed Area? [...................]

Does the proposed area include corals and/or reef? [YES] [NO]

Does the proposed area include mangroves? [YES] [NO]
If the area contains just bare sand or rubble, point out that this may not be a
worthwhile place to have a Closed Area. Suggest looking at other areas?

Others features, effects, etc: During your stroll you may have noticed other things in the village that are worth suggesting to the committee as a topic for discussion. For example: Has sand been removed? Are mangroves being threatened? Is marine debris a big problem? Are there freshwater springs on the beach and are they used for washing (people may be unaware of the effects of detergents and bleach on the marine environment)? Are there environmental factors elsewhere impacting on the reef (logging for example)?

APPENDIX 5   BASELINE QUESTIONNAIRE

VILLAGE .... DATE .... FACILITATOR ....

GROUP ....(DT?).............................. NUMBER IN GROUP ....

> *Note: The group should decide on the correct answers to the questions on this page. The facilitator should **EITHER** enter an exact number **OR** circle range **OR** circle yes or no.*

GENERAL

How many people are there in this village? [   ]
0–100   100–200   200–300   300–400   400–500   500–600   600–700   >700

How many schools are there in this village? Primary? [   ] Secondary? [   ]

How many churches in each denomination are there in this village?
Catholic (..........); Lutheran (..........); Presbyterian (..........); Methodist (..........); Protestant (..........);
Anglican (..........); 7th Day Adventist (..........); Jehovah Witness (..........);
Other (..........);

How long is the reef in front of the village? [   ] metres

What is the average distance from the shore to the reef? [   ] metres
----

FISHING
Complete the table below by asking these questions in the given order:

Fish:
What are the 5 most commonly caught fish in this village? Record these in the first column of the table.
For *each* of these 5 ask: **1**. What method is most often used to catch this fish?

Invertebrates (e.g. shellfish, sea cucumbers, crabs, etc.):
What are the 5 most common invertebrates in the catch of the whole village? Record these in the first column of the table.

For *each* of these 5 ask: **1**. What method is most often used to catch these?

Type of Fish/invertebrates	Method used
fish:	
1	
2	
3	
4	
5	
invertebrates:	
1	
2	
3	
4	
5	

How many MEN in the village go fishing/reef gleaning on more than one day a week? [   ]

| 0–5 | 5–10 | 10–15 | 15–20 | 20–40 | 40–60 | 60–80 | >80 |

How many WOMEN in the village go fishing/reef gleaning on more than one day a week? [   ]

| 0–5 | 5–10 | 10–15 | 15–20 | 20–40 | 40–60 | 60–80 | >80 |

How many people go fishing outside the reef on at least one day a week? [   ]

| 0 | 1–5 | 6–10 | 11–15 | 16–20 | 21–25 | 26–30 | >30 |

How many canoes are used for fishing in the village? [   ]
How many motor boats are used for fishing in the village? [   ]
Are outsiders allowed to fish in the village area?   [YES]   [NO]

What other fishing methods (other than those listed in the table above) are used by people in this village?

....
.....

....
.....

....
.....

Lobsters - Do people in the village catch lobsters? [YES]   [NO]
If yes, how many hours does it take a good fisher to catch 5 lobsters? [   ]

Mangrove crabs - Do people in the village catch mangrove crabs?   [YES]   [NO]
If yes, how many hours does it take a good fisher to catch 5 crabs? [   ]

Other crabs - Do people in the village catch other types of crabs? [YES]   [NO]
If yes, how many hours does it take a good fisher to catch 5 crabs? [   ]

Sea cucumbers - Do people in the village catch sea cucumbers? [YES]   [NO]
If yes, how many hours does it take a good fisher to catch 5 sea cucumbers? [   ]

Turtles - Do people in the village catch turtles?   [YES]   [NO]
If yes, how many hours does it take a good fisherman to catch 1 turtle? [   ]

IMPORTANT AREAS
NOTE: If the group is having difficulty estimating the area for these questions, get them to point it out to you in the STROLL THROUGH SURVEY so you can help their estimation.

