Ecosystem Services for Poverty Alleviation: Marine & Coastal Situational Analysis

Appendix 5

Focus Group Reports

Kenya (7 meetings)
Mozambique (3)
Rodrigues (3)
Philippines (5)
Vietnam (2)

Kenya Focus Group 1: Bamburi Beach, Mombasa, Kenya

Date: *9th May 2008*
Location: *Mombasa Beach Boat Owners Association building, Bamburi Beach*
Facilitators: *Tim Daw (facilitator) & Louis Celliers (note taker)*

1. Focus Group Participants

Five representatives of local tourism activities, Mombasa Boat Owners Association chairman and secretary, two representative of 'community traders' organisation, one beach photographer who was also secretary of the beach users' umbrella organisation.

How was the group selected, including some description of why this group is poor (ideally with reference to local poverty criteria)?
The group was assembled by the secretary of the beach users' organisation; although probably not the poorest they are distinguished from the large investors in tourism and recognised themselves as poor. Although they seemed to give the perspective of the hawkers and poorest tourism people, an informal conversation with a hawker on the beach highlighted that many (~30 people according to hawker I spoke to) of the poorest hawkers were not members of the 'community traders' organisation.

A communication error with the gatekeepers had led to a collection of fishermen, women traders and tourism operators being assembled at the same time forcing us to improvise and use Louis and Tim despite their lack of Swahili language skills. They were assigned the tourism operators as these could mostly speak good English. One of the five participants, however, did not actually appear to understand and did not contribute to the Focus Group.

2. Social-Ecological Setting

Bamburi beach is a sandy strip, north of Mombasa and a popular area for local, domestic and international tourists as well as being the location for the non-extractive Mombasa Marine Park and the reserve where fishing is allowed with traditional gears. The activities are focussed on a ~2km strip. Tourism based livelihoods include, renting chairs, looking after belongings for swimmers, taking glass bottom boats over the park, renting rubber rings, taking photos, serving food, offering camel rides etc.

Several large hotels and bars line the beach front but there is also a diversity of small-scale local, traders, hawkers, stall owners etc.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
Unsurprisingly the group identified the ES of attracting tourism and the resultant trades, kiosks bars etc as the most important ES and pointed out the lack of employment that would result if there were fewer tourists.

The service of providing somewhere for sea-based activities was volunteered, with particular reference to young people learning to swim and going on to become sportspersons, this in turn could provide an international link for communities.

There was seen to be a traditional relationship between people and the sea. Recently there was apparently greater awareness of conservation because the people have been told, for example, about links between mangroves and fish.

The economic contribution of the port was pointed out, raising tax revenues for the government and providing employment for local people. The instance of Eritrea and Ethiopia going to war partly over access to the sea was used to point out the importance of ports.

Communities were also dependent on building materials from the forest, and the production of marine products like fish.

The breeze from the sea was seen to make living more comfortable.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
The benefits of tourism are very widespread, 1st through government taxes which can be spent on communities, then through opportunities for local communities to provide food and services to tourists.

Problems/barriers
Yes, there are lots of problems! Mostly these were about conflict and competition with hoteliers and large investors, and legislation about their activities. Local traders are seen as threat to hotels and hoteliers tell tourists to avoid locals because they will be ripped off but, for example, the sodas in the hotels are much more expensive than if bought from a small stall holder. Sometimes hotel security guards move locals away. If the community resists, hotels can call in government and tourist police who can often find something to arrest or harass them for. For example, many local traders don't have the correct papers. Meanwhile businesses are trying to be exclusive, so that the hotels provide everything.

There are licences and permits for their businesses but many operators don't have them. There are also restrictions placed. Local small scale businesses are always looked on by unfavourably because either they do not have enough earnings to pay tax, and if they start earning more, they are seen as competition and a threat for the large investors. Although they have to pay to get the official documents, there is no service provided, no assistance in attracting and dealing with tourists, even if they pay for the papers, they are still on their own and their businesses still vulnerable.

The participants asked us whether we will ask same question to hoteliers etc. They thought there was a need for a balanced court-style hearing of different sides of the story and were keen that their views would be represented. Previous researchers had also asked about their situation but have never given them had any feedback. Tim said they would receive copies of this report as well as the report from the workshop.

How the situation could be improved
There is a communication issue between locals and govt. The participants want recognition by government of the local community's importance within the tourist sector. They provide a service (for example they take tourists to the marine park and collect the park fees for Kenya Wildlife Service) but are unrecognised. They suggested that hotels just provide bed and food, allowing other services provided by locals. Need security of their business.

Trends
The difficulty of competing with big investors is getting worse. Political instability has led to fluctuations in tourism numbers.

The increase in package deals really started in 1997 when political instability led to reduced tourist numbers. The large investors put more effort into capturing the business from the few tourists who did still come. Consolidation of the tourism sector doesn't even provide security for people employed in those companies because they don't have permanent jobs.

Future
Tourists are now aware of Kenya and will keep coming. But the group were pessimistic about the future of the beach with increasing control and consolidation of the trade by 'big investors'.

Policy needs reviewing. There are lots of requirements and rules from different agencies. There is need for consultation with the local people and, as they are at the sharp end of these different policies, this consultation process can help to harmonise different rules.

4. Focus Group Facilitators' Comments on Insights for ESPA

This Focus Group was interesting to highlight the difficulties for poorer and local communities in capturing benefits from tourism and the power-struggles between 'big investors' and hoteliers and the benefit insecurity that is created for small scale operators.

Suggestions for research agendas which may inform or address priority issues of participants.
Economic study and review of tourism revenues, historical patterns, employment generation, revenue leakage from local area and accessibility to poor people. Understanding what different modes of tourism mean for wellbeing. How do locally-run operations and employment through hotels map onto aspects of wellbeing and aspirations of poor people.

5. Summary

This focus group assembled representatives of community organisations for local users of the beach for tourism-based business, including glass-bottom boat owners, stall holders, photographers and hawkers.

They identified a range of provisioning, cultural, and a regulating ecosystem services but the discussion focussed on the attraction of tourists, which they ranked much more highly than others. This service is perhaps better conceptualised as provisioning rather than cultural as it is concerned with livelihoods of poor rather than direct cultural/recreational benefits for them. The benefits were thought to be widely distributed through taxation and a wide range of business possibilities for the local people to provide services to tourists. Other coastal and marine ecosystem services highlighted related to cultural relationships between the local people and the sea, provisioning services of fish and building materials and economic development supported by port activities.

The supply of the ES from tourism attraction has fluctuated according to Kenyan politics (especially recently following the election-associated troubles) but generally Kenya remains a destination for tourists. However, small-scale and local operators face problems of (a) competition with large hotels and (b) legislation requiring them to pay for permits but failing to offer them many benefits. The increasing trend of large scale tourism operators offering all-inclusive deals since 1997, increasingly removes opportunities for local businesses and hotels increase their competitive advantage by warning tourists to avoid local traders and using their security guards and the police (backed up by the lack of official papers of many of the small scale traders) to move local people away from their hotels and their guests.

The legislative framework does not currently recognise small scale operators even though they are an important part of the tourism industry. They are required to pay for official licences but gain little in return, and are subject to an increasing load of regulations. The participants called for more consultation between authorities and small scale operators and for legislation which recognises and provides security for their business interests. Participation of traders in policy debates was suggested as a means to address the need for harmonisation of regulations currently imposed by a wide range of agencies.

Local people obviously value direct livelihood benefits of tourism attraction as well as various non-use values related to culture, recreation and comfortable living (a in the ESPA diagram). The flow of tourists attracted to Kenya's coastal areas seems to largely be determined by national politics although there may be some scope to increase the flow of this ES through national and international promotion (c). The benefits of tourism to poor people, however appears to offer scope for intervention to support poverty alleviation (b). Local businesses could be supported by increasing organisation and representation and through encouraging international tourists to engage with local businesses. The knowledge and skills of local operators to attract and provide for international tourists could also be supported.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned[1]	Priority (number of beans)
Trade related to people coming to visit beach		11
Attract tourism		11
Conservation awareness that comes with living near the ocean		6
Marine products (e.g. fish)		5
Education and social interaction (social interaction, traditional lifestyle e.g. fishing)		4
Income from the port, (employment and tax revenue)		4
Recreation/sea based activities		3
Employment (in tourism)		3
Building materials		2
Ocean breeze (Comfort & clean air)		2

[1] In this case there are a mixture of parts of the seascape that contribute

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Attracting tourists and providing employment and trade opportunities	Benefits are widely shared through variety of means. Firstly government tax revenues, and then a wide range of opportunities to supply services (e.g. trips to the marine park) and sell goods (artisanal crafts, food)	Tourist numbers fluctuate depending on political situation in Kenya. Generally good trend in supply of tourists but increasing consolidation and domination of industry by large investors and hoteliers.	Lack of recognition of local operators in tourism policy. Need for participation of local operators in helping to harmonise overly complex range of agencies which affect the tourism sector. Links between large industries and government staff and police further disempowers locals in conflicts with large operators.

Kenya Focus Group 2: Bamburi Beach, Mombasa, Kenya

Date: *9th May 2008-05-12*
Location: *Bamburi Beach, Mombasa*
Facilitator and note taker: *Andrew Wamukota*

1. Focus Group Participants

Five fishermen were selected for the FG by the chairperson of the area Beach Management Unit (BMU). The respondents are artisanal fishermen who are highly dependant on marine resources using simple non-motorised fishing gear.

2. Social-Ecological Setting

Some basic description of the social-ecological setting (i.e. what the main livelihood activities are, rural/urban area, what kind of ecosystem). Main livelihood is artisanal reef fishing within the Mombasa Marine Reserve, tourism and tourism related activities. Local, national and international tourists frequent the area. The open sea, coral reef and the sandy beach are the main ecosystems. In the urban area, the main activities are various ranging from business and salaried employment exist.

3. Focus Group Outcomes and Findings

ES recognised and valued
These included the provision of food (fish), the main livelihoods for fishers and their families. Others include coastal protection, clean air, connectivity among species, habitat, bait and the calming strong waves

Ranking exercise for values
In the order of importance, the following ES were identified and ranked. However, due to time constraint, we resorted to settle on the one most important ES later in the exercise.

1. Food (fish)
2. Coastal protection against storms
3. Bait
4. Habitat
5. Clean air
6. Connectivity
7. Calming of strong waves

Views on access and benefit distribution
Everyone benefits in different ways depending on how the fishers use it. Fishermen benefit through food and income just like traders. The Park service benefits in terms of revenue generated from the Park entry fees (which the fishermen do not). Park revenue sharing is not allowed by the government.

Problem barriers
There are problems in terms of using and benefiting from these ES. Sometimes the seawater is so dirty and the fishermen cannot have clear vision of where the fish could be located. This is exacerbated by runoff especially during high raining season, which sometimes comes with crocodiles, snakes and other dangers. High competition especially with motorised fishers and increase in the number of fishers also acts as a problem to fishers in terms of using and benefiting from ES. In addition, the lack of better fishing gear in itself is a problem.

How to Improve
One way to improve the use and benefit of ES to fishermen is to raise their education so that they can be able to cope with the challenges

Trends
The provision of fish has generally been reducing due to various reasons including:

- Overfishing, explosion of sea urchins (there is no clear understanding as to the reason for the explosion although overfishing of triggerfish has been mentioned by a scientist)
- Increased bivalve population
- Traditions are not observed as it used to before where for example women were not supposed to go to the beach/sea. Also sacrifices meant to appease spirits to increase the amount of fish in the sea are not observed anymore
- Increase in beach erosion
- Increased pollution including plastic paper bags
- Increase in coastal development
- General increase in population and particularly the number of fishermen

Future
If the challenges mentioned above continue unabated, then there will be more degradation of the sea and fish will be scarcer. The sea is where the biggest change is expected to occur and this will directly negatively affect the fishermen, their dependants and the whole country as all depend on the sea in one way or the other.

Governance and Institutions
The Fisheries Act controls the size, life stage, species and effort of fishing while the Wildlife Conservation and Management Act (under Kenya Wildlife Service) restricts fishing in marine parks and controls fishing in marine reserves. No other projects, laws or other kinds of arrangement were thought to affect the use and benefits derived from the ES.

The outcomes of the Wildlife Conservation and Management Act has been reduced fishing ground fro fishers through creation of Marine Parks without sharing benefits accruing from park entry fees. This policy has ensured that the fishers remain disadvantaged.

'How have these changed, and what has driven these changes?'
Mombasa Marine Park and reserve were originally fishing grounds and so their creation reduced fishing area. The Park and reserve was initiated ostensibly for resource conservation/management and revenue generation though tourism by the government.

4. Focus Group Facilitators' Comments on Insights for ESPA

This FG highlights the difficulty of artisanal fishers in accessing, using and benefiting from ES though policy as well as their inability to afford better fishing gear. It also highlights the need to involve stakeholders in making decisions that have the potential to affect their livelihoods.

Suggestions for research agendas which may inform or address priority issues of participants.

These may include the benefits of MPAs to the poor who depend on marine resources

5. Summary

The main ES identified included by the fishers included tourism and tourism related activities where local, national and international tourists frequent the area. Others include coastal protection, clean air, connectivity among species, habitat, bait and the calming strong waves. The open sea, coral reef and the sandy beach are the main ecosystems. The most important ES identified were food, coastal protection and bait
*In terms of access and benefit, e*veryone benefits in different ways depending on how they use it. Fishermen benefit through food and income just like traders while the government benefits in terms of revenue generated from the Park entry fees. However, some challenges arise to fishers limiting their access, use and benefits from the ES. These are mostly brought about by their inability to afford better fishing gear, the poor condition of the sea, overfishing, increase in bivalve populations, beach erosion, and increase in the number of fishers among others. If these continue unabated, then the future of food

(fish) as an ES is bleak. The participants indicated that in order to address these challenges, there is need to provide education to fishers to raise their awareness in terms of handling the challenges.

The results highlights the difficulty the poor encounters accessing, using and benefiting from ES through policy and individual inability and underlies the need to involve all stakeholders in decisions that may impact their livelihoods

Table 1: Long list of ES, linked to resources/ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned that contribute to the ES	Priority (number of beans)
Food (fish)	Coral reef	15
Calming of strong waves	Coral reef	12
Bait	Coral reef, beach	11
Habitat	Coral reef	5
Clean air	Open sea	4
Protection against storms	Coral reef	2
Connectivity among species	Open sea	0

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Resources /ecosystems that contribute to ES**	**Ranking** *(which are the most important ES)*	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Food (fish) [1]	Coral reef	1	Yes	Reducing and the future doe not look bright if the current challenges are not properly addressed	Lead government institutions (KWS and Fisheries) and degradation of traditional resource management institutions
Coastal protection against storms	Coral reef	2			
Bait	Coral reef, beach	3			

[1] We only did food (fish) because of time constraint

Kenya Focus Group 3: Bamburi Beach, Mombasa, Kenya

Date: *9th May 2008*
Location: *Mombasa Boat Owners Association (MBOA) office, Bamburi Beach, Mombasa*
Facilitator: *Carol Abunge (facilitator) and Andrew Wamukota (taking notes)*

1. Focus Group Participants

Three women fish mongers operating on along the Bamburi beach participated in the focus group. The women were in their early 30s and were selected by the chairperson of the Mombasa Beach management unit. These were one group among a collection of fishers and tour operators. The fishmongers consider themselves poor. The FG was done in Kiswahili, which was understood by all participants and therefore all the three participants participated.

2. Socio-Ecological Setting

Bamburi beach is a sandy strip, north of Mombasa and a popular area for local, domestic and international tourists as well as being the location for the non-extractive Mombasa Marine Park and the reserve where artisanal fishing takes place. Livelihood rotates around fishing and trading in fish, tourism and associated activities (marine park tours, snorkelling and hawking on the beach of approximately 2 km.

3. Focus Group Outcomes and Findings

ES recognised and valued
These included the provision of water, medicine, and for recreation purposes. After probing, the following were added:

- Food (fish and octopus)
- Water (its mere existence)
- Firewood and construction material from mangroves
- Tourism
- Medicine (treatment of rashes)
- Sand used to prepare groundnuts
- Recreation

Ranking exercise of values
'Which of these ES (refer to previous list) you have identified are the most important?'

1. Water
2. Food (fish and octopus)
3. Firewood and construction material from mangroves
4. Sand used to prepare groundnuts
5. Medicine (treatment of rashes)
6. Tourism
7. Recreation

(Listed in order of importance)

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

Anyone is free to access fish and water but for mangroves, one needs a license from the government. Generally, the people who benefit more are those directly involved in the utilisation of specific resources.

Problem Barriers

- Mangroves: As a woman, one needs to have an escort to the mangroves by a man even if one has a permit
- Fish: Fishermen have preference on whom to sell their fish to. Sometimes this depends on the possibility of in-kind kickbacks. To quote "fishermen have become too much, they cannot sell you fish unless you are willing to befriend them". The other problem is fish landed by fishermen has continued to reduce
- Water: No access problem but sometimes small children are discouraged from going into the sea unaccompanied by an adult. However, this is purely for security reasons, in case the kid drowns.

How to Improve

- Mangrove: No, it is the law and this has to be followed
- Fish: Fishermen should fish sustainable, i.e. use friendly gear. This way fish will increase and preferential selling of fish/ demanding inking kickbacks will not arise.

Trends

'How has the sea/mangrove/reef/beach/coastal forest changed over the last 5 to 10 years?'

While both food (fish) and firewood (from mangroves) show a downward trend, water has not changed.

Reasons for change

Fish: Apart from reduction in fish that has led to increase in fish prices, there has been an increase in fisher population, who have resorted to the use of destructive fishing practices further reducing fish populations.
Mangroves: Downward trend due to high demand for mangrove services (fuel wood and building material) and few alternative job opportunities elsewhere

Future

The future entirely depends on God's wish so it is impossible to tell

Governance and institutions

The ES are affected/controlled by rules or management particularly by government lead agencies (mandated institutions)' for instance the Fisheries Department and the Kenya Forest Service. A part from government institutions, the participants did not know about other projects, laws or other kinds of arrangements that affects the utilisation and benefits derived from ES. The outcomes of government institutions control have been more and more restrictions on resource use, increasing the frequency of conflicts between managers and resource users.

4. Focus Group Facilitators Comments on Insights for ESPA

This FG has highlighted the difficulty of some sections of the population (particularly women) in accessing some ES.

Suggestions for research agendas, which may inform or address priority issues of participants.

Socioeconomic and cultural study that may influence the access of ES by the poor.

5. Summary of Main Issues

Bamburi beach is a sandy strip, north of Mombasa and a popular area for local, domestic and international tourists as well as being the location for the non-extractive Mombasa Marine Park and the reserve where artisanal fishing takes place. The main ecosystem services identified include water, medicine, recreation food (fish and octopus), firewood and construction material from mangroves, tourism and sand from the beaches. Water and food rank among the most important ES while recreation is last in rank. There was no access problem for food (fish) as long as one wanted the service however; restrictions are placed on women wishing to harvest mangroves to be accompanied by a male even if they have a licence from the government. Whether the restriction is a cultural one or one placed by the government is not clear. One particular practice that seemed not to amuse the respondents is that men

often require in-kind kickbacks from women who wish to buy their fish, as well as the use of destructive fishing practices. One important suggestion was to encourage fishermen to use friendly fishing practices to revamp the otherwise downward trend in ES from resources and reduce conflicts. Conflicts especially arose due to many restrictions introduced by the government.

Table 1: Long list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned that contribute to the ES	Priority (number of beans
Water	Open sea	11
Fish	Open sea, coral reef	8
Mangrove	Beach	6
Beach/Sand	beach	3
Medicine	Mangroves, sea water	2
Tourism	Open sea, beaches	0
Recreation	Beach, coral reef, mangroves, sea water	0

Table 2: Focus Group Summary Table for Top Three ES

Ecosystem Service (ES)	**Resources /ecosystems that contribute to ES**	**Ranking** *(which are the most important ES)*	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Fish	Open sea, coral reef	2	Yes	Reducing but the future depends on God	No institution was mentioned even though a beach management unit operates on the beach, there is a Marine Park managed by the Kenya Wildlife Service and Fisheries Department has its presence
Water	Open sea	1	Yes	Has not changed	Water one of the ES whose access is not affected by institutions as long as one observes security
Firewood	Mangrove	3	No	Reduced	Government institutions particularly the Kenya Forest Service. There may also be a cultural influence especially where women are not allowed to go into the mangrove forest un accompanied

Kenya Focus Group 4: Mijikenda Village, Malindi, Kenya

Date: *14th August 2008*
Location: *Mijikenda Fishermen Association meeting banda, Malindi*
Facilitators: *Andrew Wamukota (facilitator) & Pascal Thoya (note taker)*

1. Focus Group Participants

Twelve representatives, all fishers participated in the FG.

