



TOOL 11b

ASSESSMENT AND UTILISATION OF BLUE CARBON ECOSYSTEM PRODUCTS AND AREAS





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What is the **purpose** of assessment and utilisation of blue carbon ecosystem products?

- To identify local knowledge and preferences for utilising different products and areas of blue carbon ecosystems (BCEs), namely mangrove forest and seagrass meadows, when these areas are to be managed as a community-managed resource.
- To assess and map historic trends, resource use and perspectives on alternative natural resource options.
- To identify relevant project interventions and activities for BCE management.

Plan Vivo Carbon Standard (PV Climate) **requirement?**

- Although this is not a requirement, this tool is highly recommended for all projects that involve interventions that impact access to or use of space or resources in or from BCEs.

When to use this tool?

- This is a tool to get information that will be included in the land management plan part of the PDD (which will also include management of marine areas).
- Normally this tool should be used after a Participatory Resource map (Tool 9) has already been completed. Use of Tool 10, Social Mapping, is also strongly encouraged as a precursor to this tool.

Why is this tool required?

This is a tool that has multiple uses. It will provide a picture of how the community perceive and interact with space and resources in and from BCEs – for example, which areas are used as fishing grounds, anchorages or for timber extraction. It can be used to gather information on historical and current distribution, tenure, and use of BCEs and how these have changed over time, and how the community perceive

and are affected by these changes. For community-based REDD-type projects, it will generate information about how a forest or seagrass meadow is being used for different products required by the community and will show what potentials exist for sustainable resource management.

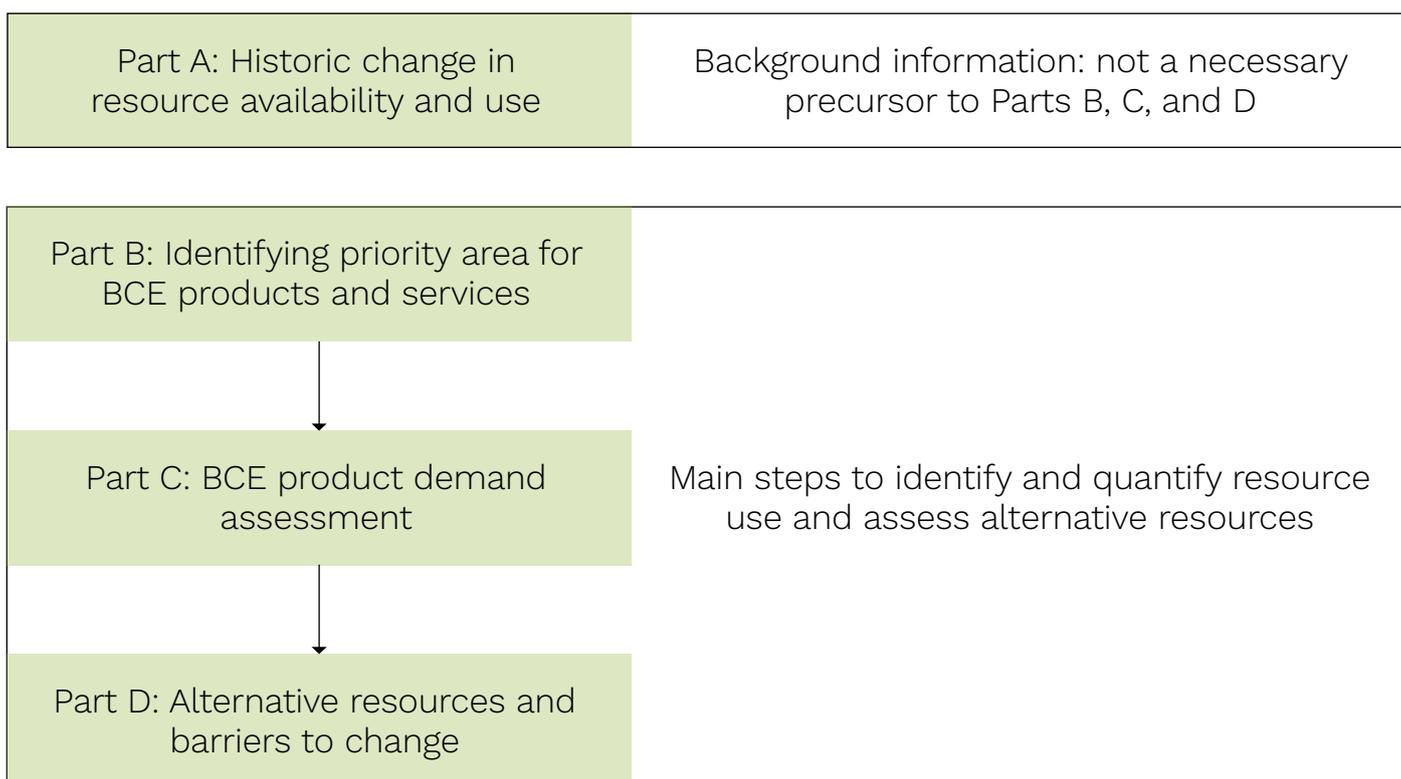
The tool for Assessment and Utilisation of Blue Carbon Ecosystem Products and Areas is important for developing the participatory management plan for a community-managed resource (land management plan) based on the preferences of different stakeholder groups (especially men/women and relevant livelihood groups such as fishers).