Mangroves: What is the approximate area (square metres) covered by mangroves? [   ]

| <100 | 100–200 | 200–300 | 300–400 | 400–500 | 600–700 | >700 |

Corals: What is the approximate area (square metres) covered by live corals? [   ]

| <100 | 100–200 | 200–300 | 300–400 | 400–500 | 600–700 | >700 |

SPECIAL NOTE FOR NEXT 2 QUESTIONS: We need to find out if they have seagrass and/or algae. If the group aren't aware of the difference, get them to describe what they mean and point it out to you in the STROLL THRU.

Seagrass: What is the approximate area (square metres) covered by seagrass? [   ]

| <100 | 100–200 | 200–300 | 300–400 | 400–500 | 600–700 | >700 |

Algae: Is there any algae in the waters in front of the village?   [YES]   [NO]
       If yes, circle a) b) or c) to complete the following sentence:
       "There is a :   a) VERY SMALL   b) FAIR BIT   C) LARGE
        amount of algae."

APPENDIX 6   NIP CBM PROGRAMME EXAMPLE TARGET AREAS/VILLAGES, 2005

Note: *This plan is provisional. As the CBM programme is demand-based it will be introduced selectively in those communities that demonstrate concern for the marine resources by actively seeking to participate.*

| **COMMUNITY** | **COMMENTS** | **SCHEDULE** |

----

note: these are examples only and do not indicate villages to work in or schedules to be kept.

Community	Comments	J	F	M	A	M	J	J	A	S	O	N	D
Tigak (Igua & Roselyn)													
Enuk	already approached office		O	O	O	O		O					
Nonovaul	problems with destructive fishing				O	O	O	O					
?									O	O	O	O	O	O
New Hanover (Aini & Jerry)													
Taskul	important nursery area				O	O	O	O	O				
Tsioboto							O	O	O	O	O		
?							O	O	O	O	O	O	O
Namatanai District (Roselyn & Jerry)													
?	deepwater bay			O	O	O	O						
?						O	O	O	O	O		
?								O	O	O	O	O	O
Lihir (Aini & Igua)													
?	concern over fish stocks		O	O	O	O	O						
?					O	O	O	O	O	O		
?							O	O	O	O	O	O	O

CBM Workers

	John Aini, team leader
	John Igua
	Jerry Sigelogo
	Roselyn Koi
CFMDP Staff:	Lyn Lambeth, Peter Watt

APPENDIX 7   NIP CBM PROGRAMME EXAMPLE PLANNING CALENDAR, APRIL 2005

Planning Meeting for 1.30 pm Monday 21 March 2005 Updated 17 April

21. MON	1.30 pm - Monthly CBM Planning Meeting	
22. TUE		
23. WED		
24. THU		
25. FRI	**GOOD FRIDAY**	
26. **SAT**	**EASTER**	
27. **SUN**	**EASTER**	
28. MON	**EASTER MONDAY**	
29. TUE		
30. WED		
31. THU		
APRIL		
1. FRI		
2. **SAT**		
3. **SUN**		
4. MON	Group Meeting for Enuk	Initial contact for Nonovaul
5. TUE		
6. WED		
7. THU	Initial contact for Taskul	
8. FRI		
9. **SAT**		
10. **SUN**		
11. MON		
12. TUE		
13. WED		
14. THU		
15. FRI		
16. **SAT**		
17. **SUN**		
18. MON		
19. TUE		
20. WED		
21. THU		
22. FRI		
23. **SAT**		
24. **SUN**		
25. MON	1.30 pm - Monthly CBM Planning Meeting	
26. TUE		
27. WED		
28. THU		
29. FRI		
30. **SAT**		

TASKS (new ones in Bold)	*WHAT DONE?*	*BY WHOM?*	*BY WHEN?*
CBM Manual	Final copies	LPL/PW	April 2005
Information Sheets -	next 4 translated	VK/ET	April 2005

APPENDIX 8   SIX MONTHLY MANAGEMENT PLAN JOINT REVIEW

COMMUNITY: .... **STAFF:** ....DATE(S): ....

PURPOSE
1) Assist the Fisheries Management Committee (FMC) in reviewing its performance and to make any necessary improvements; and 2) Measure how effectively a Fisheries Management Plan has been used by the community, and how well the community has carried out its own undertakings.

