Tanzania Coastal Management Partnership

Toolkit for Coastal Tourism:

Coastal and Marine Environment Training Modules

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Facilitator's Manual
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Objective

The objective of this extension package is to enhance critical awareness of environmental issues thereby establishing a community based coastal and marine environment management system. This can be realized through:

- Clarification of concept, scope and components of coastal and marine environment emphasizing the bio-physical interrelations between these components;
- Identification of local environmental issues in relation to the overall degradation processes of the coastal and marine environment;
- Discussion of the legal framework affecting the coastal and marine environment;
- Identification of goals and areas for action in managing resources and
- Identification of coastal areas based livelihood options.

Manual User

This manual is for District Teams, technical staff and other development partners conducting community training on coastal and marine environment. The user however would first need orientation training on the proper usage of the methods and processes suggested in this document.

Package Design

This package was developed through technical inputs of various partners. Much of the processes were conceptualized and developed during a series of environment workshops conducted by TCMP working groups.
The modules are as follows:

- **Module One** is a session exploring the interrelation and interdependence of the different system of the environment.
- **Module Two** is a session examining the different ecosystems of the coastal and marine environment
- **Module Three** is a session examining local coastal resources and its related issues
- **Module four** is a session in identifying courses for action in improving the coastal and marine environment.
- **Module Five** is a discussion on different legal issues facing coastal communities.
- **Module Six** is a discussion on different livelihood opportunities within the coastal and marine environment.

How to use this manual

These modules are conducted overtime. Each module may be conducted during the community gatherings or meetings. Each module may last for 2-3 hours.

The implementation of each module is on a phase by phase basis. This package is a guide on starting community discussions and planning on sustainable management of its resources.

This manual is supported by communication support materials to be used in specific modules.

Module one: Environment as a system

Objective

The participants will be able to understand the concept of environment as a system. This module also serves as mood setting activity.

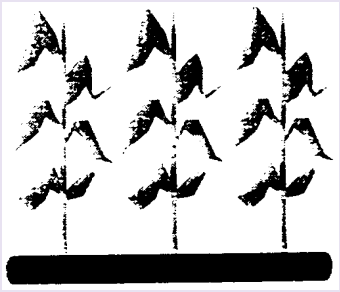
Method

The methodologies used in this session are role-playing and facilitate discussion. For the game, the facilitator should need a 10-meter rope, cards and scissors.

Instructions

1. Ask for volunteers from the participants *(minimum of 5, maximum 10).*
2. Explain to the volunteers that you will be having role playing on how the environment works.
3. Assign a name to each participant. Suggested names are fish, mangrove, forest tree, water, air, sun, bird, soil, insect, corals.
4. The volunteers should wear their assigned “names” in a nametag.
5. Have both ends of the 10-meter rope tied together hereby forming a loop.
6. Instruct the volunteers to take hold of the rope. Ask them to change places without letting go of the rope. This move would form a “web”.
7. Ask the volunteers to turn their backs from each other then pull on the rope as hard as they can.
8. Explain that this is how the environment works. Each component, living and non-living are dependent with each other. This is the web of life.
9. With a pair of scissors, secretly cut a certain portion of the rope. This will cause the rope to slacken and the volunteers to get themselves disorganized.

10. Ask:



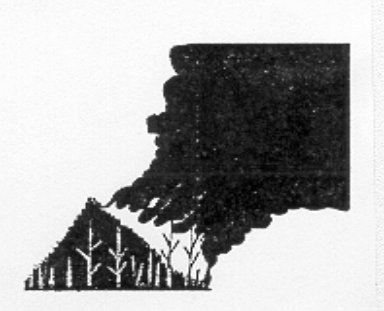
- Before the rope was cut, what was the situation?
- Why?
- What happened when the rope was cut?
- Why?
- Coral reef ecosystem

11. Explain that this also how the environment will work if one system is destroyed, damage or altered. The disturbance will cause imbalances in nature with the varying effects. For instance, a loss in corals will result in loss of certain species of fish which in turn will threaten the food supply of man.

12. Solicit additional examples from the participants which will illustrate the dependence of a system with other systems or examples of effects when one system is disturbed. Let the participants discuss their ides on this matter.

13. Ask the participants what is the role of Tao in the whole nature system. Is the Tao ruler (manager) of nature or is Tao only a part of nature?