How was the group selected, including some description of why this group is poor (ideally with reference to local poverty criteria)

The chairperson of the Mijikenda Fishermen Association selected the group, but later during the meeting, additional members joined as the meeting was held at an open meeting place. The Mijikenda fishermen originally started settling at Malindi in the 1970s when they followed their parents who were assisting in the construction of a boat jetty. While there, they engaged in some subsistence activities including farming and fishing. After the jetty's construction, the site that they had settled was sold to a private developer who forced them to move to an alternative area where they put up temporary settlements and continued with their activities. Before long, they were forced to move again to pave way for the construction of upmarket curio shops.

The place settled now is temporary and has no form of infrastructure including electricity, toilet, fresh water etc. In addition, they have no land security of any form, any time, they may be told to vacate the place. They also use simple fishing methods, where they walk to the reef to fish during low tides, as they have no fishing vessel. The group is currently pushing for any form of recognition so that they can secure the newfoundland on which they have put up shanties made up of coconut leaves.

2. Social-Ecological Setting

Mijikenda beach is arguably a new foundland according to anecdotal information, formed by receding seawater and accumulation of sand. The beach is adjacent to the DC office and sprawling Shella estate, popular for local, domestic and international tourists. The beach is close to the Malindi Marine Park and Reserve. Although activities ranging from fishing to tourism related activities are undertaken, the Mijikenda have focused on fishing per se. Other activities undertaken in the area, though not by the Mijikenda residents include, curio selling, swimming, excursions, sport fishing, and relaxing on the beach among others. Several tourist hotels dot the beachfront but there is also a diversity of local traders, hawkers, stall owners etc.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
Reef fish, shallow water prawns, and sea grass were identified as important ES. The lack of better fishing gear was pointed out as a major challenge that has contributed towards low catches. Interestingly, other ES that are very common including tourism and recreation were not mentioned by the respondents.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
According to the participants, everyone has access to the resource and can benefit but this rarely happens as fishing on the reef is very difficult and one has to counter various challenges including risk of injury on the reef, stingray threat among other. Besides, the season of fishing on the reef is very short. In addition to some fishermen who cannot counter the threats, women cannot be able to benefit from fishing, as they cannot fish (even in shallow waters). In addition, sometimes fishing competition is very high and only a few fishermen can withstand it.

Problems/barriers

Initially, some members of the Mijikenda community showed open resentment to the ESPA team arguing that people keep coming to interview them but no help has been forthcoming. We indicated that the report from the exercise is a way of creating awareness about the problems encountered by a poor community in accessing and benefiting from resources.

The problems mentioned ranged from lack of title deed for the land they have currently settled on, lack of landing site for their fish and the difficulty of women to effectively access/benefit from fishing. One responded mentioned that even fish mongering has been taken over by women from other areas. Participants also mentioned that fish landings have never recovered after the tsunami.

Other problems mentioned related to lack of community facilities/ services (water, electricity, or even toilet facilities). The chairperson of the group indicated that they have approached the Malindi Municipal council but have not been assisted.

How Improve
Providing some kind of land ownership rights, access to better fishing gear and recognition through allocation of landing site and provision of services/facilities.

Trends
The participants pointed out that people used to think that the sea is around indefinitely and cannot change whatever happens but the minds of people are now changing because of various changes. Some of these changes have included a reduction in fish catches due to an increase in number of fishers as well as the diversity of fishing gear including illegal gear and pollution. A participant pointed out that all the municipal waste (sludge) is directed to the sea and there is no surety that the waste is treated first. An increase in tourism activities has also led to increase in pollution especially plastic bags and other garbage. One participant pointed out that bomb experiments are also sometimes done in the sea and this affects fish populations.

Future
The future of their beach is uncertain, as they do not have any right of land ownership. The participants indicated that only researchers are better placed to understand the status of the fish and other resources in the future.

FG facilitators' comments on insights for ESPA
This FG highlights the difficulties for poorer and landless in capturing benefits from fishing in light of lack of any form of security.

Suggestions for research agendas which may inform or address priority issues of participants.
The Mijikenda community, an originally non-fisher have continued to live in insecurity for over 30 years in Malindi. Generally, Malindi town is a tourist town and various other activities take place there including business, tourism, recreation, fishing among others. However, the poor perspective on ES is only related to activities that they directly depend on (fishing). Other ES seem to be beyond their sphere and as a result are not considered important to them although the ES have a high potential to benefit the poor. Consequently, only fish and shallow water was important ES.

The potential to enhance the flow of ES for the Mijikenda community would start with a review of the historical land use patterns and how these have been affected by land policies, land insecurity and how these is related to local resource use patterns, local revenue sources' access to the poor in terms of facilities and services, insecurity and resource use patterns. Results would then be used to make policy recommendations that would formally recognise similar communities.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important*

Ecosystem Service (ES)	Resources / ecosystems mentioned[1]	Priority (number of beans)
Fish	Coral reef	28
Shallow water and resources there in (e.g. prawns)		12
Sea grass beds		10

*only three were mentioned even after probing

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** (can everyone use/benefit from this resource/ecosystem)	**Trends** (changes and future outlook)	**Governance** (institutions that affect resources)
Fish	Everyone can but not everyone does. Majority of benefits accrue to fishers who use competitive fishing gear. Fishers who use simple fishing gear and women are disadvantaged. Fishers who can withstand reef based risks benefit more, as well as the government in terms of taxing people who go to the reef in the Park	The reef has degraded in terms of it productivity due to increase in the number of fishers and diversity in terms of fishing gear, sometimes employing illegal gear as well as the Tsunami	No institution/ governance issues were identified as affecting the resources
Shallow water for recreation and other resources (e.g. shawl water prawns)	Everyone can and does benefit	Not changed	No institution/ governance issues were identified as affecting the resources
Sea grass beds	Everyone can and does benefit	Not sure about any changes	No institution/ governance issues were identified as affecting the resources

Kenya Focus Group 5: Mijikenda Village, Malindi, Kenya

Date: *14th August 2008*
Location: *Mijikenda Village Malindi*
Focus Group Facilitators: *Caroline Abunge*

1. Focus Group Participants

Two women representatives, involved in business activities in the community.

How was the group selected, including some description of why this group is poor (ideally with reference to local poverty criteria)

The group was selected by the chairperson of the Mijikenda Fishermen Association and they were the only women available in the community at the time. The Mijikenda fishermen originally started settling at Malindi in the 1970s when they followed their parents who were assisting in the construction of a boat jetty. While there, they engaged in some subsistence activities including farming and fishing. After the jetty's construction, the site that they had settled was sold to a private developer who forced them to move to an alternative area where they put up temporary settlements and continued with their activities. Before long, they were forced to move again to pave way for the construction of upmarket curio shops.

The place settled now is temporary and has no form of infrastructure including electricity, toilet, fresh water etc. In addition, they have no land security of any form, any time, they may be told to vacate the place. They also use simple fishing methods, where they walk to the reef to fish during low tides, as they have no fishing vessel. The group is currently pushing for any form of recognition so that they can secure the newfoundland on which they have put up shanties made up of coconut leaves.

2. Social-Ecological Setting

Mijikenda beach is arguably a new foundland according to anecdotal information, formed by receding seawater and accumulation of sand. The beach is adjacent to the DC office and sprawling Shella estate, popular for local, domestic and international tourists. The beach is close to the Malindi Marine Park and Reserve. Although activities ranging from fishing to tourism related activities are undertaken, the Mijikenda have focused on fishing per se. Other activities undertaken in the area, though not by the Mijikenda residents include, curio selling, swimming, excursions, sport fishing, and relaxing on the beach among others. Several tourist hotels dot the beachfront but there are also a diversity of local traders, hawkers, stall owners etc.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
Fish/reef, habitat and nursery, existence, recreation, aesthetic, and a place of worship and tradition were identified as important ES.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
Everybody benefits either directly or indirectly from the ES. However, the level of benefit for each mentioned ecosystem service depends on the ease of access. Fishermen therefore benefit more from fish as they are the ones who are engaged in fishing. This is due to culture, which allows a man to venture into any activity unlike women. Once the catch is landed, the women have to compete with other fish traders to buy the fish.

Problems/barriers
Low catch compared to that of fishermen from Malindi brought about by poor fishing gear, cultural factors that have made even the more hard working women to be less productive as they are not allowed to take

part in some activities as well as lack of alternative livelihood and awareness are some of the problems/ barriers.

How improve
Access to better and modern fishing gear was seen as a means of improving benefit from ES.

Trends
Participants pointed out that fish resource and habitats have declined over time, and that the number of tourists went down last year as compared to other years. Some of the drivers to these changes included environmental changes like the tsunami, El Niño, post election violence and poor fishing methods.

Future
The participants indicated that only researchers are better placed to understand the status of the fish and other ES in the future. However, political stability and access to better fishing gear will determine future trends for fish and tourism.

FG facilitators' comments on insights for ESPA
This FG highlights the difficulties for poor women in accessing benefits from ES in light of lack of recognition, insecurity and cultural factors.

Suggestions for research agendas which may inform or address priority issues of participants.
The Mijikenda community, an originally non-fisher have continued to live in insecurity for over 30 years in Malindi. Malindi town is a tourist town and various other activities take place there including business, tourism, recreation, fishing among others. Evidently, there exists a variety of ES that have the potential to enhance ES benefit to the poor.

A combination of awareness to the community about the range of ES that may benefit them, and a review of policies relating to how the poor can access/benefit from proceeds of locally available ES would enhance ES benefit to the poor.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important*

Ecosystem Service (ES)	**Resources / ecosystems mentioned[1]**	**Priority (number of beans)**
Fish	Coral reef	19
Habitat	Marine ecosystem	6
Tourism	Marine ecosystem	4
Worship	Open sea	1

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** (can everyone use/benefit from this resource/ecosystem)	**Trends** (changes and future outlook)	**Governance** (institutions that affect resources)
Coral reef Fish	Everyone can but not everyone does. Majority of benefits accrue to fishermen, not women as they do not fish	The fish catch has gone down du to use of unsustainable gear and Tsunami and only scientists can be able to predict future trend	No institution/ governance issues were identified as affecting the resources
Habitat	It is not clear who can use/benefit from this resource	Not sure about any changes	No institution/ governance issues were identified as affecting the resources
Tourism	Everyone can use or benefit from tourism. Even women from Mijikenda sometimes perform traditional dances to tourists	Tourism went down at the beginning of last year due to political instability	No institution/ governance issues were identified as affecting the resources

Kenya Focus Group 6: Marine Beach, Marina, Kenya

Date: *29th August 2008*
Location: *Marina Beach, Marina*
Facilitators: *Andrew Wamukota (facilitator) & Carol Abunge (note taker)*

1. Focus Group Participants

The FG was undertaken on the beach after the fishermen came from fishing activities. Fishermen who use the landing site come from different locations including Utange (5 km away from the landing site) as all the land adjacent to the landing site belongs to private developers. The FG involved the chairperson of the local Beach Management Unit, the secretary and about 10 fishermen.

How was the group selected, including some description of why this group is poor (ideally with reference to local poverty criteria)

The group was assembled by the chairperson of the BMU. The group is highly distinguished from the large investors in tourism and recognise themselves as poor.

A mis-communication from the BMU chairperson regarding appropriate FG meeting made it impossible to meet women and some fishermen who had already left. However, an appointment was made to meet women the following day.

2. Social-Ecological Setting

Marina beach is a small landing site, north of Mombasa and a popular area for international tourists. It is also used by tourists visiting the African Safari Club, a tourist hotel located on the beach. Marina is adjacent to the Mombasa Marine Park and reserve. Tourism activities include paddling and swimming, relaxing on the beach, water racing, and luxury boat rides etc.

The fishers using the Marina beach are among the fishers using the now Mombasa Marine Park grounds. After the creation of the Park, the fishers moved to look for alternative fishing areas with some settling at Utange and using Marina as their main landing site, almost 5 km away. After several years, the land adjacent to the fishing area was sold to a private developer who fenced off the fisher's access road to the beach. The fishers were then allowed to pass through the hotel to and form the beach but only after the intervention of the then Fisheries Department.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
The participants identified fish, tourism, salt, medicine, aesthetic, transport and recreation

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
The benefits from ES are very widespread but direct benefit varies. The rich/ big investors were seen to benefit more from tourism and even recreation related activities than the poor did. Although fishermen continue to fish, they suffer from unfair legislation on gear restriction, lack of beach access roads to fishing grounds and even closure of some fishing areas by the rich. While women have not benefited from fishing due to socialization (brought up to believe that fishing is a man's job), one is only allowed to fish when they are over 18 years of age.

Problems/barriers
Lack of capital to invest in proper fishing gear, tourism, and transport infrastructure including engine boats and life jackets are some of the barriers. In addition, the residents do not have proper access to the landing site as they have to pass through a tourist hotel.

How improve
There is need for security of their landing site in terms of gazettement, delineation of beach access road and formal recognition of fisher operations at the landing site by the Ministry of Fisheries Development and other responsible government authorities.

Trends
Fish landings were seen to have reduced as a result of increased population of sea urchins and increased number of fishermen, reduction in fishing area due to creation of marine park and reserve, increased tourism activities with many hotels and private residential along the shores lines leading to increased noise and pollution. Pollution from the oil spill of engine boats and human wastes has increased the water temperature causing fish to migrate. The use of beach seines on the beach has also affected fish populations.

Future
The future of the fisheries in the future is gloomy especially with the ever increasing number of fishers and dwindling catches and the somewhat poverty trap that the fishers find themselves in. Fishermen at the site continue to use beach seines (as they cannot afford recommended gear) which is not only destructive but does not land many fish. Some partners with Pemba (Tanzanian) fishermen, who have better gear. A combination of these factors, if unchecked will negatively continue affecting fish. Inversely, the tourism and transport sector may improve with time with increasing technology investment.

Governance and institutions
Some of the government policies that affect the use and access of ES by the poor include policies making illegal the use of beach seine, and reduction of fishing areas through the creation of protected areas as well as policies that give preference to larger investors in disregard of poor fishers. These policies however seem to be changing with the involvement of fishers in resource management through the Beach Management Unit arrangement.

FG facilitators' comments on insights for ESPA
This FG highlights the difficulties of the poor in, first accessing and using benefits from resources 5 kilometres away from where they leave and how they struggle to compete with big investors especially in the tourism sector and with the government (through creation of protected areas).

Suggestions for research agendas which may inform or address priority issues of participants.
The experiences of this FG bring to light the ES most valued by the poor as those they directly depend on or those that seem to compete or affects their access. Lack of property ownership rights has made fishermen to be pushed 5 kilometres away from the resources they depend on and this may have implications on the way the same resource is managed. As to whether fishers benefit from tourism activities and the protected areas in any way (economic or otherwise) may be worth investigating.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned[1]	Priority (number of beans)*
Fish	Coral reef	69
Transport	Sea water	27
Tourism	Marine ecosystem	24
Salt	Sea water	
Medicine	Sea water	
Aesthetic	Marine ecosystem	
Recreation	Sandy beach and sea water	

[1] In this case there are a mixture of parts of the seascape that contribute
* Ranking were done for the three most important ES due to time limitations

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	***Access (can everyone use/benefit from this resource/ecosystem)***	***Trends (changes and future outlook)***	***Governance (institutions that affect resources)***
Fish	Everyone can use/ benefit from this resource but the rate of use/ benefit depends on having access to better fishing gear. This is the reason for local fishers partnering with fishers from Pemba (Tanzania)	Fish landings are now low compared to several years ago because of increase in number of fisher and use of unsustainable gear. If unchecked, the future of fish and fishers is not bright.	Policies related to fishing gear (specifically beach seines), protected area delineation, and land tenure policies.
Transport	Everyone can use/ benefit from this resource but the rate of use/ benefit depends on having access to better/ motorised transport vessels	This has not changed and may not change in the future. Fishers will still use their boats to travel from one area to the other	No governance issues were mentioned
Tourism	Only big investors and government adequately benefit from tourism.	Practitioners in the tourism industry have wide capital/ financial base and the government has stakes. So although post election violence affected the industry the future looks bright	No governance issues were mentioned

Kenya Focus group 7: Marine Beach, Marina, Kenya

Date: *30th August 2008*
Location: *Marina Beach, Marina*
Facilitators: *Carol Abunge (facilitator & note taker)*

1. Focus Group Participants

The FG was undertaken on the beach following a scheduled appointment with women. Just like fishermen, women who use the landing site come from different locations including Utange (5 km away from the landing site) as all the land adjacent to the landing site belongs to private developers. The FG involved seven women.

How was the group selected, including some description of why this group is poor (ideally with reference to local poverty criteria)

The women who were mostly fishmongers highly depend on local fish landings at the beach. This group may be categorised as poor as it can highly be distinguished from the large investors in tourism.

2. Social-Ecological Setting

Marina beach is a small landing site, north of Mombasa and a popular area for international tourists. It is also used by tourists visiting the African Safari Club, a tourist hotel located on the beach. Marina is adjacent to the Mombasa Marine Park and reserve. Tourism activities include paddling and swimming, relaxing on the beach, water racing, and luxury boat rides etc.

The women using the Marina beach include some of the fishmongers who were utilising the area now converted into the Mombasa Marine Park. After the creation of the Park, the fishmongers either moved to look for alternative fish buying sites or followed their husbands. After several years, the land adjacent to the fishing area was sold to a private developer who fenced off the fisher's access road to the beach. The fishmongers just like fishers were allowed to pass through the hotel to and from the beach but only after the intervention of the then Fisheries Department.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
The participants identified fish, mangroves, tourism facilities, sea for existence (future generation), medicine, fish habitat and recreation.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
The level of benefit depends on ease of access. However, the elderly and young benefit from using ES for worship and recreational purposes respectively. Cultural factors allow the elderly to perform ritual/worship related activities, while through socialisation, women are not involved in fishing.

Some respondents indicated that one gets preference in terms of buying fish from fishers if she is related to the fisher. Other respondents indicated that it takes a lot of time walking to and from the landing site in search of fish, considering that some come from as far as 5 km away. Habitats directly benefit fishers, as fishing is their occupation, apart from tourists who snorkel there.

Problems/barriers
Cultural, institutional (beach access to landing site), nepotism and transport were some of the problems/ barriers mentioned. Environmental changes, use of destructive gear and habitat destruction are additional problems.

How Improve
There is need for security of their landing site in terms of gazettement, delineation of beach access road and access to more sustainable fishing gear to and awareness creation.

Trends
The fish prices are expected to continue going up due to reduction in catch, which has shown a constant trend for the last two years. The changes are caused by environmental changes and sometimes unsustainable gear that disturbs habitats. Marina fishing ground has also reduced with the Kanamai restricting beach seine. In 10 years to come, fishermen may resort to selling their own catch with fishmongers left with nothing to do, as catch will be poorer if the situation continues.

Future
The future of the business is gloomy especially with the ever increasing number of fishers and dwindling catches and nepotism. Fishermen also continue to use beach seines (as they cannot afford recommended gear) which is not only destructive but does not land many fish. Some partners with Pemba (Tanzanian) fishermen, who have better gear. A combination of these factors, if unchecked will negatively continue affecting fish and fishmongers may be forced out of business

Governance and Institutions
The fisheries department has been on the ground for advocating for gear change but they are yet to count their successes. However, they have relaxed and some fishers have moved to other landing sites due to this pressure.

FG facilitators' comments on insights for ESPA
This FG highlights the difficulties of the poor in, first accessing and using benefits from resources 5 kilometres away from where they leave and how they struggle to compete with big investors especially in the tourism sector and with the government (through creation of protected areas).