TIMING
The Joint Review should take place about six months after the Management Plan is approved, at a time proposed by the community (and preferably recorded in the Management Plan).

PARTICIPANTS
FMC members and two CBM workers from that area.

OBTAINING COMMITMENT
The timing of the review should be discussed and agreed to at the DT 3 stage, then written as an undertaking in the management plan, and approved at the final Community Meeting. In the undertaking, there should be a commitment to present the findings of the review to the community in about six months' time.

PREPARATION
After the plan has been approved at the final meeting, frequently remind FMC members that the community will be expecting a detailed performance report in 2 months time. About five months after the plan has been approved, ask the FMC on which day they want to conduct the review.

PROCEDURE
Before going to the village *a) collect relevant information from the community file.* Then go to the village and *b) interview FMC members as a group.* Then *c) interview other people in the village,* and *d) make your own observations.* The following form should be used to record the information collected.

A) COMMUNITY FILE INFORMATION
Check the file for that community, talk to other people who may be involved in activities in that community.

If the village has a Closed Areae, do research records show that the community has shown good care by;
     Cooperating/participating in surveys? [very good] [good] [average] [poor] [very poor]

B) INTERVIEW WITH FMC MEMBERS
On the day of the Review, meet with the FMC members to discuss the review. Suggest that the process should be as honest/unbiased and thorough as possible and that it would be desirable, for example, to interview a range of villagers not involved in the FMC. (*Note: Because the village must consider this review as their own, CBM workers must be very open in their investigation and avoid being seen as some form of policeman. No investigation should be made by CBM workers without the full knowledge of the FMC*).

     How many people were on the FMC originally? .... people.
     How many people are on the FMC now? .... people.
     If people have left the FMC, why is this?...
What additional activities have the FMC undertaken other than those in the management plan?

....

....

In the last three months;

     How many times has the FMC held meetings? .... times.
     On average, how many people attend each FMC meeting? .... people.
     How many times have meetings been held with other people in the village? .... times
     How many times has the FMC reported to the community? .... times

Examine each undertaking one by one

1. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months?.......people

2. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

3. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

4. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

5. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

6. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

7. UNDERTAKING ....
     How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

8. UNDERTAKING ....
How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

9. UNDERTAKING ....
How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

10. UNDERTAKING ....
How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

11. UNDERTAKING ....
How well has the undertaking been carried out? [very well] [well] [not well] [very poorly]
If the undertaking involves a law or regulation, answer the following questions;
How many people from this village have broken this law in the last 3 months? .... people
How many people from other villages have broken this law in the last 3 months? ....people
How many people had to pay a penalty for breaking this law in the last 3 months? ....people

----
What more could the community/FMC/government/NGO be doing to protect the fish stocks and its marine environment?
....
....
....
....

Only when the FMC members have exhausted their suggestions, CBM workers should then advise that based on their work in other villages, there may be one or two other matters to look at to ensure that the review is a thorough one.

C) INTERVIEW WITH OTHER VILLAGERS

Choose about 10 adults (not FMC members) at random. Number interviewed .... people.
Out of THOSE PEOPLE YOU INTERVIEWED;
How many know that this village has a Fisheries Management Plan? .... people
How many have seen the Fisheries Management Plan? .... people
How many know the name of at least one of the FMC members? .... people
How many think that having a Fisheries Management Plan is good? .... people
What more could the Community/FMC/government/NGO be doing to protect its fish stock and its marine environment?
....
....
....
....

D) OBSERVATIONS BY CBM WORKERS
Is the seashore under good care (eg no rubbish)? [very good] [good] [average] [poor] [very poor]
What was the interest shown by the FMC to this survey? [very good] [good] [average] [poor] [very poor]
If the community has a Closed Area;
Are the marking poles upright and in good condition?
[very good] [good] [average] [poor] [very poor]

E) ASSESSMENT OF CBM SUPPORTING AGENCY PERFORMANCE
Explain that this is a joint review, and FMC members must have the right to comment on the performance of the CBM supporting agency. Encourage members to be honest in their comments, and to highlight any areas where CBM support should be improved.