Who should participate?

Not more than 15 participants. If there are more people, divide the group into 2 (based on appropriate subgroups) and make sure that there is an opportunity for each sub-group to present their finished chart to the whole group at the end. It is particularly useful to have separate men's and women's groups for this tool, and it may also be helpful to consider livelihood types as an alternative or further subgroup (for example fishers).

How to use the tool?

This tool is structured into four parts. Part A is simply a structured conversation, with questions provided to use as prompts, and will provide background information that will enhance the findings of parts B, C and D, which follow a more structured flow of collecting and recording information.



Part A: Historic change in resource availability and use

BCEs are often being rapidly degraded. The effects of climate change on oceans are being tangibly felt in many regions. Local resource needs and priorities have changed over the years with fluctuating coastal populations and demographics. This exercise will aim to capture these changes over a ~5-10 year time period, and assess feelings towards these changes (e.g. what resources have been reduced or lost through degradation that are missed, have any positive changes occurred such as switching to alternative, sustainable resources).

The whole group will discuss this together, there is no need to sub-divide the group. You will need a paper chart, drawing board or similar to summarise key points contributed by participants. It would help to have the map produced with Tool 10 as a discussion aid. The exercise should be led by one person from the project development team as a facilitator, and it may help to have an assistant to take notes. This should be conducted in the language that participants are most familiar with if possible, or with the aid of a translator if not.

- This exercise is a semi-structured conversation centred around key questions, but with the scope to adapt or add to questions as appropriate for the local context.
- Start by defining an appropriate timeframe for discussion: this may be 5 years, 10 years or even longer depending on the group (e.g. their age or years of experience in a particular livelihood).
- Define the purpose of the discussion: to understand local observations and perceptions of environmental change, and changes in resource use, within the specified timeframe.
- Structure the conversation around the following questions, which may be adapted according to the context:
 1. Within [x timeframe], have you observed any changes in the ecosystem (e.g. mangroves/seagrass)?
 2. What have these changes been (e.g. reduced extent, change in distribution, fewer or different resources)?
 3. Have these changes impacted you? If so, how?
 4. In the last [x years], have you had to change which products you take from the ecosystem, or how you access or use it? If so, how and why? (e.g. reduced number of fish taken, changed timber source)
 5. Reflecting on these changes, do you see them as being good or bad changes for you personally?
 6. What changes would you like to see over the next 5 to 10 years? (e.g. more fish stocks, more forest-related income)
- End the discussion by summarising the conversation, ensuring that nothing has been missed. Tell the group that this information will contribute to creating a project that contributes to a vision that the community want of their ecosystems.

Part B: Identifying priority areas for BCE products and services

BCEs and their resources are often utilised on a space-based basis: areas of mangrove forest or seagrass meadows (or the water column or surface above the latter) may be used for different products or uses, such as gleaning fisheries, timber cutting, anchoring or other uses. This exercise will help to identify how different areas of the BCEs are used for different resources or activities.