Suggestions for research agendas which may inform or address priority issues of participants.
The experiences of this FG bring to light the ES most valued by the poor as those they directly depend on or those that seem to compete or affects their access. Lack of property ownership rights has made fishermen to be pushed 5 kilometres away from the resources they depend on and this may have implications on the way the same resource is managed. As to whether fishers benefit from tourism activities and the protected areas in any way (economic or otherwise) may be worth investigating.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned[1]	Priority (number of beans)*
Fish	Coral reef	28
Worship and traditions	Sea and coastal forests	13
Habitat	Coral reefs and sea grasses	10
Tourism/recreation	Marine ecosystem	
Existence	General coastal and marine ecosystem	

[1] In this case there are a mixture of parts of the seascape that contribute

* Ranking were done for the three most important ES due to time limitations

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	Access (can everyone use/benefit from this resource/ecosystem)	Trends (changes and future outlook)	Governance (institutions that affect resources)
Fish	Everyone can use/ benefit from this resource but the rate of use/ benefit depends on having access to better fishing gear. This is the reason for local fishers partnering with fishers from Pemba (Tanzania)	Fish landings are now low compared to several years ago because of increase in number of fisher and use of unsustainable gear. If unchecked, the future of fish and fishers is not bright.	Policies related to fishing gear (specifically beach seines), protected area delineation, and land tenure policies.
Worship and traditions	The elderly use ES for worship as they are allowed by tradition to perform ritual/ worship related activities but the benefits are to the whole community.	Culture is a way of life of a people and the situation is expected to continue as it is currently	No governance issues were mentioned
Habitat	Mostly people involved in fishing and sometimes tourists benefit from the resource	Are affected by unsustainable fishing practices and my further be affected if unsustainable gear continue to be used	No governance issues were mentioned

Mozambique Focus Group 1: Costa do Sol, Mozambique

Date: *30th June 2008*
Location: *Costa do Sol, Mozambique*
Research team: *Sérgio Rosendo (ODG), Helena Chanvane (IDPPE), Xaviér Mapanga (IDPPE), Louis Celliers (ORI). The FG was facilitated by Sergio Rosendo with assistance and translation from Helena Chavane and Xaviér Mapanga. The discussions were held in Changana and Portuguese.*

1. Focus Group Participants

- Twelve participants, ten men and two women involved in fishing activities. The male group included fishers fishing with different gears, including hook and line, gillnet, beach seine and prawn fishing with drag net. One of the women fished for prawns with a drag net operated by 2 people and the other collected clams in intertidal areas. The group included representatives of the local Community Fisheries Council or CCP, namely its president, secretary and two enforcement agents.
- All participants relied mostly on fishing activities for their livelihoods, although some had small subsistence agricultural plots off-site.

This group aimed to capture the importance of coastal and marine ecosystem services (ES) for poor resource-dependent groups in a peri-urban area, where the proximity of city markets and a high demand for fish would presumably make fishing a good business.

The focus group was assembled with the assistance of the Institute for the Development of Small Scale Fisheries (IDPPE), a government institution associated with the Ministry for Fisheries. The group was selected purposely to include CCP members to reflect the dynamics of fisheries co-management, an approach recently promoted in Mozambique.

The FG was initiated with a presentation of the research team and the participants, followed by an explanation of the objectives of the FG. It was mentioned that the FG was part of a research project promoted by an international organisation and that its objective was to examine the relationship between coastal and marine ecosystems and local communities, particularly their importance for the most disadvantaged. Some local examples of coastal and marine ecosystems that participants were likely to be familiar with were given. It was explained that the aim of the FG was to collect information to help define a research programme funded by this international organisation that will promote studies that can help find ways to improve the management of coastal and marine resources for the benefit of poorer communities.

2. Social-Ecological Setting

Costa do Sol is a traditional fishing community in Maputo Bay, just outside Maputo city. With the expansion of the city, Costa do Sol has become a peri-urban area but has nevertheless remained one of the most important fishing areas of Maputo Bay. Parts of the village are threatened by coastal erosion, and the nearby road (Avenida Marginal) which runs along the beach for some of its extension before curving slightly inland has had to be protected with a boulder revetment. The stretch along the beach is slightly elevated in relation to the beach. People live on a narrow stretch of land between the road and salt marshes. After it curves inland, people live on boat sides of the road. Some of the dwellings situated on the lowlands across the road running along the seafront were flooded in 2007 during unusually high spring tides. Many areas of mangrove in Costa do Sol have been lost mainly as a result of urbanisation. A study by de Boer (2002) estimates that around Maputo, the average reduction of mangrove coverage was 40% since 1958, with areas closer to the capital suffering the most.

3. Focus group outcomes and findings

3.1 Which ES are recognised and valued?

The discussion was initiated by with the statement: ‘let’s talk about the coastal and marine environment and the natural resources there’, followed by a general question ‘in what ways are these important for you and your community? In order to encourage, widen and develop participation beyond the first tentative responses, the same question was asked in different ways and about specific ecosystems found in the area. Participants were asked to consider not only what they used, but also things they appreciated about the environment, missed if they were lost, or made them happier.

The initial responses were related to the loss of mangroves protecting the shoreline. The loss of mangroves was seen to have contributed to the siltation of channels where fish spawn. These channels were also considered to be important near-shore habitats. As a result of the siltation of channels, fish was now found mostly in deeper waters, further out at sea, and often beyond the reach of artisanal fishers. This was forcing fishers to travel further than before in order to fish.

From the initial discussion, the group recognised that mangroves provided two important benefits, namely shoreline protection against erosion and nursery and habitat for fish. Given that the community depends largely on fishing for their livelihoods, the group also added food (fish, clams and crabs) and income from the sale of these resources as two important benefits they derived from the marine environment.

The discussion then shifted back and forwards from changes in the environment people were concerned with, the related ecosystems and the benefits they provided, ad the causes of those changes. The causes of mangrove deforestation were related to urbanisation and use for firewood, charcoal and poles for construction. This lead to the recognition that mangroves provide two additional benefits, firewood and charcoal, and poles for construction of houses, fences and boats.

Pollution also concerned FG participants. People mentioned the effects of the oil spill from Katina P, a Greek tanker that sunk in Maputo Bay, in April 1992. Despite this accident having occurred over a decade ago, its effects are still remembered and people use it as an example of the disastrous effects that pollution can have on the environment, particularly on fish. They added the most important source of pollution is MOZAL, an aluminium smelter located upstream from one of the rivers that flows into Maputo Bay. Participants were particularly concerned with the effects on their health of eating fish contaminated by pollution. This led participants to recognise that another important benefit provided by marine ecosystems was health, from eating fresh, uncontaminated fish. Participants were encouraged to think about what other benefits that the coastal and marine environment provide. One participant said that the coastal strip is important for building their dwellings on, in order to be close to the landing sites. Participants agreed that land for dwellings should be added to the list of benefits.

The facilitator asked whether agriculture was important in this community. Participants argued that farming was not a very important activity because soils in nearby areas were generally poor and affected by salt-water intrusion. Some people have subsistence agricultural plots where they grow crops, but these are located off-site, further inland. They pointed out that in the past, farming was undertaken closer to the coastline, but that those lands had become salty and unsuitable for agriculture. Other participants said that some people keep small gardens near their dwellings on the coast, where they grow crops such as sweet potato (for its edible leaves rather than the potato itself), but conceded that this was rare. Despite participants emphasising that agriculture was not an important activity for their livelihoods, they agreed that land for agriculture should be included as a benefit provided by the coastal environment.

Medicines prepared from plants found on coastal areas were also mentioned as a benefit provided by coastal ecosystems. However, some participants pointed out that this benefit depended on possessing knowledge about the uses of different plants, which not everyone possesses. They noted that knowledge about medicinal plants was held mostly by traditional healers, but conceded that medicines should form part of the list of benefits derived from coastal environments.

Finally, one participant mentioned that people also keep small livestock such as chickens in their homesteads that feed on the land and vegetation. Participants agreed that this is a benefit, which was included in the ‘land for agriculture’ category. However, some participants noted that it is not possible to keep chickens relying only on foraging, and that buying chicken feed was also necessary. The high price of chicken feed limited the contribution of this activity for livelihoods.

3.2 Ranking exercise of values

The facilitators read out the different benefits mentioned by the group, and asked if there was anything the group wished to add to the list. Participants were reminded that benefits are not only material things, but can include things that they appreciated in the natural environment or would miss if they disappeared. No further benefits were mentioned and the facilitators proceeded to asking participants to score ecosystem services according to their perceived importance.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Food (fish, clams, crabs, etc)	Fish, clams, crabs found in the sea, intertidal areas, sand and muddy areas in the sea, seagrasses, mangroves, channels	23
Health benefits (from eating fish)	Unpolluted areas	22
Income / money	Fish, prawns, clams, crabs	20
Protection against erosion	Mangroves, coastal forests	14
Medicines	From plans found in the forest, home gardens	14
Nursery and habitat for fish	Mangroves, channels	12
Land for dwellings	Dunes near landing sites	7
Farming land	Soil (free of salt intrusion)	6
Fuelwood	Mangroves, coastal forest	2
Poles and other building materials	Mangroves, coastal forest	0

3.3 Views on access and benefit distribution

The top 3 ES were selected for the remainder of the FG questions. These services were: 1) food (fish and other fishing-related products); 2) health (from eating fish); and 3) income (from the sale of fish and other marine resources). Participants considered that these three benefits were derived from fishing activities, which became the focus of the remainder of the FG questions.

3.3.1 Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

Participants agreed that everyone in the community benefited from the fishing resources associated with the top three ES. The intermediaries who buy fish from the fishers to sell to consumers, restaurants, etc were considered to be the group that most benefited from the fisheries. These intermediaries, called locally *maguevas* are usually women that meet fishers at the landing sites. The *maguevas* benefited more because, in the participant's opinion, had no costs, while the fishers had many costs, including fishing instruments and licenses.

The group also recognised that among fishers, there are some who benefit more than others. This depends on the means of production available to them. Boat owners and those fishing with better quality gear are likely to benefit more.

3.3.2 Do you have any problems using and/or benefiting from these ES?

The problems mentioned fell into two broad categories: those affecting production and those affecting stocks.

The low prices of fish and the high costs of fishing gear were considered the main problems limiting the benefits derived from fishing activities. Participants felt that income from fishing activities is low, barely covering costs. Lack of outboard motors to enable fishers to fish further, in areas likely to have more abundant stocks was mentioned as a key problem affecting the benefits that could potentially be derived from fishing. However, participants also recognised that the high price of petrol would limit their profits even if they had outboard motors.

he lack of freezing facilities to conserve fish, was identified a problem affecting earnings from fishing. Fishers are forced to sell their catches at low prices when catch volumes are high. Freezing facilities, in their opinion, would enable fishers to store fish at times when catches are high, to sell when catches are low. In other words, fishers expect that freezing facilities would enable them to control the supply of fish, making them less vulnerable to fluctuating prices.

The lack of options to sell fish was also recognised as a problem. According to the FG participants, in the past (up until 1987), there were fish canning and fish meal industries, which provided an additional market for fish produced, especially when catches were high

The key problem affecting stocks is the siltation of channels, which the group recognises as being important habitats and nurseries for fish. In the listing of ES, participants linked the siltation of channels to the loss of mangroves. In this question, they also added the 2000 floods as a major event leading to the siltation of channels. They agreed that mangrove loss probably aggravated the effects of the floods on the channels.

Lack of rain in recent years was mentioned as a problem affecting stocks. Rainfall is thought to improve marine habitats, by cleansing and mixing the waters (preventing waters from becoming excessively salty).

3.3.3 Could anything be done to improve the benefits you get from this ES?

Related to the above, the solutions centred mostly on measures needed to improve production and stocks. On the production side, the focus was on fishing gear, which participants considered to be expensive and difficult to obtain. The solution proposed by FG participants involved ensuring lower prices and improve availability and supply of fishing gear.

The measures aimed at improving stocks proposed by participants included preventing the destruction of mangroves. One participant suggested that some problems were within their reach to solve, while others were not. Siltation was considered to be largely beyond their reach to address. However, another participant argued that the community can and must organise to prohibit mangrove cutting and deforestation and create regulations.

3.4 Perceptions on trends

3.4.1 How have the benefits from this ES changed over the last 5 to 10 years? And why?

Participants felt that the benefits from the fisheries are decreasing, both in terms of catches and income. One set of causes were those already mentioned, related to the problems affecting stocks. Others included the increase in boats and the lack of measures limiting the number of boats that can operate in any one area. According to FG participants, in the past the number of licenses issued for any one area were limited, which prevented excessive pressure on resources. This system is no longer in place.

Lack of livelihood alternatives was mentioned as a factor leading to the increase in boats. One of the women participants gave the example of her household. She has five children and they all aspire one day to own a fishing boat. Another participant said that everyone can participate in the fishery, which contributes to children dropping school to become fishers and earn their own income.

Lack of law enforcement affected the benefits from fisheries by failing to protect the resource. Participants said that measures such as closed seasons are not working in communities living in urban areas because urban fishers have no livelihood alternatives. In rural areas, the situation is different. If a closed season is implemented, fishers have farming as an alternative. In urban areas, employment is the only possible alternative, but there are few employment opportunities. These concerns has been taken to the Provincial Fisheries Delegation, which argues that closed seasons only apply to certain gears and that fishers can fish with other gears during that time. However, the group felt that limited financial resources make this option unfeasible. A license is required for each individual gear, and fishers cannot easily support the cost of multiple licenses.

Semi-industrial fishing was mentioned as a cause for declining catches. These vessels operate 24/7 during the fishing season and sometimes encroach on areas reserved for artisanal fishing.

Participants mentioned other environmental changes, again touching on the issue of loss of mangrove and siltation of channels in the bay. They also talked about changes to Xefina, a small island located in Maputo Bay opposite the estuary of the Incomati River (there are two Xefinas, a larger and a smaller one, participants were talking about the largest of the Xefinas, with an area of approximately 6.2 km². This mangrove fringed island protects the mainland against storms and erosion. According to participants, in 1964 the island was 14km long and is currently reduced to 7 km. There was also a small island called Ponta Grossa, which has since disappeared. Many of the participants believe that if Xefina also disappears this will have disastrous effects on their communities and suggest that the government should protect and stabilise the island.

3.4.2 How do you think the sea/mangrove/reef/beach/coastal forest will be in 5/10 years in the future? What are the biggest changes you expect? How do you think these changes will affect your/your community?

The participants felt that in 10 years there will be no fishing activities and the entire area will be a beach for tourists. Tourism development is a concern because it can result in the displacement of families, fish landing sites and access to the sea. Increasing urbanisation is already affecting areas occupied by fishers. Developers often approach local families on an individual basis, offering money for their lands.

3.5 Governance and institutions

3.5.1 Is this ES affected/controlled by rules or management?

Several institutions dealing with fisheries were mentioned, including the Community Fishing Councils (CCPs), the Maritime Administration (ADMAR), Provincial Fisheries Services, IDPPE, and Maritime Police.

The initial discussion about fisheries governance focused on the CCPs, a fisheries co-management institution promoted by the Mozambican government in recent years. CCP members participating in the FG gave several examples of rules implemented by the CCP. These include:

- Minimum mesh sizes for seine nets (1 ¼); gillents for magumba (2 ¼); gillnets for mullets (1 ½); 2-person drag net (0.5)
- Prohibition on the use of diggers to collect mangrove crabs and clams
- Prohibition to collect small-sized clams

The CCP members conceded that these rules are not generally respected by resource users. They cited the CCP does not have resources to undertake law enforcement activities and currently relies on the voluntary work of community law enforcement agents. They argue that the government should pay those agents. Although the limitations of CCPs were cited as one of the factors that contribute to poor law enforcement, the general sentiment is that people do not respect resource use rules because they are hungry and need to guarantee their survival.

The group agreed that the community cannot control resource use on its own, and that the involvement of the government through the Maritime Administration and the Provincial Directorate for Fisheries is crucial. These institutions are not considered effective at enforcing the law, and cases of corruption were mentioned. CCP members lament not receiving adequate support from the government. They have reported infractions to the relevant authorities, but the cases were not generally taken up and few penalties or fines were applied.

CCP members also noted that the Provincial Directorate of Fisheries promised the CCP 10% of the fines resulting from its law enforcement actions as a means to reward the work of community law enforcement agents. However, these funds have not been paid to the CCP. When CCP members approached the Provincial Direction for an explanation, they were told that this system is not yet operational. This has affected their motivation to undertake enforcement work.

4. Focus Group Facilitators' Comments on Insights for ESPA

4.1 Suggestions for research agendas which may inform or address priority issues of participants

IDPPE is encouraging and supporting the formation of Community Fisheries Councils (CCPs) as a means to promote the co-management of fishing resources. The FG at Costa do Sol indicated that the roles and responsibilities of the CCPs are not clear and their authority is not sufficiently recognised by resource users and other government agencies responsible for enforcement of natural resource management norms and regulations. An important area of research is to investigate the requirements for successful fisheries co-management in Mozambique. Fisheries co-management experiences in other regions, notably South East Asia where this approach has been around for longer, could potentially provide valuable lessons for Mozambique.

One important concern that emerged in this FG was the loss of mangrove forest cover and resulting increase in erosion. Research on the feasibility of mangrove restoration could be combined with pilot projects in selected areas to demonstrate the process and its benefits.

4.2 Summary (including reference to a-c in the ESPA conceptual diagram)

This FG focused on a peri-urban fishing community. The participants included fishermen and fisherwomen fishing with different gears. Some of the fishermen also belonged to the local Community Fisheries Council (CCP), a fisheries co-management institution. The group identified several benefits provided by coastal and marine environments (a). These were ranked as follows: food (fish, clams, crabs and other marine species); good health (from eating fresh, uncontaminated fish); income from the sale of fish and other marine species; protection against erosion; medicines from plants; nursery and habitat for fish and other marine species; land for dwellings; farming land; fuelwood, poles and other building materials from coastal forests and mangroves. The most valued ES were linked to fishing resources. While these ES benefit the entire community, intermediaries capture most of the profits (b). The flow of fisheries-related ES has been declining (c). The reasons cited for decline include increasing number of boats, poor enforcement of fishing regulations, and degradation and loss of habitat and nursery grounds due to deforestation, urbanisation, intense resource use, and siltation of near-shore channels.

The group identified several measures aimed at enhancing the benefits from fisheries-related ES (b). These centred on improving harvesting and stocks. Specific measures included improving availability of fishing gear and protecting mangroves as nursery/reproduction areas for fish and other marine species. An important challenge is to address the siltation of channels, which are large-scale natural changes which, in the opinion of some participants, the community cannot affect. Nevertheless, the group recognised that collective action at the community level can result in stock improvements, for example through implementing rules and measures protecting natural habitats and reproduction areas (c).