14. Divide the participants into two groups. One group to discuss among themselves the idea that Tao is the ruler of nature while the other group will discuss that Tao is only a part of nature.



15. Let each group present their ideas. Encourage comments from the opposing group.

16. Summarize the discussion by explaining that Tao is a ruler of nature because of his higher intellect he can manipulate nature of suit his own needs to survive. Examples of this are tilling of land for crop production, diversion of the flow of water for irrigation, fish production through culture and fishponds, etc. However looking at its entirety, Tao is only a part of nature because his/her survival depends on the gifts that nature provides. These gifts are what we know as natural resources.

17. Explain that the next session will cover the coastal and marine ecosystem. Hopefully, by the end of training session, the community would have greater appreciation of the environment and will be able to identify courses of actions to protect it.

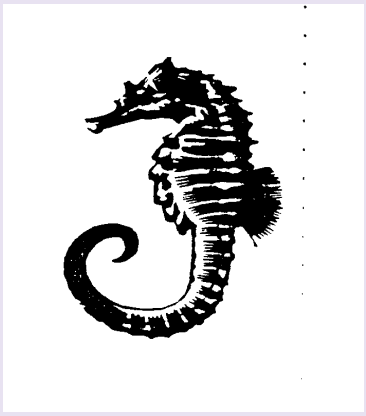
Assignments for next session

Divide the participants into 5 groups. Instruct each group to draw on a Manila paper what will happen (in relation to coastal and marine environment) if:

- group 1- there are no more shellfish
- group 2- no more trees in the uplands
- group 3- use of excessive pesticides continue
- group 4- no more blast fishing
- group 5- mangrove area is reforested

Module Two: The Coastal and Marine Environment

Objective



The participants will be able to define the scope of a coastal zone, its components and the interrelations of each component.

Method

The methodologies to be used in this session are discussion and field observation. A short field walk with the participants along the shore and landward areas in close proximity to the shore is recommended.

Instructions

1. Ask the participants to represent their assignment.

2. Recap the topic discussed in the previous session. Explain that from the overall environment you will now take a look into the smaller environment focusing only on within the boundaries of the community.

3. Organize the participants into the groups. Instruct one group to draw a transect map of their community. Not all the objects they see within the straight line traversing the community. Instruct the other group to draw a community map including the coastal resources, coastal infrastructure and fishing grounds. Let the participants present and explain their out put.

4. Point out the 3 coastal ecosystems in both maps namely the mangrove seagrass and coral reef ecosystems.

5. Explain that a coastal zone is composed of areas within a landward limit of 1 kilometer from the shoreline to include mangrove swamps, brackish water ponds, nipa swamps, estuarine rivers, sandy beaches, and other areas reached by tides, as well as those areas within a seaward limit of 200 meters isolated to includ coral reefs, algae flats, seagrass beds and soft bottom travelable areas.

6. Divide the participants into three groups. Assign an ecosystem to each group namely mangrove, seagrass and reef ecosystem.

7. Ask each group to discuss among themselves what are the plants and animal species that can be seen or living within each ecosystem. Let the participants draw the different living species found in a particular ecosystem.

8. Ask the participants to represent the output of their discussion. Include also in their presentation the uses of each plant and animal to the: a) ecosystem & b) man.

9. Encourage comments, reaction and addition information from the other groups.
Lead discussion to conclude that the community's livelihood is dependent upon the bounties of the sea.

10. Summarize the presentation by explaining that these systems are resources upon which the survival of man and other living species depend.

Assignment for next session

Divide the participants into 3 groups. Explain that you will be having a Contest. Ask each group to compose a skit (other options: song, poem) on coastal and marine environment which they will perform next session. Remind the groups that all members should participate.

For the facilitator:

- Choose judges from the community
- Judging should be based on the environmental message
- The presentation may be videotaped to encourage enthusiasm

1. Mangrove ecosystem

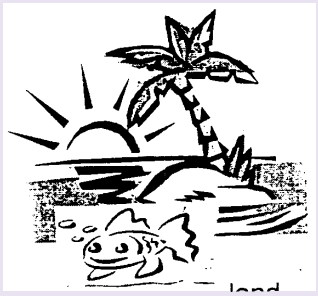
Description

Mangrove ecosystem is a complex community of coastal trees, shrubs, vine and palms. This thrives within coves bays, tidal flats and estuaries. This often extends many kilometers inland growing along rivers and streams where the water is brackish.