- Take a map of the BCE(s) under discussion, and mark zones to cover the entire distribution of the habitat (mangroves or seagrass meadow). These zones could include fringing mangroves close to settlements, fringing mangroves by the water's edge, the forest interior, creeks, sandbanks etc. Divide the map into no more than 8 zones – there should be enough to create meaningful zonation, but not so many that the task becomes arduous. Number the zones.
- Form a group of participants that is meaningful to the ecosystem and likely resources in question. For example, if it a mangrove forest that is to be managed, a representative sample of the whole community is appropriate as a broad range of people are likely to rely on the forest in different ways. However, if it is a seagrass meadow that is to be managed, marine user groups such as fishers, tourism operators or seaweed farmers are likely to be the most important groups to participate in this exercise.
- Divide participants into small groups (e.g. one for women and one for men).
- Ask participants to name the products and services that they get from the BCE – this can include direct resources extracted from the BCE, activities that they use the BCE for, or benefits that they gain from the BCE. Be as specific as you can – for example rather than writing 'timber', put down sub-categories such as construction timber, or small building poles etc., and instead of 'fishing ground', put down sub-categories such as finfish fishing, shellfish fishing etc. Across the top of a large sheet of paper, write the products and services that they identified.
- Ask participants to agree which areas are the most important for each of these products and services. For each area assign a value (between 1 and 5) showing how important the area is for that particular product or service – this is the area preference. For example, if landward fringing mangroves are the most important area for cutting firewood, then give it a value of 5. Use symbols, such as stars, to denote this value.
- Remember that some areas can be used for more than one product or service.
- Select someone from each group to present the completed matrix to the other groups.
- Discuss any differences between the matrices prepared by different groups. Also discuss how this information can be used to develop rules or activities for the land management plan. Remember to make a record of all the points raised.
- Take a photograph of all the matrices for project records.

Part C: BCE product demand assessment

Understanding demand for products in blue carbon ecosystems is important for designing interventions that do not negatively impact on local sustenance and livelihood needs or are accompanied by mitigation actions that compensate for any negative impacts. This exercise quantifies resource use to build an understanding of how BCEs are used both in terms of resource extraction and use of space for other activities such as anchoring, and the importance of these for local use or income.

- After completing exercise B above, list the identified resources or services on a new sheet of paper.
- Participants should be the same as those who participated in Part B. Divide participants into several small groups. Each group should complete the same exercise. If possible, form separate groups for men and women as with the previous steps.
- Each group identifies the BCE products or services they use in their own household or sell for income (you may wish to include both household use and sale for income, or one or the other, depending on the group and the ecosystem). For example, for a seagrass meadow that is used for fishing and tourism, using just income may be the most appropriate means of assessing demand for resources. This should be as detailed as possible, and include all BCE products e.g. don't just write 'fish' but break it into different categories such as finfish or shellfish. Get participants to describe these categories.
- Ask each group to estimate their annual household requirement, or annual amount that they sell, for each product. Make sure that you use local measurements as far as possible e.g. timber should be estimated in terms of numbers of trees, poles etc rather than ft or m³. Firewood could be measured in back loads or trailer loads.
- Ask each group to estimate how many households in the village actually use these products. For example, out of 60 households, only 55 might actually require firewood. If all households use the product, then write "all".
- After each group has completed their table, get groups to present their figures to each other. Point out any inconsistencies or differences between groups and discuss these until they have agreed on household use figures. Remember that products sold to outside the community are an important source of local income but take care not to 'double count' use of products when they are sold within the local community.
- Calculate the BCE product requirements for the whole village by multiplying household use by the number of households. Record this information in the format provided in example C below.

Part D: Alternative resources and barriers to change

Following on from the above discussion, what alternatives are there to resources that may be considered for management, e.g. timber or fish? What local appetite is there to enable any transitions to alternative resources? What is needed to enable the transition to these alternative resources?