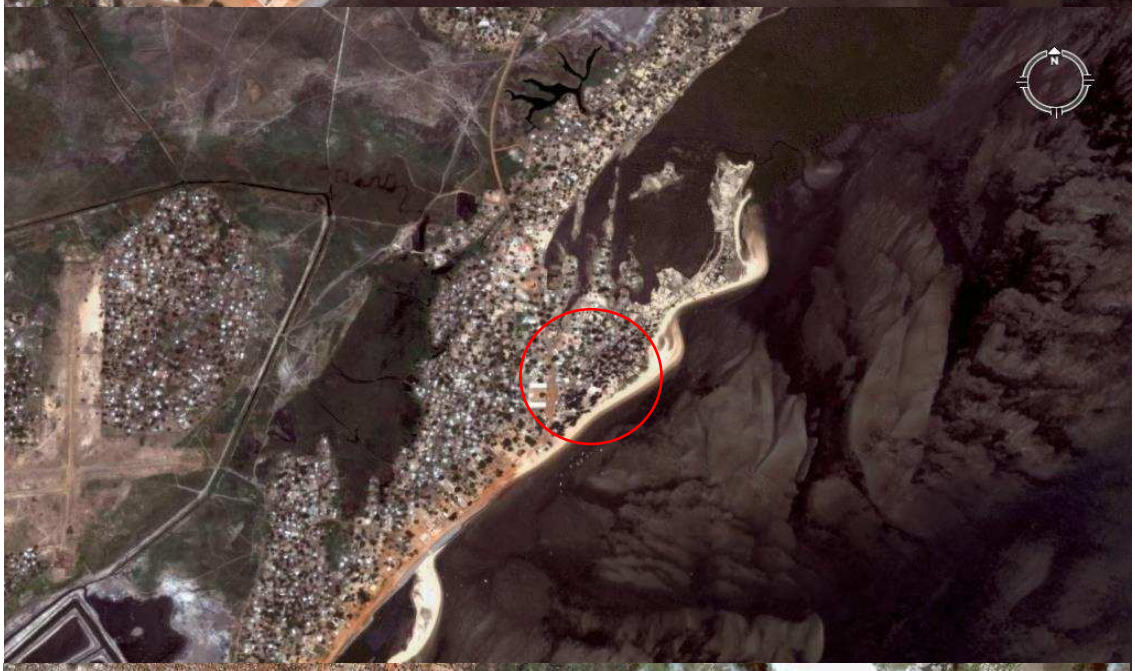
Governance is one of the key challenges associated with improving the benefits and the flow of fisheries-related ES for the poor and poverty alleviation. In Mozambique, there is a drive to empower communities in resource governance through fisheries co-management councils (CCPs). However, it is debatable whether any real power and authority has been devolved to the CCPs. Participation issues are also important and need further consideration. The effectiveness of these institutions at enforcing resource management rules and regulations will depend on how legitimate they are perceived to be by resource

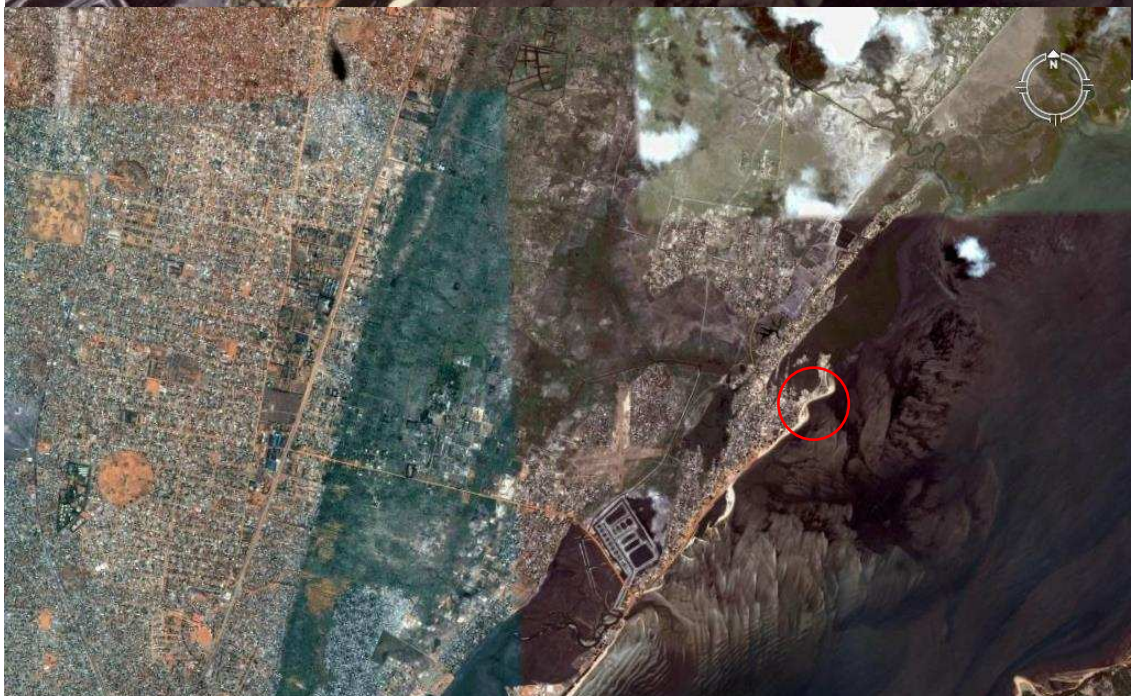
users. If only those who have political and economic power in communities are involved in the CCPs, these institutions are likely to be perceived as elitist and their authority not recognised. On the other hand, the involvement and support of traditional authorities may be important to improve the acceptance of the CCP. Governance issues related to fisheries co-management deserve further research.

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Food (fish, clams, crabs, etc)	Everyone benefits	Fish catches have declined, which presumably results in decreasing availability of fish for food. Although not stated, as fish becomes scarce and prices higher, fishers may choose to sell all their catches, thus reducing their own fish consumption (possible resulting in poor nutrition)	ADMAR and Provincial Fisheries Services are responsible for monitoring and enforcement and licensing of fishing activities. IDPPE supports fisheries development and the formation of fisheries co-management councils (CCPs) CCP has been established but its effectiveness is still limited. Reasons cited include lack of resources, weak power and authority not widely recognised. Possible weak legitimacy among resource users.
Income from the sale of fish and other marine species	Everyone benefits, but intermediaries and fishers with better fishing means benefit more. Economic benefits constrained y lack of options to sell fish and freezing facilities	Profits are low and declining due to high costs, including gear and licenses	
Health benefits (from eating fresh, uncontaminated fish)	Everyone benefits	Pollution is increasing, which is contaminating fish and other marine species, which may lead to poor-health.	

Figures 1 to 3: Location of Costa do Sol





Mozambique Focus Group 2: Macaneta, Mozambique

Date: *1st July 2008*
Location: *Macaneta, Mozambique*
Research team: *Sérgio Rosendo (ODG), Helena Chanvane (IDPPE), Xaviér Mapanga (IDPPE), Louis Celliers (ORI). The FG was facilitated by Sergio Rosendo with assistance and translation from Helena Chavane and Xaviér Mapanga. The discussions were in Changana and Portuguese.*

1. Focus Group Participants

- This FG involved mostly local leaders (including the village leader, the Frelimo party secretary and the head of the neighbourhood) and two local staff of CESVI, an Italian NGO leading a project to promote the sustainable development of agriculture and fishing (http://www.cesvi.eu).
- The FG intended to involve the most disadvantaged groups of the community, but this was not possible because the request to organise a meeting arrived late. On the day of the FG, most fishers were out at sea, following two days of bad weather.

The FG was assembled with the assistance of the Institute for the Development of Small Scale Fisheries (IDPPE), a government institution associated with the Ministry for Fisheries.

The FG was initiated with a presentation of the research team and the participants, followed by an explanation of the objectives of the FG. It was mentioned that the FG was part of a research project promoted by an international organisation and that its objective was to examine the relationship between coastal and marine ecosystems and local communities, particularly their importance for the most disadvantaged. Some local examples of coastal and marine ecosystems that participants were likely to be familiar with were given. It was explained that the aim of the FG was to collect information to help define a research programme funded by this international organisation that will promote studies that can help find ways to improve the management of coastal and marine resources for the benefit of poorer communities.

Following this presentation, the facilitators asked some general questions about the community, including number of families and inhabitants, and main livelihood activities.

2. Social-Ecological Setting

Macaneta is situated approximately 35 km north of Maputo, close to the town of Marracuene. The village is situated near the estuary of the Incomati River. At Macaneta, the Incomati River mouth is diverted to the south by a long spit of sand extending for about 12 km. During the floods of 2000, the river cut through the spit to the sea at Macaneta beach. The break through the spit was filled after the 2000 floods, but is likely to break again if future floods occur. The village is accessible from Marracuene by crossing the Incomati River on a ferry that transports both people and vehicles. The coast at Macaneta has become an important area for tourism and several developments have been established along the beach. The community is situated on the dune system between the sea and a vast area of salt marshes. People live in family dwellings scattered along the landscape.

3. Focus Group Outcomes and Findings

3.1 Which ES are recognised and valued?

The discussion was initiated by with the statement: ‘let’s talk about the coastal and marine environment and the natural resources there’, followed by a general question ‘in what ways are these important for you and your community? In order to encourage, widen and develop participation beyond the first tentative responses, the same question was asked in different ways and about specific ecosystems found in the area. Participants were asked to consider not only what they used, but also things they appreciated about the environment, missed if they were disappeared, or made them happier.

The role of some marine ecosystems as nursery areas for the reproduction of fish and other marine resources was the fist ES mentioned in the group. Specifically, rocks situated in front of the restaurant were identified as an important nursery area. According to the group, the community has decided to protect these rocks. Fishing is only allowed with hook and line. Tourists are allowed to dive in this area, but not to fish with spear guns. The value of seagrasses as habitat for fish was also recognised. One participant said that he knew these areas existed in the sea, that they were important as feeding grounds, and should be looked after.

Mangroves were also recognised for their role as nurseries for fish and prawns and protection against erosion. The group noted that the area of mangroves has reduced and gave the example of the site near the ferryboat, where there used to be mangroves. One participant said that 'this area is no longer stable with the loss of the mangroves, there is erosion. The mangrove was also an area where fish reproduced. There were fish and prawns there'.

Fishing resources were identified as an important benefit obtained from marine ecosystems, both in terms of food provision and income generation. However, the group emphasised that fishing activities generate little income because there are no means to conserve fish, fishing material is not locally available, and fish catches have declined. These issues were further discussed in the questions about problems affecting access to, and benefits from, ES and trends.

Unlike Costa do Sol and Muntanhane, farming is an important activity for families at Macaneta. Farming was considered to be the base of livelihoods, providing for the subsistence needs of families. One participant said that without farming families would be dependent on earning income from fishing, which was considered an unreliable source of livelihood because catches can vary widely. CESVI has supported the development of farming with the provision of ox and tools to facilitate the preparation of soils. Community members can use the ox subject to the payment of a user fee, which goes to a fund to maintain the ox and the tools. CESVI has also provided cattle to some families, on the condition that the first offspring is given to another family, and so forth. The family can then keep any subsequent offspring. This system appears to be working, and some families now own a few cattle.

The group recognised that farming production has declined. This is a result of drought and the salinisation of soils. Nearby, there is a vast area of salt marsh where, according to participants, rice used to be cultivated. Although not mentioned by participants, the problem of salt-water intrusion is related to a reduction in the flow of the Incomati River as a result of increasing water use by riparian countries, particularly for sugar cane cultivation in South Africa. The Incomati is shared between South Africa, Swaziland and Mozambique and an estimated 50% of the water generated in the basin is being withdrawn according to one study (Vaz and van der Zaag 2003). The group agreed that farming land and rain should be added to the list of benefits provided by the coastal environment.

After some prompting by the facilitator about the development of tourism and its importance for the community, participants recognised that the beach and the natural landscape are the main reasons why tourists come to the area and therefore are an important benefit provided by the coastal and marine environment. Tourism activities employ approximately 100 community members. According to the village leader, one of the conditions required from prospective investors interested in setting up businesses in the area is that all staff except managers and technical staff must be from the community. These conditions are part of the negotiations between investors and communities over the rights to lands for tourism development.

3.2 Ranking exercise of values

The facilitators grouped the different benefits and values mentioned by participants into different categories. These were read out to the group, and participants were asked if there was anything they wished to add to the list. They were reminded that benefits are not only material things, but can include things that they appreciated in the natural environment or would miss if they disappeared. No further benefits were mentioned and the facilitators proceeded to asking participants to score ecosystem services according to their perceived importance.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Rain	-	19
Farming land	-	18
Income from fisheries	Fish, prawns, clams	14
Habitat for fish, etc	Mangroves, seagrasses, rocks	11
Protection against erosion	Mangroves, coastal forest	7
Natural landscape for tourism	Beaches	4
Nursery areas for fish, etc	Mangroves, rocks	4
Food (fish, etc)	Fishing resources	4

3.3 Views on access and benefit distribution

The three ES that received the highest scores were rain, farming land and income. The group decided to select 'nursery areas for fish' for further discussion instead of rain because participants felt that rainfall was something they could not control or affect.

3.3.1 Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

According to the group, everyone benefits from the nursery function of ecosystems, including fishers and fish consumers. The group believed that the extent of economic benefits depends on how much effort different individuals invest in fishing activities. The participants also felt that intermediaries are who benefit the most from fishing activities, while fishers are who benefit the least. Intermediaries not have costs, while fishers do. They must pay for two licenses, one for the boat and another for the fishing gear. In addition, the costs o buying and maintaining fishing equipment are high. While fishing is accessible to everyone, the cost of the equipment and the licenses limits who can start this activity. The village leader conceded that sometimes it is necessary to turn a blind eye to the legal requirements for licenses in order to enable someone with few resources to start fishing. The fisher can then get licensed after he starts earning income.

3.3.2 Do you have any problems using and/or benefiting from these ES?

Spear fishing affected the rocks near the beach, which the group mentioned as being important nursery areas for fish. This problem has been addressed by not allowing tourists to fish on those areas, which is facilitated by the existence of a local office of the Maritime Administration (ADMAR). Semi-industrial boats were also seen as a threat to fishing resources because they often fish in the areas reserved for artisanal fishing. The problem has been reported to the Maritime Administration.

Other problems identified were related to production and marketing. As in the other two FG locations, the lack of boats to fish off-shore was regarded as an important constraint to improving the benefits from fisheries. The concentration of fishers in near-shore areas was also seen to contribute to the decline in fishing resources. The lack of a tractor to transport fish from the landing sites situated further away from the main road where intermediaries come to buy the fish was another factor limiting the economic benefits generated by fishing resources.

Regarding farming land, participants said that the area of arable land has reduced due to the intrusion of salt water, which consequently has led to a drop in agricultural production. Agricultural production has been further affected by drought.

3.3.3 Could anything be done to improve the benefits you get from this ES?

One of the suggestions coming out of the group was to diversify livelihood activities. Depending only on one activity was regarded as being unwise. Credit to develop income generating activities was seen as a way of diversifying livelihoods. However, the group also recognised that credit programmes do not always work because people do not pay back their debts. This reason for this, in the participants view, was cultural.

3.4 Perceptions on trends

3.4.1 How have the benefits from this ES changed over the last 5 to 10 years? And why?

Similarly to the other areas, Macaneta FG participants have noticed a decline in fishing resources over the last 5 to 10 years. They associated this decline with the loss of mangrove forests and to the siltation of near-shore marine areas. According to participants, some seasonal fish species have disappeared or their seasonal patterns become irregular. Migratory fish species used to have very defined seasonal patterns. This is no longer so, anchovies being one example of a species that was common this time of the year but that has not yet been seen this year.

The siltation of near-shore areas and channels that provided habitat, nursery and feeding grounds for many species was caused by the 2000 floods, according to participants. The floods created a sand bank in front of Montanhane, which extends almost to Inhaca Island. The solution to this problem, according to participants, would be to remove this bank with a dredger.

3.4.2 How do you think the sea/mangrove/reef/beach/coastal forest will be in 5/10 years in the future? What are the biggest changes you expect? How do you think these changes will affect your/your community?

This question was skipped due to lack of time.

3.5 Governance and institutions

3.5.1 Is this ES affected/controlled by rules or management?

The norms that participants identified as applying to fishing resources included a closed season from January to February, when all types of fishing are forbidden, except for line fishing. Regulations about minimum mesh sizes and licensing of fishing boats and activities were also mentioned. With regards to the outcomes of these norms, participants argued that in this community they are generally respected. The group also mentioned the community decision to protect the rocks they consider important fish nursery areas. Rules controlling tourism activities were also mentioned, including the prohibition of driving vehicles on the beach and the requirement of using the boat launching sites designated specifically for that purpose.

The facilitator prompted the group about the existence and outcomes of Community Fisheries Council (CCP). There is a CCP in the community, but is still in a very early stage of formation and has developed few activities, according to participants. They added that the CCP already existed in the form of an association that was established much earlier. When asked about the difference between the CCP and an association, one of the participants clarified that the CCP aims to benefit the entire community, while the association only befits its members.

4. Focus Group Facilitators' Comments on Insights for ESPA

Although restricted mostly to local leaders, this Focus Group offered insights into a coastal community where several efforts are being made to improve the management of natural resources. Of particular interest is the way in which tourism investment appears to be handled in order guarantee economic benefits to the community in terms of employment. Although the Focus Group could not establish how negotiations with investors are being conducted and how benefits from tourism are distributed within the

community, Macaneta may be an example of the role of tourism in alleviating poverty among resource-dependent communities. Although this cannot be established with much confidence, it seems that strong leadership and social organisation are important factors that contribute to ensuring that tourism jobs go to community members as opposed to outsiders. These issues point to the need for a better understanding of under what conditions can tourism contribute to reducing poverty in resource-dependent communities, including the factors that affect the equitable distribution of tourism benefits.

4.1 Suggestions for research agendas which may inform or address priority issues of participants

One of the main preoccupations of the participants was the siltation of the estuary and near-shore marine areas and its perceived impact on catches. The combination of water circulation, sediment transport and salinity gradients make estuaries and bays sites of high biological productivity, which in turn support livelihoods. Estuary systems are very dynamic by nature and changes are common. However, it appears that the flow of rivers that discharge into Maputo Bay (Incomati, Maputo and Espirito Santo rivers) has reduced due to increasing upstream demand from irrigation and dams. The effect of floods and droughts has probably amplified these changes. A possible area of research is to understand the possible consequences of these changes on coastal ecosystems and the communities that depend on the services provided by them. Research could help to determine the extent of the changes occurring, possible scenarios under increasing climate variability and change, the likelihood of irreversible changes beyond the capacity of natural systems and communities to adapt, acceptability of changes under different scenarios, and options for ameliorative measures.

A popular response to declining catches from near-shore areas is equipping artisanal fishers with larger boats and outboard motors to fish in deeper, offshore waters. This is also the alternative promoted by government agencies dealing with fisheries, namely IDPPE. However, it is not clear if this strategy is based on a scientific stock assessment of off-shore waters. This is an important area of research. It is assumed that large stocks of commercially valuable fish species exist and that they can be exploited by artisanal fishers equipped with improved fishing means. If these assumptions are overestimated, then other strategies to alleviate poverty in fishing communities should be considered, including promoting a shift to other livelihood activities.

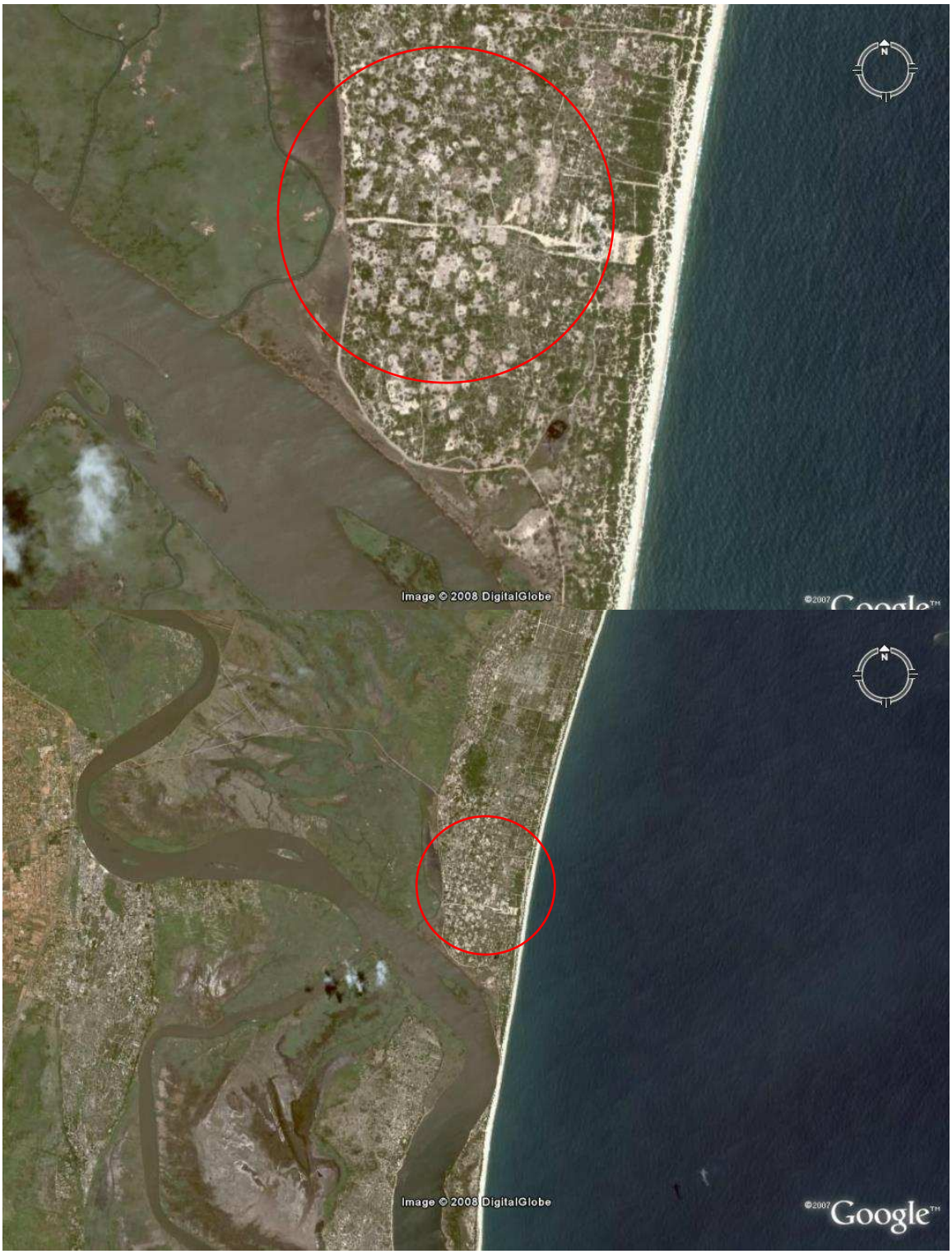
5. Summary

The Focus Group assembled mostly leaders from a community that depends on fishing and agriculture for livelihoods, and where tourism appears to have the potential to become an important tool for poverty alleviation through the provision of employment for community members. Discussions highlighted several benefits provided by the natural environment, including rain, farming land, income from the sale of fish, habitat and nursery area for fish and protection against erosion (a). The flow of most ES (c) is declining, including less rainfall; reduced agricultural productivity due to drought and increasing soil salinity; lower income resulting from loss of productivity in marine habitats as a consequence of alterations in river flow, droughts and floods. At the moment, most interventions are being targeted at enhancing the benefits from ES (b), through technological improvements in fishing and agriculture, to enable a more intensive use of existing resources and exploit new stocks. Less attention is being given to enhancing the flow of ES through, for example, addressing the root causes of soil salinity, managing near-shore stocks sustainably, and habitat restoration (i.e. mangroves). Current strategies for enhancing the benefits from fisheries are centred on expanding capacity and improving technology to exploit new stocks. However, this is likely to benefit individuals who can obtain credit based on their existing assents, and who are already comparatively better off. Their impact on poverty alleviation, therefore, may be limited. There are also concerns about possible 'side-effects' of improving technology, namely increasing pressure on already intensively exploited resources. Artisanal fishers possess the knowledge and skills to operate in near-shore waters. Shifting to off-shore waters presents a challenge and some may opt to continue fishing in the near-shore areas they are familiar with.