Importance

- Mangrove ecosystem plays a very important role in the survival of marine life. It provides food and shelter to a large number of fishes and shellfish. Mangrove areas rich in organic material coming from mangrove trees and are deposited in the substrate with the sediments. Different animal species feed on these organic materials. Examples of these are oysters, barnacles, mussels and other zooplanktons. Numerous predators are attracted to this environment such as birds, fish, crabs, shrimps and other crustaceans and marine worms. As such, the mangrove ecosystem is a critical part in the completion of the food cycle.

- Mangrove roots serve as shelter for commercially important fishes and shellfish in their juvenile stages. Examples of these are siganid and bangus. A wide variety of wildlife such as birds and invertebrates also seek shelter among mangrove forests.



- Mangroves are especially important in coastal protection during storms and strong winds. The trees act as windbreakers and wave barriers during sudden surges in wind and waves.

- Sedimentation associated with soil erosion causes the degradation of coral reefs. Mangroves put in control sedimentation, soil erosion and beach scouring. It also traps coastal pollutants, which may damage the marine ecosystem.

- Mangroves act as land builders. Sediments coming from in land get trapped in the dense roots of the mangrove. The accumulation of trapped sediments will build up the land.

- Mangroves provide man with wood, fuel, building materials such as palms and timber, medicine and livestock supplements.

Source: Basic Concepts in Agriculture ad Natural Resources: A Technology Information Kit. Published by International Institute for Rural Reconstruction

2. Seagrass ecosystem

Description

Seagrasses are plants thriving under water found along the coastal usually between mangrove areas and coral reefs.

Importance

- Seagrasses are source of food to many life forms. It is eaten by fishes, sea urchins and birds graze on it when it is during its exposure at low tide.

- Like mangroves, it is a shelter to fishes and shellfish. It is a spawning, nursery and feeding grounds of fishes, shrimps and other marine animals. To some organisms, the canopy provided by the seagrasses is a protection against strong sunlight and temperature. Sea snakes and turtles are also known to take shelter in seagrass beds.

- Seagrasses provide high concentration of oxygen in the water brought about by photosynthetic activity of these plants.

- It helps in stabilizing the sea bottom or substrate. Its dense vegetation traps sediments from land which may otherwise be harmful to corals.

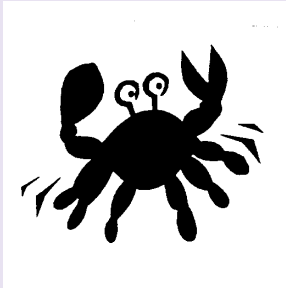
- There are several varieties of seagrasses, which are harvested for food by man. Common names for these seagrasses are *lato* and *guso*. Gelatin is also derived from *guso*.

- Seagrasses are also used as fertilizer and fodder for livestock.

Source: Basic Concepts in Agriculture and Natural Resources: A Technology Information Kit. Published by International for Rural Reconstruction

3. Coral reef ecosystem

Description



Coral reefs are shallow water marine ecosystem found in the tropics. Coral reef ecosystem is composed of a collection of wide variety of plants and animals. Deposits of calcium carbonate give it a stony oftentimes-rough appearance. However, it is a living, dynamic and complex collection of marine organisms including those not seen by the naked eye.

Importance

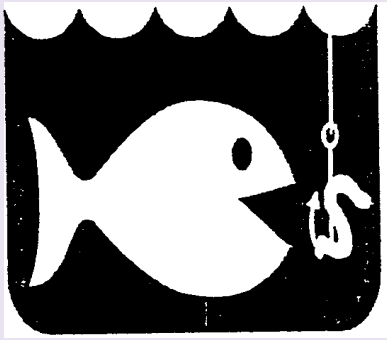
- Coral reef is home to thousands of species of corals, fish and shellfish including jellyfish, clams, oysters, soft and hard corals, marine plants, sea cucumbers, sea urchins, starfish, seahorse and other invertebrates. It is a place where marine organisms abound to spawn, feed, seek shelter and protection. It is so productive that researches show that about 20 or more tons of fish per year can be harvested per square kilometer of coral reef.