- List the most important resources identified in Parts B and C down the left-hand side of a sheet of paper. Focus on resources that participants may have identified as having low or decreasing availability, or access to which is managed (either by the project or otherwise), such as harvesting limits or restricted fishing methods.
- Ask participants to think about alternative resources that they might already be using instead of these products or might be able to use. For example, can timber from woodlots be used instead of harvesting mangrove poles? Are low-impact fishing methods possible in place of restricted methods? Can harvesting shellfish from mangrove roots be carried out without cutting the roots?
- As you discuss these alternative resources, write any that are viewed positively (even if they are not already in use or there are barriers to their use) down the right-hand side of the sheet of paper.
- Discuss with participants if any challenges have been faced in switching to these alternative resources. What have these challenges been? E.g., lack of necessary equipment, cultural norms, lack of market for alternative products.
- As you discuss this, draw arrows between the 'current' and 'alternative' resources as appropriate. You may wish to colour code these, for example in a traffic light system. Make notes on what these barriers are, and any other relevant discussion regarding alternative resources.
- Take a photo of the completed diagram for project records.

Example A: Historic change in resource availability and use (brief example of what information might be recorded, you may wish to elaborate more than shown here).

Change in ecosystem over time:

Participants felt that the mangrove forest is not as extensive or in as good health as 10 years ago, and degradation has been seen in the last 5 years since the local population has increased and there is more demand for forest resources. Other pressures on the mangrove forest have included nearby coastal development which

involved clear-cutting of mangroves. Positively, there appears to be some natural regeneration of mangroves happening on an island in the bay which is being used less frequently for cutting of poles.

Impact of the changes:

Coastal erosion has increased in the area of clear cutting. This leads to more coastal flooding and damage to buildings, and sediment washed from the land is suffocating seagrass meadows. There are more people competing for less timber, and this can cause conflict between people. Landings of fish have been decreasing, and this may be because of reduced habitat in the mangrove forest.

How has resource use changed as a result of these changes, and how do they impact you?

Fewer fishermen are entering the industry as catches are lower and it is not as profitable. Fishing is the primary industry here and there are few alternatives, so unemployment is rising. Women who usually collect mangrove poles for firewood are having to buy timber from alternative sources. This involves less time spent gathering firewood, which is good, but is costly.

What changes would you like to see over the next 5 to 10 years?

We want fish stocks to increase again so more youths can continue in the fishing industry and more fish are available for us to eat and sell. We would like to be able to create jobs in the tourism industry, but we have seen the negative impact that it can have on the coasts and we do not want that here. However more jobs could be available if we could attract tourists through ecotourism activities like the women's mangrove boardwalk. We would like to be able to cook in more efficient ways, so we do not need to spend so much time collecting firewood for fires for cooking.

Example B: Identifying priority areas for BCE products and services

Area	FinFish	Shellfish (creels)	Gleaning Fishery	Snorkelling Tours	Seaweed Farming
1 Intertidal, adjacent to villages	★		★★★★★	★★	
2 Intertidal, away from villages	★		★★★★★	★★★★	
3 Subtidal, creek	★★★	★★★★		★★★	
4 Subtidal, sandbank	★★★★	★			
5 Subtidal, between mainland & island	★★★★★	★★★★			★★★★★
6 Subtidal, mouth of bay	★★★★★	★★★★			★★★★★

Example C: BCE product demand assessment for a project area in Kenya

Products	Demand per unit per year	# Individuals in community	Total per year	Income value
Mangrove timber products				
Firewood (mangrove poles)	100 bundles per household	500 households (all community)	50,000 bundles	-
Construction timber (every 30 years)	3 backloads per household	500 households (all community)	50 backloads	-
Timber for repairs (every 5 years)	0.5 backload per household	500 households (all community)	50 backloads	-
Other BCE products				
Mangrove honey	2 hives	15 beekeepers	30 hives	1,380,000 KES
Finfish	150 boxes	300 fishers	45,000 boxes	82,700,084 KES
Small shellfish (gleaning fishery)	100 baskets	50 fishers	5,000 baskets	3,675,559 KES
Large shellfish (creel fishery)	150 baskets	50 fishers	7,500 baskets	9,648,343 KES
BCE income-generating activities				
Seagrass snorkelling tours	600 snorkelling tours	1 operator	600 snorkelling tours	1,650,000 KES
Mangrove boardwalk tours	1,000 walking tours	2 operators	2,000 walking tours	550,000 KES

Example D: Alternative resources and barriers to change