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Income from sale of fish	Benefits depend on means available to people to exploit fishing resources. Intermediaries are perceived as benefiting the most.	Declining catches due to loss of habitat and nursery areas (siltation of estuary and near-shore areas, loss of mangrove)	Closed season for fisheries (Jan-Feb). Fishing activities are licensed and obey certain rules, including minimum mesh sizes. Fisheries co-management group (CCP) has been formed but is not yet fully operational.
Nursery for fish	Benefits from ecosystems providing nurseries for fish dependent on capacity to exploit fishing resources.	Loss of mangrove, but efforts are made by the community to protect rocks off the beach.	Community protects rocks believed to be nursery grounds for fish.
Agricultural land (soil suitable for farming, pasture)	Most families plant crops for subsistence, while others also produce for sale. Some own cattle. Not everyone benefits in the same way, but benefits are widely distributed.	Loss of arable are due to salt intrusion .	CESC project to improve farming productivity and promote bovine livestock.

Figures 1 to 3: Location of Macaneta

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Mozambique Focus Group 3: Muntanhane, Mozambique

Date: *30th June 2008*
Location: *Muntanhane, Mozambique*
Research team: *Sérgio Rosendo (ODG), Helena Chanvane (IDPPE), Xaviér Mapanga (IDPPE), Louis Celliers (ORI). The FG was facilitated by Sergio Rosendo with assistance and translation from Helena Chavane and Xaviér Mapanga. The discussions were held in Changana and Portuguese.*

1. Focus Group Participants

- Fifteen fishermen aged between 22 and 60, fishing mostly with gillnets and beach seine nets. Initially, the group also involved the president of the local fisheries co-management council (CCP), but he left during the first part of the FG discussion.
- All expect one older fisherman who also made nets, relied on fishing activities for their livelihoods. Some had small subsistence agricultural plots off-site.

This community is situated approximately 10 km from Maputo, but its setting is rural and is fairly isolated from the city by an extensive low-lying area that floods with the rains.

The focus group was assembled with the assistance of the Institute for the Development of Small Scale Fisheries (IDPPE), a government institution associated with the Ministry for Fisheries.

The Focus Group was initiated with a presentation of the research team and the participants, followed by an explanation of the objectives of the Focus Group. It was mentioned that the Focus Group was part of a research project promoted by an international organisation and that its objective was to examine the relationship between coastal and marine ecosystems and local communities, particularly their importance for the most disadvantaged. Some local examples of coastal and marine ecosystems that participants were likely to be familiar with were given. It was explained that the aim of the Focus Group was to collect information to help define a research programme funded by this international organisation that will promote studies that can help find ways to improve the management of coastal and marine resources for the benefit of poorer communities.

Some of the Focus Group participants had been drinking on the day, which affected and caused disruption to the discussions. Many lost interest and left during the first part of the Focus Group. On the day, fishers had not gone out fishing because of bad weather and had spent their free time drinking.

2. Social-Ecological Setting

Muntanhane is a small fishing community of approximately 100 households situated approximately 16 km northeast of Maputo, on the estuary of the Incomati River. It is located on a narrow 2 kilometre long strip of land surrounded to the east by the estuary and the west by mangroves and salt marshes. The area where the community sits is separated from the mainland by a narrow tidal river that extends into the mangrove forest and marshland. Some erosion is visible on the margin near the tidal river, evidenced by uprooted trees and vegetation.

3. Focus Group Outcomes and Findings

3.1 Which ES are recognised and valued?

The discussion was initiated by with the statement: ‘let’s talk about the coastal and marine environment and the natural resources there’, followed by a general question ‘in what ways are these important for you and your community? In order to encourage, widen and develop participation beyond the first tentative responses, the same question was asked in different ways and about specific ecosystems found in the

area. Participants were asked to consider not only what they used, but also things they appreciated about the environment, missed if they were lost, or made them happier.

The first ES identified by the group was the function of mangroves as nurseries for fish. As in Costa do Sol, participants expressed concern over the loss of mangroves. Mangroves were also recognised as being important for shoreline protection. According to participants, the coast has changed significantly in recent years, with the sea reaching areas it did not reach before. One specific change is the formation of a tidal river separating the community from the mainland, which requires a short boat crossing at high tide. Three years ago this river was permanently shallow. Another change was the disappearance of a small island, which was also mentioned at Costa do Sol. Erosion of the coastal dune where the community is located is clearly visible.

Fish, clams and prawns for food and income were also identified as important benefits provided by the sea. Some participants added that they are 'suffering' with the decline of these resources, which they associate with mangrove loss and degradation. With regards to income, some participants noted that earnings from fishing activities are low and that they are completely dependent on intermediaries to sell their catches. If on a given that they happen to get a good catch but only two buyers arrive in the village, the rest of the fish goes to waste.

It was difficult to encourage the participants to focus on the benefits they got from the coastal and marine environment. Instead, they were eager to talk about the problems and preoccupations that affected their community, some of which are related to ES provision while others are not.

One of the key problems raised by participants was lack of a road to improve access to the community. The distance to schools and hospital were two other difficulties that participants were particularly concerned with. Children have to walk over an hour to go to school, while the nearest hospital is in Marracuene or Maputo. For the participants, the priorities of any interventions in the area intending to reduce poverty should be addressing these three problems.

After some prompting about the importance of agriculture in their livelihoods, the participants explained that only a few families have small subsistence plots off-site, since nearby lands are affected by salt. According to participants, the salinisation of agricultural land started in the 1980s. The issue of freshwater was also brought up. The community gets their freshwater from wells opened by an NGO. Only a few of these wells continue to provide freshwater. The others have been affected by salt-water intrusion. The water from the wells not yet affected by salt-water intrusion is brown and, according to some participants, probably harmful to human health. However, they have no choice but to drink this water and jokingly say they are already used to it, and that they do not need to buy tea, since the water is already the colour of tea.

Firewood was also mentioned as an important benefit obtained from the natural environment. Firewood is collected in the coastal forest and mangroves. The facilitator prompted for other uses such as construction materials obtained from the coastal forest and mangroves. Participants said that construction materials are scarce locally and added that reeds for walls and thatch were bought in Marracuene. The coastal forest also provides medicinal plants.

3.2 Ranking exercise of values

The facilitators grouped the different benefits and values mentioned by participants into different categories. These were read out to the group, and participants were asked if there was anything they wished to add to the list. They were reminded that benefits are not only material things, but can include things that they appreciated in the natural environment or would miss if they disappeared. One participant mentioned shade, which was unanimously recognised by the group as being an important benefit obtained from the coastal forest. On very hot days, people generally rest or congregate under the trees, including the fish traders while they wait at the landing sites for the fishermen. One participant also said that the trees offer protection against the wind.

No further benefits were mentioned and the facilitators proceeded to asking participants to score ecosystem services according to their perceived importance.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Fish nursery and habitat areas	Mangroves, channels, estuary	38
Income	Fish, clams, prawns, sea cucumber, ray	20
Freshwater	Ground water, rain	18
Shade	Trees	18
Protection against coastal erosion	Mangroves, trees	11
Food	Fish, clams	8
Traditional medicines	Forest	5
Firewood and charcoal	Forest, mangroves	2

3.3 Views on access and benefit distribution

The top 3 ES selected by the group for further discussion were 1) nursery areas for fish and other marine resources; 2) income and; 3) freshwater.

3.3.1 Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

Nursery for fish and income from selling fish and other marine species were considered to be related and the discussion was about benefit distribution from fishing resources. Participants agreed that everyone in the community benefited from fishing resources, although they also recognised that some people benefited more than others. The benefits for fishermen generally depended on luck (being fortunate at getting a good catch) and means they possessed (boat, nets, etc). The main groups involved in fishing activities were boat owners, the crew employed on boats and intermediaries. Of these, intermediaries were considered as benefiting the most from fishing resources. The fishers complained that these intermediaries (women who come from Costa do Sol and other Maputo neighbourhoods such as Xiquilene, Hulene and Matola) are not always honest, refusing to pay the fishermen using the excuse that the fish was not fresh and rot on the way to the market.

Everyone in the community benefits from freshwater, although access is constrained by distance to the wells and poor water quality. There are two types of freshwater, red/brown water called *paquite*, which is not very good for drinking, and *tlazine*, which is clean and clear.

3.3.2 Do you have any problems using and/or benefiting from these ES?

The problems mentioned with regards to fishing resources were lack of means to conserve fish (freezers) and to fish in deeper waters where fish stocks are believed to be more abundant, namely boats larger than the 6-7 metre-long boats currently used.

The main problems with freshwater mentioned by the group was the distance to the wells and salt-water intrusion, which has reduced the number of wells providing drinking water.

3.3.3 Could anything be done to improve the benefits you get from this ES?

Making credit available for fishers to build boats able to fish in deeper waters was the main measure that participants proposed to improve the benefits from the fisheries. Freezing facilities to conserve fish were also proposed, although participants recognised that the lack of electric energy would make this difficult. The group was very keen to emphasise that their most urgent problems are lack of hospital, roads and more accessible schools.

3.4 Perceptions on trends

3.4.1 How have the benefits from this ES changed over the last 5 to 10 years? And why?

The unanimous opinion was that the ES services associated with fishing resources have declined during the last 10 years. This has lead many fishers to move to other areas. The reasons cited for this decline include the loss of mangroves and loss and alteration of fish habitats, particularly near-shore channels due to siltation. According to participants, there used to be a channel extending from the Incomati estuary to Inhaca Island, which provided a permanent deeper water habitat and refuge for fish and other marine species, and was unaffected by low tides. In recent years, this channel has silted up and the entire area has become shallow, no longer providing a suitable habitat. The group also recognised that there are many fishers, but rated loss of nursery and habitat areas as the most important causes of fisheries decline.

According to participants, freshwater is becoming increasingly scarce due to lack of rain.

3.4.2 How do you think the sea/mangrove/reef/beach/coastal forest will be in 5/10 years in the future? What are the biggest changes you expect? How do you think these changes will affect your/your community?

This question was not answered due to lack of time.

3.5 Governance and institutions

3.5.1 Is this ES affected/controlled by rules or management?

Participants recognised that fishing resources are regulated by a set of rules, including a two-month closed-season period (January and February). However, some said that this was not always observed because people are hungry and need to guarantee their basic needs. Fisheries regulations were a subject that the group was not willing to discuss. Most people went quiet, which was perhaps a sign that these regulations are not being observed. The facilitator probed for the outcomes of community fisheries councils (CCPs), but participants also avoided this issue, saying that only the CCP president, who was not present, could answer this question.

4. Focus Group Facilitators' Comments on Insights for ESPA

4.1 General comments

Muntanhane is a community situated in a very fragile environment, vulnerable to erosion, floods, tidal surges and storms. Its location suited a fishing camp, but offers few conditions for the existence of a permanent community. It resembles an island surrounded by the river estuary to one side and by mangroves and salt marshes to the other - it is essentially cut-off from the mainland. Isolation has some advantages, namely the possibility of evading fishing regulations. It is perhaps because of this that this community persists despite apparently inhospitable conditions.

4.2 Suggestions for research agendas which may inform or address priority issues of participants

The group recognised that the flow of provisioning, regulating and supporting ES derived from coastal and marine ecosystems was declining, but this did not emerge as being their most important concern.

The priorities of the FG participants were not directly related to ES provision, but with poor access to education and health care. This indicates that enhancing the flow and benefits of coastal and marine ES may not be sufficient to address some dimensions of poverty. Which dimensions of poverty can enhancing the flow of, and benefits from, ES address?

5. Summary

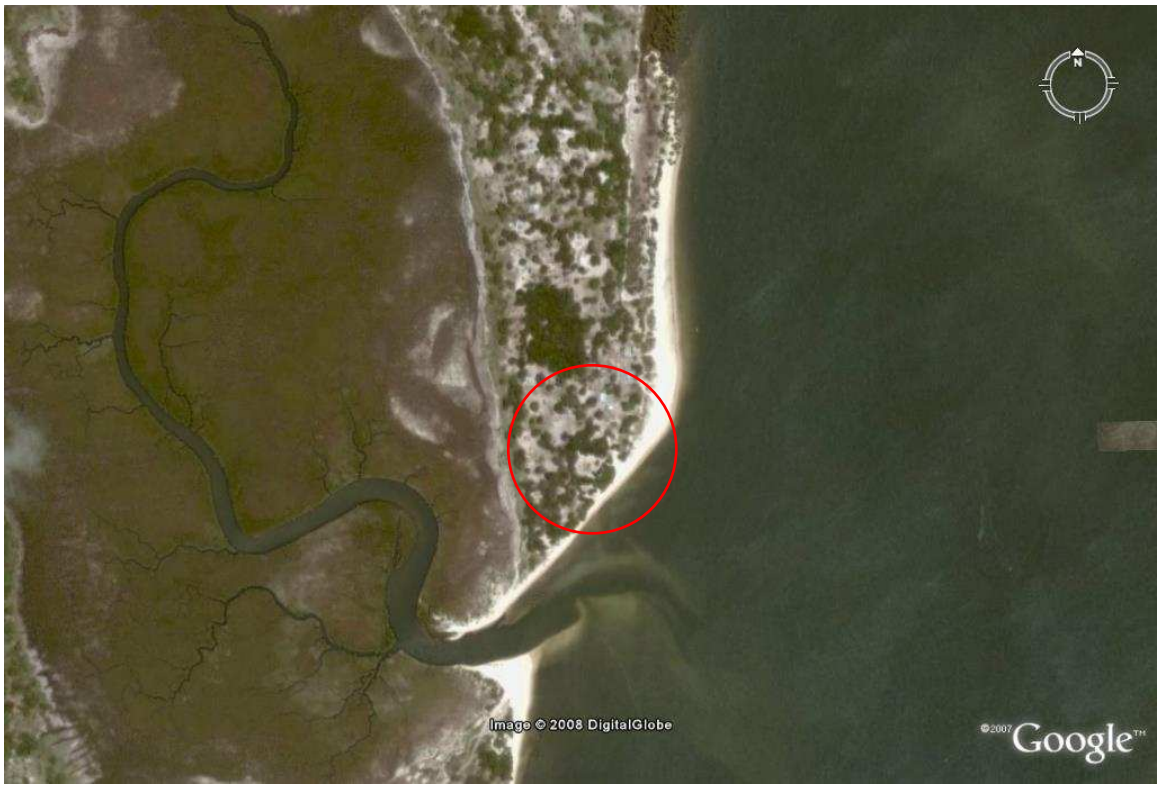
A wide range of benefits provided by the natural environment emerged from the discussions, including nursery for fish and other marine species, income from the sale of fish, freshwater, shade, protection from coastal erosion, food, traditional medicines and firewood and charcoal (a). The group perceived that the flow of the top-three ES (fish nursery and habitat, income and freshwater) is declining (c). The loss of mangroves and the siltation of near-shore channels, both of which were regarded as habitats and nursery areas for fish and other marine species has resulted in poor catches, which in turn leads to low income. Drought and salt-water intrusion have affected the availability of freshwater. Improvements in fishing technology to enable artisanal fishers to exploit off-shore stocks were advocated as being important to improve the benefits derived from fishing resources (b), although the contribution of this strategy to alleviate poverty is questionable and the potential side effects unknown (see Macaneta FG report).

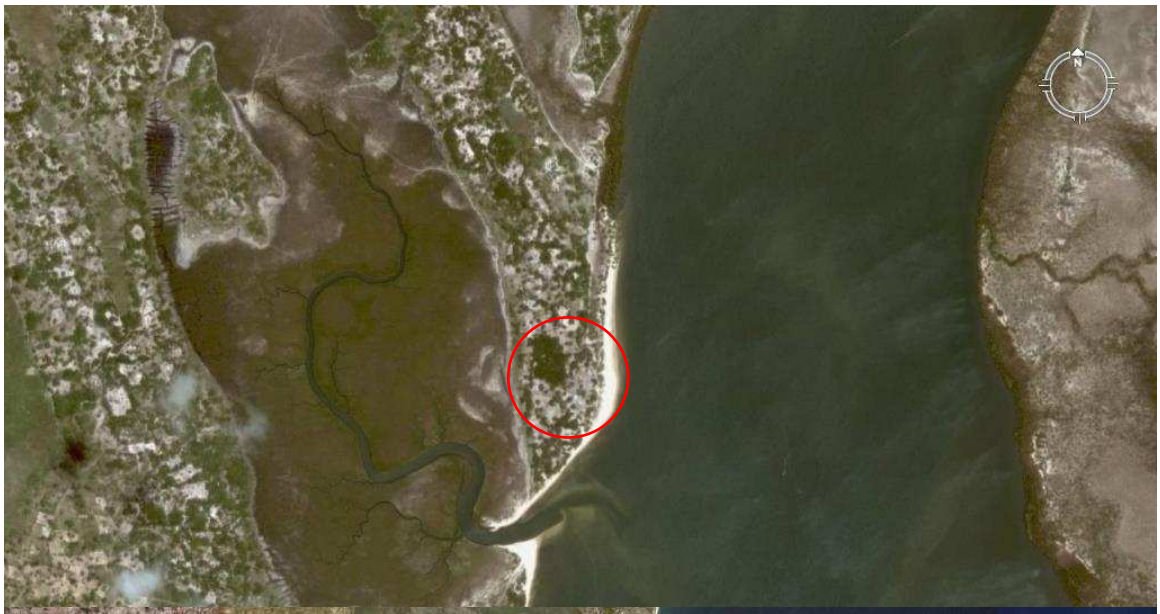
Muntanhane is particularly vulnerable to climate-related and natural events such as floods, storms and tidal surges by virtue of its location. Added to this are other vulnerabilities, including fluctuations and declining stocks, poor access to markets, price fluctuations, occasional bad weather and the dangers of working at sea. However, this community is also vulnerable to ill-health and other determinants of poverty because, among others, poor access to health care and education. This FG illustrates the need to better understand what makes coastal communities vulnerable to factors that result in poverty, and what options are there to alleviate poverty. Persisting poverty in coastal communities often results from a combination of factors such as the different forms of vulnerability mentioned above, including those associated with the ecological characteristics of land and environmental change, as well as other factors such as remoteness, low socio-economic, cultural and political status, low political priority and financial support, etc. Alleviating poverty in these communities may include, but not be restricted to improving the flow (c) and benefits from coastal and marine ES (b).