- Aside from being a key ecosystem where the fragile marine environment depends upon, coral reef also act as natural wave breakers. It protects the coastal communities from heavy wave surges brought about by typhoons and strong winds.

- In summary, coral reefs are more than beautiful structures admired by snorkelers, divers and tourists. Their stony ramparts serves as storm barriers that protect shorelines and provide boats with safe harbor. Their nooks and crannies accommodate fish and shell-fish that are important sources of food for millions of people. And like the tropical forest, to which they are frequently compared, reefs are vast biological repositories as yet untapped for medicinal and industrial uses.

Source: Basic Concepts in Agriculture and Natural Resources: A Technology Information Kit. Published by International Institute for Rural Reconstruction

Module Three: Assessing the Coastal and Marine Environment



Objective

This module aims to assess the coastal and marine resources of the locality and identify issues affecting it.

Instructions

1. Let the participants present their assignment output.

2. Recap the topics discussed during the previous session.

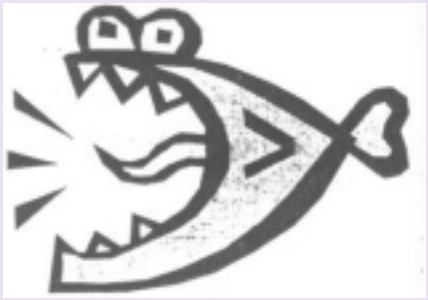
3. Divide the participants into three groups according the three coastal ecosystems.

4. Ask the groups:
- What are the actual resources found in your assigned ecosystem?
- What is the present condition of these resources?
- What was its condition before (20 years ago)?
- How do you utilize these resources?
- What are the issues affecting these resources?

5. Let the participants respond to each question using this matrix:

Resource	Previous Status	Current Status	Use	Issues

Note that coastal and marine resources are divided into two classifications: the ***marine support system*** to include mangroves, seagrass beds and coral reef formations and coastal and ***marine life*** to include fish species, shells, crustaceans and other marine animals.

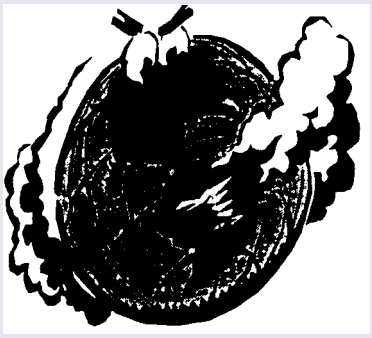


6. Let the group present and explain their output.

7. Summarize the result of the discussion by asking:

- What are the main issues you have encountered?
- How would you rate your marine environment: good, fair or bad?
- Would you like to improve the state of your coastal and marine resources?

8. Cluster issues according to institutional, economic and bio-physical.



9. Facilitate **photo interpretation**.

10. Point out that there are several factors and issues that affect the condition of these resources. The things that they have mentioned are only some of those factors. Cite other instances or issues, which seriously affect the well being of the coastal and marine resources.

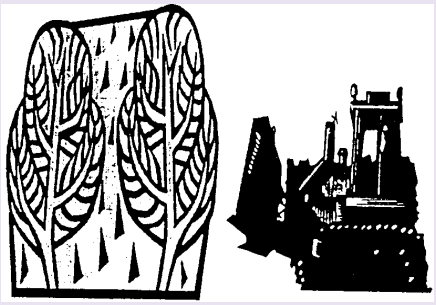
11. Sum up the discussion by stressing that the first step towards an effective coastal resources management is to know the state of your environment first and its related issues.

12. Remind that the participants that the next session is the formulation of a plan to manage the coastal and marine resources.

Assignment

Ask the members of each ecosystem group to collect unused /discarded materials found in the coastal area. This may include garbage, used nets and fishing implements, etc. Ask the groups to exercise their creativity and skills by making something useful out of these materials. These "something" might be decorative products, equipment, tools, etc. The products will be judged according to its usefulness and creativity.

Reference



Problems encountered in mangrove ecosystem

- Over exploitation by man through massive mangrove logging.
- Reclamation for human shelter and commercial use.
- Conversion of mangrove forests into fishponds and salt beds.
- Mining such as sand gravel extraction.