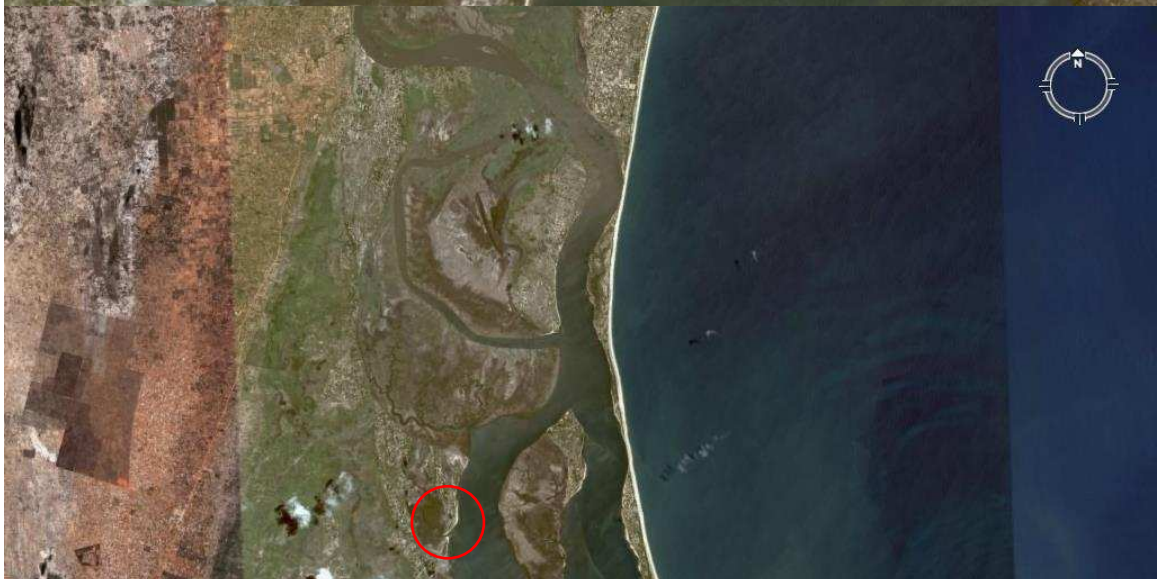
Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Fish nursery and habitat areas	Befits are widespread, but ultimately intermediaries benefit more.	Mangrove forest cover has reduced and siltation has caused channels to disappear. These changes are likely to worsen.	The group was aware of fishing regulations but was unwilling to talk about compliance. A high degree of non-compliance with these norms is likely. Community Fisheries Council (CCP) exists but did not appear to be operational or its role particularly clear.
Income (from the sale of fish and other marine species)	Same as above. Intermediaries capture most of the profits	Fish catches have decline as a result of the changes mentioned above, leading to lower income. Profits from selling fish also constrained by perceived unequal marketing arrangements and lack of fish conservation facilities.	Most wells that supply freshwater to the community have been established by NGOs. Some of these wells no longer provide freshwater, being contaminated by salt-water.
Freshwater	Access varies between families. Those closer to wells have better access.	Availability of freshwater has reduced due to drought and salt-water intrusion.	

Figures 1 to 3: Location of Muntahane







Rodrigues Focus group 1: Soupir, Rodrigues, Mauritius

Date: *18th May 2008*
Location: *Soupir community centre, Rodrigues*
Facilitators: *Matthew Bunce (facilitator) and Tim Daw (observer)*

This was the first focus group on Rodrigues and therefore served as a pilot exercise. The elicitation of ES using the survey took longer than expected and some participants grew restless and wanted to leave after about 50 minutes, leaving little time for detailed responses to the latter half of the questions.

1. Focus Group Participants

Four men aged 31-35, and four women aged 23-46, all participants relied on livestock rearing (particularly pigs) and/or arable agriculture. The men were also part-time fishermen. Household size ranged from 3-10 and numbers of dependents ranged from 1-5. All had been lifelong inhabitants of Soupir.

Soupir lies on very steep hillsides above the island's capital Port Mathurin. High levels of poverty and associated social problems are recorded or otherwise mentioned in various island census data and development reports. When asked for examples of island poverty in pre-focus group interviews, Soupir was confirmed by island officials as a hotpot. Educators in the island's capital also cited notably high developmental learning problems among children from Soupir due to known family social problems. The village was selected partly on the basis of the lead facilitators' knowledge of the island acquired during one year of residence. This included two months of participant observations (2005/6) of seine fishing teams, which employed some of its poorest fishermen from Soupir. Focus group members on this occasion were selected by the lead facilitator with the assistance of Soupir's resident member of the island regional assembly. The official was requested two days in advance to assemble a group of up to eight people, preferably with an even gender split, a wide age range and a representative mix of livelihood activities. The official was briefed on the poverty focus of the exercise and asked to invite only poorer members of the community.

2. Social-Ecological Setting

Soupir, spread over steep hillsides above the capital Port Mathurin, was one of the first settlements formed by freed Africans arriving in Rodrigues after slavery abolition in Mauritius. The trend for seeking an autonomous living from the land free of domination in part led to the island's persistently dispersed population pattern. Swidden-farming degraded the land with little regard to any colonial British Crown Laws attempting to define land rights and create a tax base. The interior was cleared of trees for fuel, plantation farming and livestock, opening the way for severe soil erosion to the lagoon during the island's many devastating cyclones. Little was done to prevent open access resource problems on land or at sea, either by colonial or subsequently Mauritian officials. During a severe 1970s drought inhabitants of Soupir and other inland areas suffered from a collapse of farming on the island's almost entirely state-owned land. Production of traditional subsistence crops such as maize fell, whilst emergency rice imports and then regular shipments rose. Erosion in the area was exacerbated by severe cyclones on deforested hillside but also unfettered cattle being allowed to roam up from coastal pasture, a problem that along with close-cropping of vegetation through grazing still contributes to the problem for farmers. Cows were fed cardboard as a drought-time food substitute around Soupir but many still died. Soupir is within walking distance of empty bench-terraces and other evidence of anti-erosion measures. These were started mainly in the 1950s and then revived in the 1970s, but an anticipated Green Revolution in agriculture never materialised. Mauritius still targets higher agriculture in Rodrigues as national food imports rise generally with tourism expansion. Efforts to revive interest in agriculture at a college in Rodrigues next to Soupir have so far disappointed officials and unemployment remains high. As in many of the island's poorer areas water access is sporadic, and Soupir is one of the few villages in which water riots have been officially recorded in Rodrigues. Experienced farmers left the land after the 1970s, some for permanent government jobs created partly to prevent a collapse in Rodrigues' local economy. Others turned increasingly to fishing made easier by official financial incentives and new access roads and buses down hills to the coast. The coast was originally settled by a higher proportion of lighter-skinned people of less-African origin. Despite subsequent Creolisation, reducing the potential for ethnic polarisation and

social tension within Rodrigues itself, inhabitants of Soupir still have less access to fishing and marketing. They generally work on other people's boats, if they fish at all, and traditionally have been more dependent on the land and livestock despite living within walking distance of coastal fishing stations. On an island of 18 x12 kms distances are never far, but journeys are usually steep. Proximity to the capital Port Mathurin has not led to reduced poverty levels despite the scope this provides for secondary and tertiary sector trades and employment.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?

The discussion was led by asking the focus group both repetitively, and in several different ways, to mention things that they considered to be useful or which they appreciated in the "environment" generally. To prompt discussion and/or remove uncertainty the same question was asked separately for the sea (including the reef) and the land. A high degree of flexibility was needed to build group dynamic and to encourage, widen and develop participation beyond the first tentative responses. The participants were asked, both individually and as a group, questions that included, for example, 'What is important to you?', 'Do you use anything?', 'Are there things around us that you see, or use, or think about in the environment that you would miss if they were no longer there?', 'When you look around, to the land, to the sea, to the sky, what do you see or think of that makes your life better or easier?'. The group was asked to concentrate on things present in or provided by nature. Respondents were also asked what they would miss most if it disappeared. Also, due to Rodrigues strong Catholic tradition, and its influence on island politics, the focus groups was invited to think of things in their surrounding environment that they believed came from God.

This resulted in a list of 'things' e.g. coral, trees, domestic animals etc. Ecosystem services were elicited by asking why each thing was important. These were grouped by service and drawn and written on paper for the scoring exercise (Figure 1). These were grouped by very general categories representing the end benefit for the people (e.g. money, food etc). With hindsight perhaps the result would have been more useful if marine and land-based activities had been separated.

Unsurprisingly given the inland nature of the community, the discussion focussed on ES that support agriculture. As well as provisioning services, several supporting services including trees creating rainfall and provision of juvenile habitat were suggested.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

Problems/barriers

Although not directly raised by the respondents, access to the sea cucumber fishery is limited by licences. It was inferred that individuals in the community are involved in the fishery but without licences. This obviously creates vulnerability to loss of access.

How could the situation be improved?

Trends

The productivity of the fishery was perceived as having declined over the past ten years. Due to time constraints answers to this question had to be cut short and the focus group moved on. Trends were identified in more detail at subsequent sites in Rodrigues.

Future

Fishers in the group identified the need for better fishing vessels and gear (e.g. nets) in order to improve the benefits they derive from fisheries.

4. Focus Group Facilitators' Comments on Insights for ESPA

Several methodological points were highlighted by the experience of conducting this focus group, which, in many respects served as a pilot exercise for the other two held in Rodrigues. Firstly, as the ES concept is quite abstract, and many of the participants were somewhat reticent (Note: Rodriguans typically take

time to open up given the top-down and conservative nature of the island culture. Soupir, the first site for focus groups in Rodrigues, is less researched by outsiders than coastal sites, and educational attainment is low). The exploration of ES at times had to be led by more specific, and at times closed questions. Within the available timeframes, this to a degree limited the ability of ESPA methods to collect stakeholder-led perceptions and values. Secondly, the complexities of grouping and identifying individual ES for discussion were highlighted. The scoring exercise is dependent on how ES are categorised (for example is 'food provision' conceptualised as a single ES, or is each good counted separately? Are agricultural products conceptualised as ES?). Any attempts to score local perceptions of ES in a comparable way would require more specific guidelines than provided by the Millennium Assessment framework.

Suggestions for research agendas which may inform or address priority issues of participants.
How can role, rights of inland users to benefit from provisioning services be balanced with those of more obviously coastal communities?
How do marine ES supplement and interact with terrestrial based activities in terms of livelihood portfolios and vulnerability to poor people.

5. Summary

This focus group assembled a small group of smallholders and fishers from an inland community on Rodrigues. Discussions highlighted various components of the land and seascape which the participants thought were 'important' or 'useful'.

As an inland community, the participants Soupir seemed to value terrestrial resources more than marine resources (a). The *flow* of the ES of fish, octopus and other harvestable marine animals was perceived as declining (c) due to over exploitation, while the access to and benefits of these for the participants were also limiting, in terms of licensing of sea cucumber collection, and presumably (although not mentioned specifically) physical access to the coast (b).

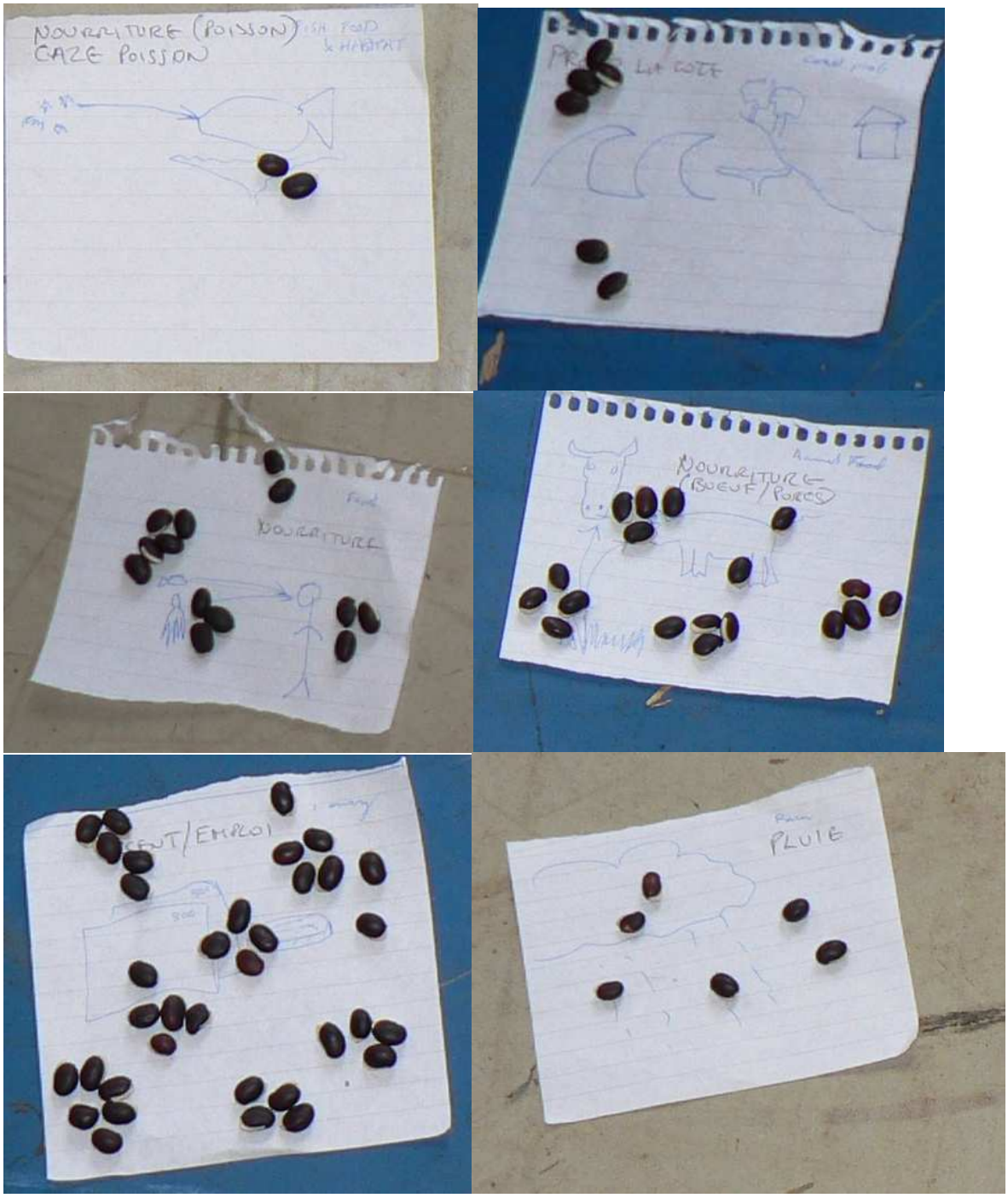
Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Money & livelihood from sale of fisheries and agricultural products	Sea cucumbers, livestock, crops	38
Animal food	Grass	18
Human food	Fish, crabs, octopus, crops (maize, fruit, vegetables) and animals (pigs, cattle, goats, sheep, ducks)	13
Coastal protection	Mangrove, sand, coral reef	6
Rainfall	Trees	5
Food, habitat, nursery and breeding areas for fish & octopus	Sand, coral reef, coral 'flowers' (polyps), unpolluted water, mangroves, rain (diluting salt and oxygenating water)	2

Table 2: Access, trends and governance results for most important ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Fisheries production	Although not raised directly by participants, it was clear that collection of sea cucumbers was done without a licence by some members of the community	Production has declined over last 10 years	Perceived lack of control of seine net fishery and need for a Marine protected area

Figure 1. Ecosystem services sketched and ranked in Soupir



Rodrigues Focus Group 2: Cité Patate, Rodrigues, Mauritius

Date: *18th May 2008*
Location: *Cité Patate, community centre*
Facilitators: *Matthew Bunce and Jovani Raffin (facilitators), Tim Daw (observer)*

1. Focus Group Participants

- Three men aged 34-44, all involved in fisheries.
- Four women aged 19-63, all involved in fisheries, especially for octopus.
- All participants relied on fishing and some livestock rearing. Few also involved in arable agriculture but at least one respondent had no farmland.
- Household size ranged from 2-7 and numbers of dependents from 0-5.
- Three of the respondents had lived their entire lives in Cité Patate, while the others had lived there for at least 20 years.

Cité Patate was selected as a focus group site due to high poverty and unemployment reported by island officials, along with limited natural resources and water stress. Local government officials and NGOs also referred to the hamlet and the voting district within which it falls as low in terms of census data poverty measures used in part by distant national government in the main island of Mauritius to assess Rodrigues' regional attainment of Millennium Development Goals. The civic leader of Cite Patate was known to the lead facilitator through 12 months of prior research in Rodrigues. Residents identified him as still being their spokesman. Upon request three days in advance of the focus group workshop, he assembled a group of up to eight people split by gender, but including a mix of age groups and local occupations.

2. Social-Ecological Setting

The small hamlet of Cité Patate lies along Rodrigues' south-east coast on a dry calcareous plateau comprised of compacted Aeolian sand dunes partly eroded to karst. The hamlet is remote in terms of its distance from shops and markets concentrated in the island capital (Port Mathurin) on the opposite (northern) side of the island. Living standards in Cité Patate, on a dead-end dirt track, are visibly lower than in many areas. There are few employment opportunities beyond the island's principle occupations of fishing, small-scale agriculture and animal rearing (36%). Farming is limited partly because Cité Patate lies in the rain shadow of the island's main east-west mountain ridge and, along with the surrounding western area, it has some of the island's lowest rainfall. Local surface waters drain to subterranean limestone cave networks, with open streams within walking distance of Cité Patate typically running dry in summer. Public water supply is erratic, with supply pipelines empty for weeks due partly to poor rain capture and distribution on the island. Soils on the western plateau are thin and degraded, although chronic and long-term soil erosion has affected most areas. Donor anti-erosion policies since the 1980s led to partial reforestation with drought-tolerant and/or endemic species, but mostly in other island areas where more fertile and bench-terraced soils are nevertheless exposed to strong cyclones. Areas around Cité Patate are included in designated cattle grazing areas, but these have been ignored for much of their existence and herd sizes in any case fell after a harsh drought in the 1970s. Current domestic livestock holdings now tend to be small and limited generally to a mixture of pigs, goats and foul. Fishing (line, basket, seine) remains a default mainstay of the island's western economy, with seine net teams operating from nearby villages providing seasonal work. Fishing is facilitated by Cité Patate's proximity to Rodrigues' widest and deepest lagoon reef areas, with good access to grounds in three directions. There is no reliable data on historical catch trends. Seasonal fishing camps extend onto nearby headlands, where catch can be unloaded unnoticed by fisheries guards. Island-level data reported by a local NGO suggests an overall downward trend in fish catch that in part has led to local and national government approving new marine parks and reserves. Cité Patate is the furthest from these than many other island areas and fishing intensity could potentially rise in surrounding seas as fishers are displaced from other areas. Tourism, a potential source of alternative employment, is concentrated in the east of Rodrigues, but visits to western areas near Cité Patate are set to grow with the recent opening of a new nature park with illuminated caves, with endemic tree reserves and imported Aldabra tortoises. Cité Patate, along with

west of the island in general, has long been considered to be largely in opposition to the Rodriguan Peoples' Organisation party dominating island politics since Mauritian independence up to Rodrigues' island regional semi-autonomy granted in 2002. The OPR lost power to a local opposition party in Rodrigues in 2006 after Mauritius cut social security payments to anyone registered as a professional fisher (Bad Weather Allowance).

3. Focus group outcomes and findings

Which ES are recognised and valued?

The discussion was led by asking the focus group both repetitively, and in several different ways, to mention things that they considered to be useful - or which they appreciated in the "environment" generally. To prompt discussion and/or remove uncertainty the same question was asked separately for the sea (including the reef) and the for the land. The participants were asked, both individually and as a group, questions that included, for example, 'What is important to you ...?', 'Do you use anything ...?', 'Are there things around us that you see, or use, or think about in the environment that you would miss if they were no longer there?', 'When you look around, to the land, to the sea, to the sky, what do you see or think of that makes your life better or easier?'. A high degree of flexibility was required to build group dynamic and to encourage, widen and develop participation beyond the first tentative responses. The group was asked to concentrate on things present in or provided by nature. Due to Rodrigues' strong Catholic traditions, extending into politics, the focus groups were invited at some point to think of the importance of those things and processes in their surroundings that they believed were created or controlled by God.

These discussions resulted in a list of 'things' e.g. coral, trees, domestic animals being cited as important. Ecosystem services were then elicited by facilitators asking why each thing was important. Responses were grouped by service and drawn as cartoons with a written caption onto paper for the scoring exercise (Figure2).

The difficulty of acquiring water in the village was reflected in the fact that 4 separate ES based on rain were identified by respondents (Table 1).

Cultural services were only represented following specific probes and related to the fact that the people had lived in the area for a long time and felt an affinity with it as a nice place. This was evidenced by the fact that others and tourists came to the area for picnics etc and to visit nearby limestone caves. The participants did not directly benefit from tourist visits but they were presented as evidence of the aesthetic qualities of the area.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

Note: Not all fishers were registered to receive the allowance but this difference was not mentioned by the participants in the focus group. All focus group members complained strongly about the reduction of the allowance in strong terms. Although not clear whether all respondents claimed the Allowance (bearing in mind the register also includes people who should not be on it) the benefits in the past of even one family member being registered were notable.

Problems/barriers

Cyclones, extreme high tides (for gleaners) are practical barriers that prevent access to fisheries resources. Fishers have no insurance.

Their ability to access fresh water was limited by the lack of nearby sources. When it didn't rain they had to walk for 1 hour in each direction to collect water.

How could the situation be improved?

Participants expressed a willingness to change from fisheries-reliant occupations but felt they had no employment opportunities on land or capital to invest in animals etc. 'We have to fish to survive'. They also lacked skills or experience in other jobs. After they finish school, where failure rates are high, many go straight to the sea.

Trends
The fishery has declined due to disruption of coral by too many fishers and illegal gears. Fishers are also catching fish too small.

The tsunami also had an effect which is still experienced in the fishery.

The livelihoods of the local people have recently been very rapidly undermined by the phasing out of the Bad Weather Allowance paid by the Government to registered fishers. They received up to 3000 Mauritian rupees (~£60) per month, but this has recently been reduced to only 125 rupees or nothing. This topic generated particularly animated and dismayed responses from the group.

Future
The fishery is expected to become even worse unless there are changes. The participants would leave the fishery if there were alternatives. As there are no alternatives in Cité Patate, the decline in the fishery is a "survival" issue. (Note: in reality this is not a life-and-death issue terms as might be accepted at face-value elsewhere in Africa. Although Rodrigues is poor within Mauritius, the nation is a middle-income country offering many public services and social safety nets, with scope for internal migration to alternative, albeit low-paid, jobs on the main island).

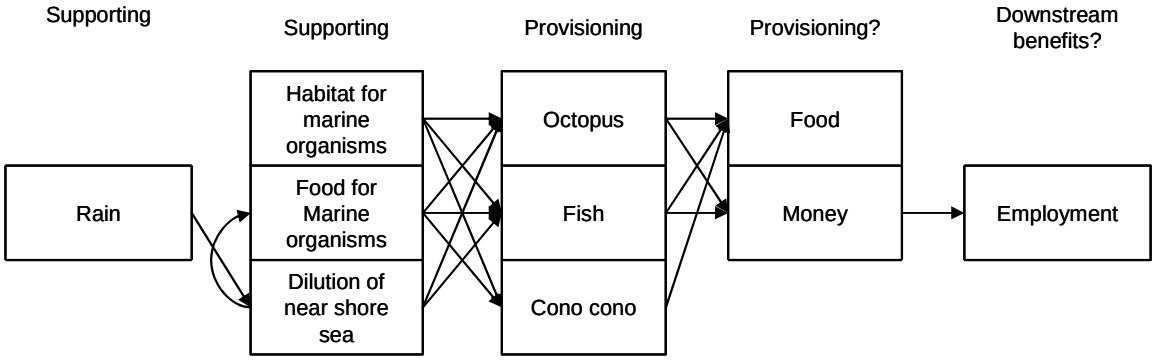
Governance and institutions
Fisheries regulations exist but they are poorly and unevenly enforced. 'Small people' are affected by them but 'big people' do not have rules enforced on them.

Suggested changes included closing the seine net fishery for five years. One fisher quickly pointed out that there would have to be compensation for those fishers. Participants also suggested MPAs, with one referring to the fact that Seychelles have MPAs and that they still have lots of fish.

There is a need for less fishers, which would require compensation and job creation for people like these participants.

4. Focus Group Facilitators' Comments on Insights for ESPA

Like the Soupir focus group, the methodological issues with distinguishing and scoring different ES was illustrated. The following figure illustrates just some of the interrelationships and sequencing between different types of goods and services mentioned by participants in relation to marine habitats.



Suggestions for research agendas which may inform or address priority issues of participants.
How does the presence and absence of a subsidy (in this case the bad-weather allowance) affect the relationship with marine resources and poverty. Particularly, how does the role of history affect path-dependency, for example people in Cité Patate have become accustomed to and reliant on the allowance to support their fisheries-based livelihoods, perhaps leading to the overexploitation of the resource? Now that the allowance has been removed people struggle to develop alternative livelihoods.

The role of ecosystems in providing access to fresh water, including clouds and local rainfall, filtering and moderating flows of fresh water.

5. Summary

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

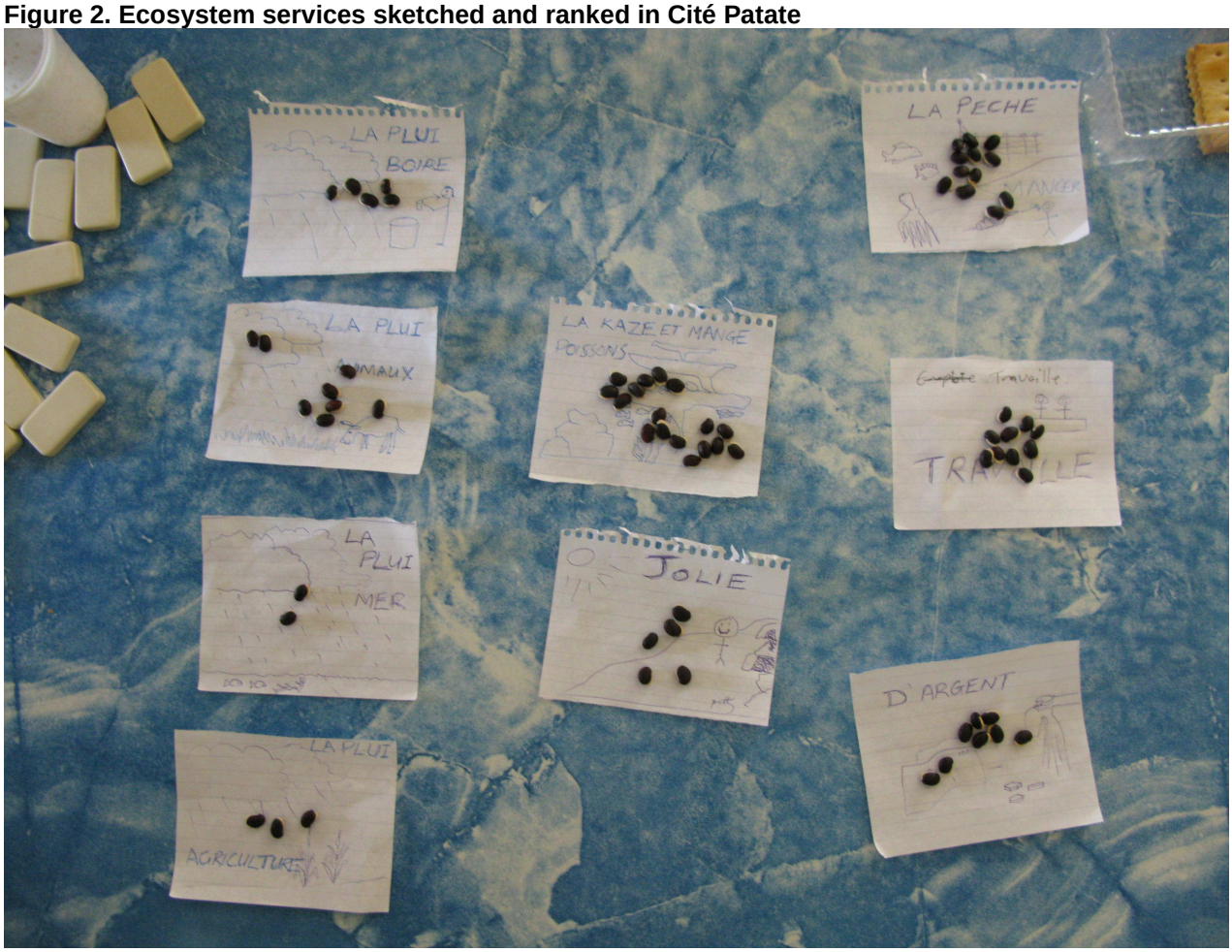
Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Habitat for marine animals	Fish, octopus	17
Human food provision	Fish, octopus, cono cono (gastropod)	12
Work	Fishing	10
Money	From selling fish, octopus and cono cono	8
Rain for animals' water		8
Rain for human drinking water		8
A nice place to live, that tourists want to come and visit	Caves, general environment	5
Rain for crops		3
Rain to dilute the sea	Seaweed for fish food, good for fish	2

Table 2: Access, trends and governance results for most important ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Livelihood provision from fisheries	Men and women all utilise this service. Only registered fishers benefited from the bad-weather allowance	Declining catches due to - too many fishers (including those from other villages) - illegal fishing (fishing at night, large seine nets and divers) - continuing impacts of the tsunami. Expected future declines unless changes in governance. And implementation of - reduced number of fishers - MPAs - Enforcement of regulations Sudden decline of incomes recently as a result of the reduction of the bad-weather allowance.	

Figure 1. Location and landscape of the village of Cite Patate

Figure 2. Ecosystem services sketched and ranked in Cité Patate



Rodrigues Focus Group 3: Port Sud Est Beach, Rodrigues, Mauritius

Date: *18th May 2008*
Location: *Port Sud-Est Beach, Rodrigues*
Facilitators: *Matthew Bunce (facilitator) and Tim Daw (observer)*

1. Focus Group Participants

- Three men aged 40-49, all involved in fisheries (four when including a late-joiner).
- Four women aged 43-60, all involved in fisheries, especially for octopus.
- All had mixed livelihoods including fishing, arable agriculture and livestock.
- Household size ranged from 4-11 with dependents from 2-10 dependents.
- All of the group had lived in Port Sud Est for their entire lives except for one lady who had lived there 27 years.

A focus group was included from Port Sud-Est to reflect potential for different patterns of reliance on ecosystem services under conditions of better water availability and a higher range of known livelihood options. In these respects, Port Sud-Est contrasted with the other two focus group sites (both water stressed, and variously dependent on either the land or the sea alone). Port Sud-Est residents have a wider range of livelihood options than many coastal areas of Rodrigues due to proximity to prime fishing channels, dam-irrigated valley bottoms for agriculture (Cascade Victoire), and attractive beaches and sea areas for tourism and sports (Mourouk). The area is not the poorest on Rodrigues, but Port Sud Est nevertheless lies on the poorer southern side of the island. Poverty is generalised in Rodrigues compared to the wealthier main island of Mauritius.

The focus group was assembled with the assistance of the head fishermen of Port Sud-Est (well known to the lead facilitator through previous research in Port Sud-Est on island fisheries and resilience issues). The head fishermen was asked to select up to eight people, based on higher poverty, and preferably with an equal gender split while reflecting both a range of ages and main livelihood activities around Port Sud-Est.

2. Social-Ecological Setting

Port Sud-Est lies in an area of high fisheries, farming and tourism potential on the south-east of Rodrigues. There is already one beach hotel with water sports facilities, and the area also has an active agricultural sector, supplying local markets with table produce, while exporting onions and other crops to the main island of Mauritius. The small-plot agricultural sector is more active than all but one other area of the island as it benefited from targeted donor water collection and irrigation projects. These were built to encourage local agriculture in fertile valley bottoms in the 1980s and help overcome the impacts of Rodrigues' chronic soil erosion on steep hillside farms exacerbated by severe cyclones and drought. Despite all these advantages, and additional scope for livestock farming, the area suffers from poor marketing of farm produce, tourism and livestock. Many of the surrounding hillsides, exposed to the full force of periodically severe cyclones, remain devoid of trees and lined with unfarmed bench terraces with collapsing walls. This leaves many people reliant on the fishery. The fishery is widely reported by fishers and NGOs to be in steep decline. Octopus fishing, largely by foot and using metal bars to probe and break open the reef, is more common than in many areas due to shallow depths and reef exposure at low tide. Octopus fishing expanded in the 1980s as part of national policies to give women jobs, and donor policies to raise exports. Seine net drive fishing by foot also expanded and together they contributed to the trampling of coral as donors and governments supplied financial and other incentives to fish. Several seine net fisheries have already closed due to net buy-back schemes. Tourism in around Port Sud-Est has expanded in fits and bursts since the late 1980s (despite a recent downturn), providing a few dozen full-time, although insecure, jobs. Beyond the one well-established hotel offering a variety of water sports and island boat trips other hotel projects for the visually attractive east coast remain speculative. More development is likely due to plans for a large Marine Protected Area zoned for multiple use and covering a large part of the visually stunning coastal waters around Port Sud-Est. The MPA, behind schedule and still in early planning stages, is to be implemented within a few years, with a primary focus on development rather than conservation. There are significant concerns over its ability to achieve either goal, not least due to enforcement issues, water stress and impacts of landside and wider development. Water desalination is mooted for the future, with new public plants possible in or near Port Sud Est adding

to one in operation at a private hotel in the north. Hundreds of official and unofficial fishers rely on fishing grounds within the provisional boundaries of the MPA. The government aims to remove as many fishers as possible from the lagoon through an expansion of agriculture, aquaculture, offshore fishing and tourism. Seas beyond the southern reef are among the roughest on the island as they are more exposed to prevailing winds. As such, there is less scope for off-lagoon fishing than in the north of the island, where a new port is planned for longer vessels.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?

The discussion was led by asking the focus group both repetitively, and in several different ways, to mention things that they considered to be useful or which they appreciated in the "environment" generally. To prompt discussion and/or remove uncertainty the same question was asked separately for the sea (including the reef) and the land. The participants were asked, both individually and as a group, questions that included, for example, 'What is important to you?', 'Do you use anything?', 'Are there things around us that you see, or use, or think about in the environment that you would miss if they were no longer there?', 'When you look around, to the land, to the sea, to the sky, what do you see or think of that makes your life better or easier?'. A high degree of flexibility was required to build group dynamic and to encourage, widen and develop participation beyond the first tentative responses. The group was asked to concentrate on things present in or provided by nature. Due to Rodrigues' strong Catholic tradition, and its influence on island politics, the focus groups was invited at one point to think of things in their surrounding environment that they believed were created or controlled by God.

Responses were broadly categorised into 12 ES to be scored. The ES associated with rain were not presented separately like in Cite Patate (where water stress is more acute) to keep the number of categories manageable.

The focus was on provisioning, supporting and regulating services related to fisheries and agriculture (Table 1). Cultural services were not mentioned but a sense of place and cultural association with the coast was perhaps hinted at by "Yes of course. We live by the sea," in response to the question, "Would you be sad if the sea disappeared?"

One surprising regulating ES was the role of predation of urchins. This received many votes in the bean scoring exercise, perhaps reflecting the concern that numbers had increased in recent years, with the consequent risk of endangering the normal mode of fishing for many (especially women) of wading through the lagoon to catch octopus.

There was considerable discussion about the benefits of trees for soil and coastal protection during cyclones as well as the provision of wood for fuel and building.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

When asked, participants affirmed that everyone benefits from fisheries.

Participants estimated that about 75% of fishers in the area of Port Sud Est were registered and eligible for the bad-weather allowance that is being phased out [Note: this is probably higher than the proportions of registered fishers in Rodrigues as a whole]. The topic of the phase-out of the allowance provoked angry responses from participants who felt they had no alternatives.

Problems/barriers

There is no problem marketing fish. People come round in trucks to buy fish from fishers according to a variable scale of official prices usually cited as 25, 30 or 40 Mauritian rupees/kg.

People are trying to do more agriculture but some have problems taking animals to the market because of increasing fuel prices.

Trends

The quality of both the corals and the fish stocks had declined in the last 5-10 years due to the number of fishers and damage to the habitat. Too many people are fishing.

In the 1980s, the bad-weather allowance attracted too many fishers and the resource has been overexploited as too many people are walking over the lagoon: 'for every coral there is a person!'. The level of overfishing is related to levels of poverty (including loss of the bad-weather allowance). Fishers were supportive of fishery enforcement but they were dubious about its prospects.
There is also no enforcement of fisheries (note: but a new guard force planned specifically for the MPA area surrounding Port Sud-Est is planned for the future).

They expect the future to be even worse.

How could the situation be improved?
Better enforcement, by outsiders (Mauritians stated on this occasion) who would find it easier to enforce fisheries regulations than local people. For example, things were better under a colonial-era administrator (Heseltine) in the late 1960s. He is remembered for helping Rodrigues weather its 1970s drought (partly through water, forestry and public infrastructure works) while strictly enforcing fisheries regulations in the 1970s.

A marine protected area was suggested to improve the condition of the corals. This would also displace some of the fishers.

People continue to fish because there are not jobs on the land and they don't have money to invest in livestock. Compensation is needed to reduce the number of fishers.

4. Focus Group Facilitators' Comments on Insights for ESPA

Suggestions for research agendas which may inform or address priority issues of participants.

- The effects of social protection and subsidies for artisanal resource users. How can they be made effective to support poor people without leading to long term overexploitation of the system. What determines whether removal of a subsidy leads to increases or decreasing pressure on resources.
- What ecological changes have led to an increase in sea urchin densities on the reef? Can ecosystem management help to control their numbers?
- What factors lead to compliance with fisheries controls within small island communities. Can these be generated where they do not currently exist?
- Who benefits from tourism activities? Are opportunities limited to younger people, and if so, what are the implications for wider benefits to communities?
-

5. Summary

This final FG in Rodrigues brought together men and women from a mixed farming and fisheries community. Discussions focussed on problems with the fishery for fish and octopus which were in decline and poorly enforced. The participants were very aware of the role of habitat in supporting fisheries.

The importance of fisheries for local livelihoods (a) and the influence of a government subsidy had led to an overexploitation and degradation of the resource and it's supporting habitat provision services (d) leading to declines in the quantity of fish being harvested (c). This appears to be the main concern of the participants rather than access issues or problems with benefiting from this provisioning service (b).

The removal of the subsidy was not seen as a solution, due to the absence of alternative opportunities and it has simply led to more poverty and desperation amongst fishers.

Respondents were also concerned with degradation of the terrestrial habitat, particularly the loss of ES from trees, which had been much more extensive in the past according to older participants. These are linked to marine resources by preventing erosion and pollution of the reef during cyclones.

This FG was different to the other two groups in Rodrigues due to their access to marine resources as well as irrigated land for cropping, and the proximity of a hotel employing some of the participants' sons and daughters. The importance of marine resources are emphasised by their dominating the discussion despite these alternatives potentially available.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of beans)
Habitat and food for fish and octopus	Coral, Algae	15
Money from selling marine animals	Fish, octopus, lobster and squid	13
Control of the number of urchins (protection of gleaners	An unidentified species of shellfish	11
Coastal protection (esp from cyclones)	Beach, trees, rocks	8
Fire Fuel	Wood	5
Attracting tourists (employment of their children and buying vegetables by hotels)	Beach	5
Cleaning sand so it's nice for fish and octopus	Sea cucumber	5
House-building material	Trees	4
Soil for crops (legumes, maize, fruits)	Soil/land	4
Seafood for humans	Fish, octopus, moray eel, lobster	4
Soil protection (for agriculture and protecting the marine environment)	Trees, the terraces	4
Cloud seeding & rain generation (for crops, human & animal drinking water, domestic use, benefits to nearshore environment)	Trees	4

Table 2: Access, trends and governance results for most important ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Coastal Protection		In the past there were lots of trees and no problems with cyclones. Now the trees are 'finished' creating problems. Before modernisation and gas, they used trees for fuel. Now that the gas price is increasing people will start using trees again.	
Fisheries	Everyone benefits from this resource although women tend only to exploit octopus. Men catch fish and octopus.	Habitat and stocks in decline due to overfishing, trampling, and a lack of enforcement of regulations. The declines are expected to continue.	The bad weather allowance led to too many fishers, but now it has been reduced fishers have no alternatives to move out of fisheries and are fishing harder. Outsiders are needed for enforcement. It is hard for Rodriguans to enforce regulations because of the small island community.

Figure 1. Ecosystem services sketched and ranked in Port Sud Est (numbers indicate the number of beans each was allocated).