Problems encountered in seagrass ecosystem

Activities of man is by far the most destructive of the seagrass ecosystem:

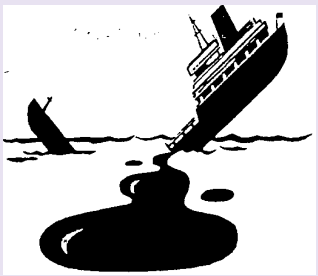
- Blast fishing
- Near shore trawling
- Dredging

Extreme sedimentation and pollution from land destroys the seagrass ecosystem. It is known that once seagrass beds are destroyed, it is very difficult to restore its original state.

Problems encountered in the coral reef ecosystem

Most of the damage done to coral reef areas is man – made:

- Sedimentation coming from man such as deforestation, unsound agricultural practices and mangrove logging.
- Conversion of coral reef areas by reclamation for housing and commercial purposes.
- Coral extraction for construction materials and decoration.
- Damage by anchors caused by inshore fishermen.

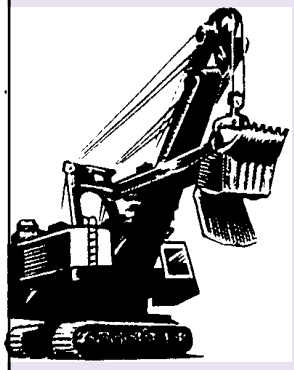


Source: Basic Concepts in Agriculture and Natural Resources: A Technology Information Kit. Published by International Institute for Rural Reconstruction

- Destructive fishing practices such as blast fishing, trawling, poison fishing, use of small mesh nets and traps.

- Pollution brought about by industrial and domestic wastes being dumped into the sea.

- It was known that once a coral reef is damaged it will take years to regenerate. Experience by fishers show that damaged corals result in low fish catch.



The sea is the receiving area of all wastes coming from land carried by the rivers. Common pollutants carried by the rivers are chemicals such as pesticides from farmlands, heavy metals from mining, soap tailings and other domestic wastes. Generally speaking, pollution is a common threat facing coastal and marine ecosystems.

Source: Basic Concepts in Agriculture and Natural Resources: A Technology Information Kit. Published by International Institute for Rural Reconstruction

Module Four: Identifying Actions for Coastal and Marine Environment

Objectives

At the end of the session, the participants must be able to identify goals and plan actions that will respond to coastal and marine environment issues at the community level.

Methodology

The methodologies used in this session are group discussion, workshop and facilitated discussion.

Instructions

1. Ask the three groups to present the assignment given them during the previous session. Process. Recap also the topics discussed.

2. Facilitate Stakeholder Analysis. Ask the participants to list all the agencies, offices and personages that extend influence and assistance to the community. State the kind of assistance such groups and persons extend. Indicate if that group/person is an active provider of service or passive. Set aside the output.

Option: Use a Venn Diagram exercise.

3. Facilitate a community visioning exercise. Emphasis should be placed on the community's vision of their coastal and marine environment, "how would you envision your coastal and marine environment in the future or 5 years from now?"

4. Ask the participants to compare the community vision to that of the present situation. Use the community vision illustration in identifying marine and coastal resources related goals.

5. Ask: If these are the goals, what are the issues and problems that obstruct the achievement of the goals.

Refer the participants back to the marine resource assessment matrix and draw out the issues identified. Facilitate the clustering of similar coastal resource issues and problems.

6. Refer the participants back to the marine resource assessment matrix and draw out the issues identified. Facilitate the clustering of similar coastal resource issues and problems.

7. Proceed by dividing the group according to the cluster of issues and problems.

8. Ask the group to identify solutions that will address the problems. Potential partners* of the implementation and timeframe.

**Refer to the Stakeholder Analysis or Venn Diagram exercise in identifying potential partners.*

9. Ask the groups to present their out puts . Encourage comments and suggestions from the participants.

10. After the presentation, ask the participants whether these actions that were identified lead to the realization of the identified goals.

11. Ask if the identified goals and actions are embodied in the Community Development Plan. Use the CDP as reference.

12. Ask whether they want the formulated plan it to be integrated in the CDP or do they want their plan to be separate from the CDP if the issues confronting the community are complicated and cover a wider area of concerns.

13 Wrap up the session by summarizing the proceedings of the planning and its output. Stress that what is needed now is the implementation of these plans according to priorities.

For the following:

The facilitator should check the community environment plan made by the community periodically every time there are community gatherings, meetings and activities.

Module Five: Rules and Regulations Governing the Coastal and Marine Environment

Objectives

At the end of the session, the participants must be able to identify goals and plan actions that will respond to coastal and marine environment issues at the community level.

Methodology

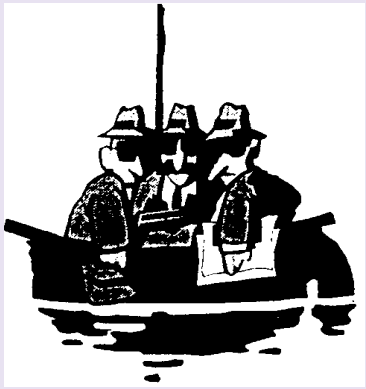
The methodologies used in this session are group discussion, workshop and facilitated discussion.

Instructions

1. Ask the three group to prevent the assignment given them during the previous session. Process. Recap also the topics discussed.

2. Facilitate Stakeholder Analysis. Ask the participants to list all the agencies, offices and personages that extend influence and assistance to the community. State the kind of assistance such groups and persons extend. Indicate if that group/person is an active provider of service or passive. Set aside the output.

Option: Use a Venn Diagram exercise.



3. Facilitate a community visioning exercise. Emphasis should be placed on the community's vision of their coastal and marine environment, "how would you envision your coastal and marine environment in the future or 5 years from now?"

4. Ask the participants to compare the community vision to that of the present situation. Use the community vision illustration in identifying marine and coastal resources related goals.

5. Ask: If these are the goals, what are the issues and problems that obstruct the achievement of the goals.

Refer the participants back to the marine resource assessment matrix and draw out the issues identified. Facilitate the clustering of similar coastal resource issues and problems.

6. Discuss with the community the different laws affecting marine and coastal resources. ***Use as reference the local laws and pertinent national laws***. In as much as this book covers very wide area of concerns limit only the inputs to the concerns and question a raised by the community.

7. Draw out suggestions on how to promote the enforcement of the fishery laws in the community. The suggestion may vary in degree of responsibility. Some suggestion may be double within the community but some may be at the level at the municipal LGU and its agencies. Nevertheless, list these suggestions down.

Summarize the session and remind the participants that additional queries on some legal issues can be discussed in future community gatherings.

Module Six: Coastal and Marine Environment Livelihood Options

Objective

At the end of the session the participants will be able to identify different livelihood options which they can go into. These options can be Micro Project topics thus, this session might result into specific MP proposals.

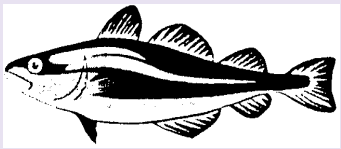
Methodology

The methodology used in this session is facilitated discussion and technical inputs. The technical inputs are in relation to the SMISLE – IIRR publication on livelihood options for coastal communities.

Note: before going into this module make certain that the community expressed interest that they want to go into coastal and marine based livelihood activities as embodied in their CDP.

Instructions

1. Ask what is the main importance or use of coastal and marine resources to the community. Lead responses to identify that the resources of the sea are a source of livelihood for them.



2. Ask if there are other ways of drawing livelihood from the sea aside from the traditional fishing activities. List the responses. Responses may be classified into aquaculture, capture fisheries and land based activities.

3. Present the different livelihood options which the community can adopt. Use the manual on livelihood options for coastal communities in discussing this area.

4. From the list derived from the community, the manual and your personal expertise, facilitate a prioritization on which project to undertake first. Consider the following factors: Suitability to the area, coast and benefit radio including the economic returns and number of community members that will be benefited, and most importantly community acceptability of the project.

5. Ensure the prioritized projects are a result of community consensus not by the dictate of the technical specialist or AT.

Proceed to action planning for the first project. ***Use the MPPO module of the SSDP Manual for instructions.***

6. Proceed to action planning for the first project. **Use the MPPO module of the SSDP Manual for instructions.**

7. Wrap up the session by summarizing the plans and agreements made and assure the community that you will them informed on the progress of the pre implementation activities.