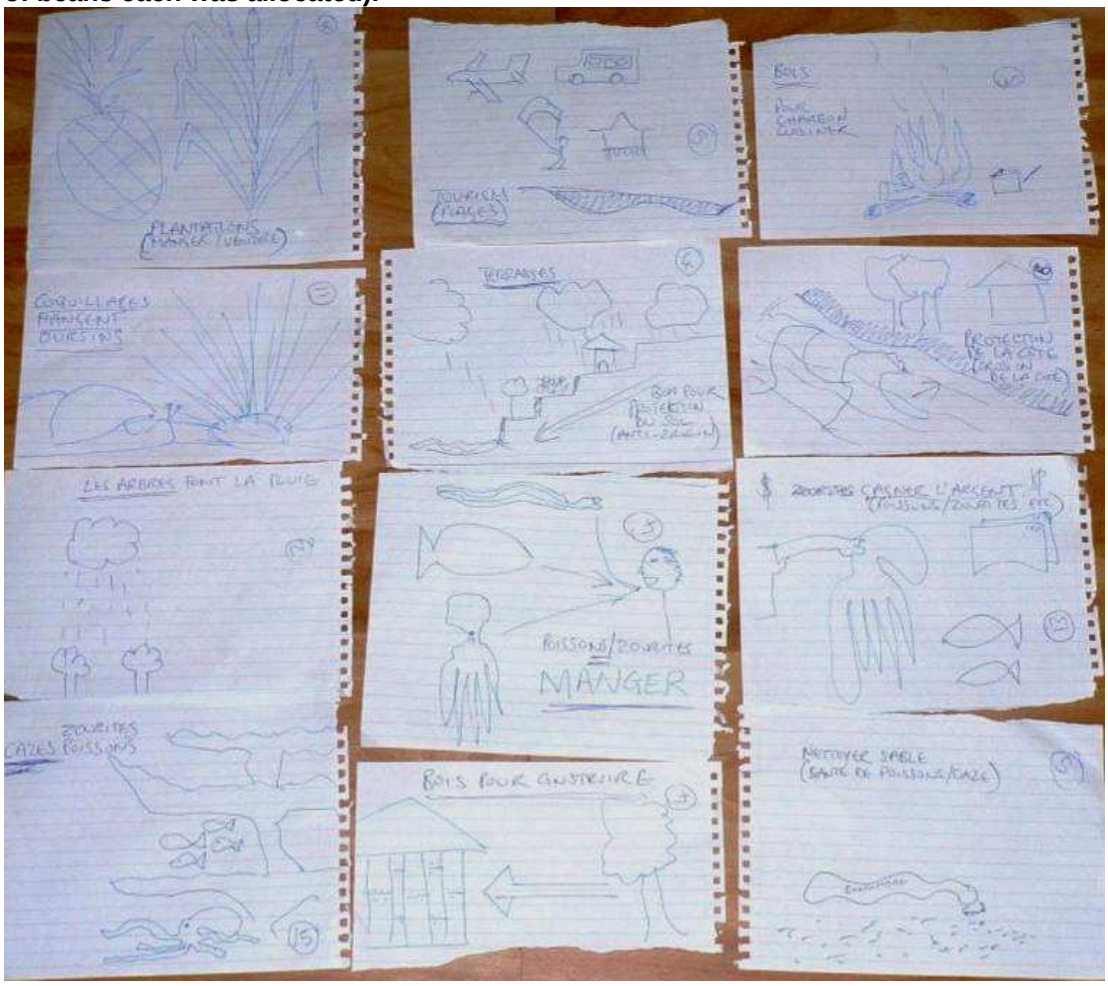


Figure 2. Matthew Bunce leading the focus group in Port Sud Est

Philippines Focus Group 1: Trece Martires City#1, Cavite, Philippines

Date: June 6, 2008 9:30am – 12 noon
Location: DA office, Trece Martires City, Cavite, Philippines
Facilitator: Ms. Miah Malixi
Co-facilitators and documentors: Dr. Ida Siason, Dr. Rodelio Subade
Research Assistant: Chandelyn Igpuara

1. Focus Group Participants

The province of Cavite has coastal towns, comprising of eight municipalities and one city. The FGD was attended by seven of the nine heads of Municipal Fisheries and Aquatic Resource Management Council (MFARMC) of the said coastal localities. Various activities of these local leaders involve fishing, patrolling local waters and fish processing.

The participants to this FGD were selected by the Provincial Fisheries Officer. They represent the FARMC's of the coastal town and are positioned to form the Integrated FARMC (IFARMC) for the province. These participants are all fishers with average age of 49 years. They are typical of low income fishers but they have leadership qualities that qualified them to head their town FARMC's. In terms of educational attainment, except for one who reached only Grade 6 in elementary school, all of them have some high school education.

2. Social-Ecological Setting

Located 30 kilometers south of Manila, Cavite is one of the fastest growing provinces in the country due to its close proximity to Metro Manila. Cavite is divided into 20 municipalities and three cities. Eight municipalities and one city lie in the southern shores of Manila Bay, a huge body of water that opens to the South China Sea. It has a total population of 2,991,295, out of which 15,666 (0.523%) are fishers and 47,677 (1.59%) are farmers. Out of 20 municipalities, 9 or nearly half are coastal, showing the major role that coastal ecosystem and ES might have provided to the coastal residents

Over the years, the expanding urban waterfront developments in Manila spill over to Cavite, creating use conflicts among various stakeholder groups, specifically the fisherfolk. Coastal localities of Cavite are undergoing rapid developments to give way to the establishment of an expansion of a coastal road network and a casino and tourism complex in Manila Bay.

3. Focus Group Outcomes and Findings

Which ES are recognized and valued?

Table 1. Long list of ES enumerated by respondents and value attached

Ecological Services identified	*Number of paper squares*
Enables them to apply proper conservation and assist in preserving sanctuaries (cultural and educational service).	22
Source of livelihood especially for fishers, which enables them to send their children to school, but also for other groups like tricycle drivers and load carriers who service needs of fishers and those who use the sea transport route.	28
Provides space for navigation and water transportation which is a cheaper and quicker alternative to land route going to Bataan..	4
Source of food: shells, crabs, etc.	4
Provides venue for recreation	
Provides facility for children to learn how to swim	
Health benefits, e.g. as provided by fresh sea air.	6
Pollution control provided by mangroves and prevention of soil erosion.	5
Spawning grounds and home of fish	2
Fresh air and scenic view of the sea	
The coast also provides sand and gravel which are quarried by building contractors. This has taken out good sand, leaving behind dirty sand. The water along the shore has deepened because of quarrying.	

It is observed that mention of mangroves and coral reefs did not come spontaneously from the participants when asked about what benefits come from the natural environment/ coastal and marine resources. However when pointedly asked about these ecosystems, they could relate to it. Thus when specifically asked about mangroves, they responded that there are no more mangroves, as these have been converted to fishponds. According to them attempts to reforest met with difficulty due to erosion effects from waves of China Sea. They are aware though that mangroves give protection against soil erosion and also filters against pollution including foul smells.

Likewise, when cued regarding corals (bahura), some mentioned the existence of active corals in certain areas. They cite that stakes of green shells serve as artificial reefs which rejuvenate the area. They know that corals provide spawning area and refuge for fish. In Naic municipality, according to one participant, corals line most of the coast.

When prompted about existence of seagrass, they said this has almost disappeared, due to trawling. They know that seagrass serves as filter.

Which ecosystem services are valued most ("paper squares" exercise)?

Livelihood provisioning was selected by six of the seven participants using the most number of paper squares (equivalent to the beans). This is followed by the **opportunity for undertaking conservation projects**. Such choice reflects the fact that this set of FGD participants are active leaders of fishers organizations in their communities and are aware of the development and environmental advocacies and initiatives.

There was less consensus on the third service selected, with (any) two participants choosing each of the following as more valuable: benefits to health, source of food, transportation, pollution control. However based on the number of colored squares attached by two participants, **health (6 squares)** and **pollution control (5 squares),** these two would be considered among the more valued ES. The ecosystem regulating service of pollution control, as provided by mangroves, was selected by two participants and

only one appreciated the supporting service of giving shelter and spawning grounds for fishes and other marine life.

Just like in other FGDs, the benefits which the participants recognized and identified were dominated by provisioning ES. It is interesting to note that this group had some acknowledgement of cultural/ recreational ES, supporting ES, and regulating ES.

Does everyone in the community benefit from the ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

The FGD participants believed that many people benefit from the ecosystem services of coastal and marine resources/ecosystems, but pointed out that some individuals/groups like the fish brokers, ice plant owners, and fishing suppliers are the ones who get the lion's share of the benefits. The participants believe that the sea and its resources are most critical for fisherfolks because it is their primary source of livelihood. However they see that those who earn more from these resources, as measured in monetary terms, are the commercial fishers, resort owners, exporters (e.g. aquarium fish), ice plant owners, quarry operators and fish pen owners. Also mentioned were local government because of the taxes received; some law enforcers because of gains from "facilitation" (considered within the realm of corrupt) practices; and students/academe who use the resources for educational and research purposes.

Trends

FGD participants have observed that there has been a decline in the conditions of marine and coastal ecosystems and resources. In particular they noticed the decline in fishers catch per trip over the years. They reported catching only 2-3 kilos per day in contrast to 20 kilos in the past. The variety of fish has been declining. The income from fishing can no longer send their children to school. There are also more fishers and fishers have to go farther from shore to find fish. The presence of Bantay Dagat has somehow resulted in a decrease in the number of trawlers in Cavite.

One participant said (in Tagalog) "Before, I can promise my family three meals a day and schooling at least up to secondary school, but now, (if I have a school-aged child) I can't promise to send him/them to primary (elementary) school."

Problems/ Barriers:

They identified the lower prices of fish driven by the much larger catch (increasing fish supply) of commercial fishers and the cheaper prices of frozen imports. The reclamation projects in Cavite are also acknowledged as a continuing threat to the fishers because they lessen the fishing grounds for fishers. One reported that in the past several years the local government did not accept payment for the use of the coast in mariculture of mussels and other shells/bivalves, in anticipation of possible clearing of the area.

Currently those engaging in near-shore mariculture are being asked to immediately vacate the area for aesthetic reasons. The new highway (connecting Naic to Rosario), has been completed and will thus displace these sea farmers whose operation of their mussel and other stakes are perceived as no longer aesthetically compatible with the land use.

The quarrying operations brought about by land reclamation and construction needs are perceived as competing for the use of the shore area for the fishers.

They see the lack of political will and support in enforcing regulations such as that on illegal and destructive gears and of competition with commercial fishers that encroach in fishing areas intended for subsistence fishers. Fish sanctuaries are not properly located and the management of these are perceived as a sham and only for appearance's sake.

They feel that the alternatives given for fishers to improve their livelihood are not enough. Government is seen to put up programs which are not properly supported and followed through. They cited handicraft and fish processing projects which are not sustainable especially due to political reasons.

In addition fisher folks are said to less likely maximize benefits from ES because of the following factors: (a) weak IEC and organization among fisherfolks; (b) weak influence of FARMCs; (c) limited provision of the current policy (8550) to smaller fisherfolks; (d) inability of fisherfolks to access credit mechanisms due to complicated documentary requirements; (e) issue of local partisan politics affecting performance and delivery of FARMCs' duties to fisherfolks.

The issue of the national government-led R1 Road Project was raised by the participants, citing significant loss in benefits to the local fishermen, due to the reclamation done in the construction of the said road project. The R1 project is a 7-km four-lane toll road that will connect existing coastal road from Zapote-Alabang/Bacoor to Kawit. Participants see this as a clear example that only politicians, government officials and local/international contractors benefit from this kind of undertaking. Similarly, participants cited the intensive sand quarrying in selected shore areas of Kawit that was used in the reclamation of the now Pasay-complex (SM Mall of Asia, etc.)

How the problems can be addressed

Political will is needed to enforce regulations protecting subsistence fishers and to improve implementation of livelihood projects. Reforms and programs are beautiful in concept but will not be realized without better and more determined local government support. Although many top enforcers of regulations have met with the fishers, the commercial fishers, who pose competing demands to their needs, are seen as more influential and have the means to give financial consideration ("lagay") to decision-makers.

Future Trends

They were not unanimous in concluding that the fisheries and other ecosystem services face a bleak future. They all agree though that the current state of fisheries leads to a declining trend in both quantity and quality (number of species). If left unabated, one of the participants quipped complete depletion of fish stocks, that people will just remember the taste of fish artificially produced from "seasoning mix, fish flavor."

They think fishing grounds will be pushed back farther to sea, with more land reclamation taking place. Others responded that organized fishers will vigilantly combat this trend. Even the fishpond areas will eventually be abandoned because water pollution will affect pond productivity.

Ultimately there will be fewer fish available. Their decreasing catch will mean that fishers will opt to sell their catch, leaving nothing for consumption. With whatever cash income they get, they buy cheaper food, not necessarily fish. They will even be probably buying fish from other towns, which will make it more expensive than if caught locally.

Future scenario, they said will be dictated by many factors, including (a) strong and sincere political will; (b) sustained efforts of government and civil-society groups (ordinances, fisheries and conservation projects, etc.); and (c) available credit sources and alternative livelihoods for fisherfolks, etc. Collectively, they believe that if the above factors are realized, coastal and ecosystems and services will be sustained.

Governance and Institutions

The participants have identified policies that appropriately address pressing issues currently being faced by the fisheries sector. Among these is: the RA 8550, which provides for (1) the protection of local fisher folks through clearly designating municipal areas for local fishing; and (2) formation of FARMCs. However, they have also identified policy areas which may be modified to best suit the needs of the fisher folks, these are: (1) synchronized programs by the national and local, and among local officials (i.e., bay-wide); (2) well studied local policy/ies, i.e., Naic's Philippine 2020; (3) need to provide substantial and sustainable alternative livelihood for the fisherfolks; and (4) stronger implementation of laws in open seas.

Table 2: Focus Group summary table for top three ES (refer to text above for elaboration)

Ecosystem Service (ES)	***Access***	***Trends***	***Governance***
Source of Livelihood	Fisherfolk derive their primary livelihood from the sea, so very critical for them. However, fish brokers, ice plant owners, and fishing suppliers are the ones who get the lion's share of the ecosystem benefits. However they see that those who earn more from these resources, as measured in monetary terms, are the commercial fishers, resort owners, exporters (e.g. aquarium fish), ice plant owners, quarry operators and fish pen owners. Also mentioned were local government because of the taxes received; some law enforcers because of gains from "facilitation" (considered within the realm of corrupt) practices.	Participants noted: a) decline in fishers catch per trip over the years, from 20 kilos in the past to only 2-3 kilos per day presently. b) variety of fish has been declining. c) more number of fishers so fishers have to go farther from shore to fish. .Thus income from fishing can no longer send their children to school. The reclamation projects in Cavite are seen as a continuing threat to the fishers because these lessen the fishing grounds for fishers. The new highway (connecting Naic to Rosario), has been completed and will thus displace these sea farmers whose operation of their mussel and other stakes are perceived as no longer aesthetically compatible with the land use. The quarrying operations brought about by land reclamation and construction needs are perceived as competing for the use of the shore area for the fishers. **Future outlook:** They were not unanimous in concluding that the fisheries and other ecosystem services face a bleak future, although if present declining trends are left unabated, there will be complete depletion of fish stocks. They think fishing grounds will be pushed back farther to sea, with	Participants concede that Bantay Dagat has somehow resulted in a decrease in the number of trawlers in Cavite. But they observe lack of political will and support in enforcing regulations such as that on illegal and destructive gears and of competition with commercial fishers. They opine that fish sanctuaries are not properly located and the management of these is perceived as a sham. Others responded that organized fishers will vigilantly combat the trend of displacement of fishers by modernization and urbanization. They find govt led livelihood alternatives are not properly supported, not followed through and unsustainable. Other governance issues are: (a) weak IEC and organization among fisherfolks; (b) weak influence of FARMCs; (c) limited provision of the current policy (8550) to smaller fisherfolks; (d) inability of fisherfolks to access credit (e) issue of local partisan politics affecting policy and implementation. The mega-Road project cited is, for participants, a clear example that only politicians, government officials and local/international contractors benefit from this kind of undertaking. They identified policy areas which may be modified to best suit the needs of the fisher folks (1) synchronized programs by the national

		more land reclamation taking place. Fishpond areas will eventually be abandoned because water pollution will affect pond productivity. With decreasing catch fishers will opt to sell their catch, leaving nothing for consumption. With whatever cash income they get, they buy cheaper food, not necessarily fish. Future scenario, they said will be dictated by many factors, including (a) strong and sincere political will; (b) sustained efforts of government and civil-society groups (ordinances, fisheries and conservation projects, etc.); and (c) available credit sources and alternative livelihoods for fisherfolks, etc. Collectively, they believe that if the above factors are realized, coastal and ecosystems and services will be sustained.	and local, and among local officials (i.e., bay-wide); (2) well studied local policy/ies, i.e., Naic's Philippine 2020; (3) need to provide substantial and sustainable alternative livelihood for the fisherfolks; and (4) stronger implementation of laws in open seas.
Opportunity for undertaking conservation projects	Inasmuch as participants are heads of FARMC's they are active in implementing conservation projects such as mangrove replanting, setting up artificial reefs. There is a shared appreciation among them for the educational opportunity to learn proper conservation and preservation of sanctuaries.		
Health Benefits	Participants note that sea air improves health and therapeutic for respiratory ailments.		

4. Summary

This particular group is more than the regular group of fishers because the members also function as leaders of their FARMC's in their municipalities. So we observe that they are more cognizant of larger issues than just household survival, which was more common in other FGD's of fisherfolk. This Cavite group identified several sectors that benefit from the livelihoods provided by the sea and coastal areas aside from subsistence fishers like themselves, including commercial fishing enterprises, ice plant owners, fish pen owners, resort owners, exporters, quarry operators and even the tricycle drivers that undertake more trips when economic activities are brisker.

They recognize the deteriorating conditions of the marine resources and the increase in the number of those who exploit these resources. Whereas in the past being a fisher enabled the completion of formal education for the children, this is no longer the case. The situation is exacerbated by the real threat, and in many cases already a reality, of rapid development which is displacing the fishers from their accustomed fishing grounds. The construction of mega projects, such as highways connecting various points in the province, have wasted coastlines through siltation and quarrying during the building phase. Once completed, there is the threatened expulsion of those who fish along the coast for aesthetic reasons. Even fishpond areas will eventually be abandoned because water pollution will affect pond productivity.

In their capacity as heads of their municipal FARMC's, the participants demonstrate an eagerness for undertaking conservation projects made available by government, such as mangrove reforestation, reserving sanctuary areas and establishment of artificial reefs. They are in a good place to learn about the benefits of these interventions, but our (ESPA researchers) opinion is that their enthusiasm may not be shared by ordinary fishers, who may not have the same access to motivational information as this group. FARMC members in the barangays usually are nominal members, unless there is an active CRM regime in place. Thus such conservation projects can easily be perceived as curtailment of fishing effort and incursion into their fishing grounds.

The recognition of health-related service of ecosystem is not shared by all, as is also the case with other mentioned services: food, pollution control, spawning area. Thus the implied ES is not well articulated in their responses.

The FGD respondents believe that government is not doing enough to counter the deterioration of the marine and coastal resources, despite the existence of laws and policies that mandate its preservation. They cite poor enforcement, lack of political will, inadequate alternative livelihoods made available to them, absence of accessible credit, dysfunctional local partisan politics, among others. They believe that subsistence fishers have no influence on the decision-makers especially compared to the more powerful and financially endowed groups especially commercial fishers who pose conflicting demands to theirs.

Although the participants project skepticism about government efforts, they appear hopeful that government can still muster strong and sincere political will. Although the mega development projects cannot be stopped, we believe that if there is diligent and conscientious implementation of pro-poor projects, rather than one-shot and half-baked projects, there is better probability that the benefits to the poor can be realized. It is also important that planners provide for the poor sector who are displaced by infrastructure projects. Although there is broad awareness of the different ES, their concern is ultimately on provisioning, because this is their daily reality. The other ES are less concrete and may belong to a higher human need, while the poor are more caught up in survival mode.

Research topics suggested by this FGD:

1. Study the impact of infrastructure projects on coastal communities
2. Extent that municipal planning parameters and protocols incorporate "effect on poverty"
3. Action research on credit schemes tailored to poor groups in coastal communities
4. Valuation studies on ES, other than provisioning

Philippines Focus Group 2: Concepcion, Iloilo, Philippines

Date: May 26, 2008 9:30 AM-12:00 noon
Location: NIACDEV office, Poblacion, Concepcion, Iloilo, Philippines
Facilitators: Prof. Lisa Baliao
Co-facilitators and documentors: Dr. Ida Siason, Dr. Rodelio Subade
Research Assistant and Documentor: Chanderlyn Igpuara

1. Focus Group Participants

Seven fishers attended the morning session. Five of them have motorized boats of 6.5 horsepower and two use paddle boats. They are chiefly hook and line fishers with one also engaging in squid fishing. Their wives engage in shell picking, although even the men join in during days where they are unable to go to sea due to poor weather.

2. Social-Ecological Setting

Botlog is an island of barangay, and is one of the 18 islands of the coastal municipality of Concepcion, Iloilo which is located in Western Visayas, Philippines. It is designated as one of the municipality's coastal eco-tourism sites, where the DENR will construct a lodging house/ hostel for visitors. The fisher folks in this island barangay are setting their hopes for supplementary family/household income from eco-tourism, which will also be one major driver to encourage them in conserving the coastal and marine ecosystems. Of the 98 households in the barangay, 90% were dependent on fishing for livelihood.

On the other hand, the local government unit (LGU) of Concepcion has made big strides in addressing the problem of poverty in the municipality, particularly in the coastal areas. Concepcion has been in the forefront in the establishment of inter-LGU alliance among the coastal municipalities of northern Iloilo --- Northern Iloilo Alliance for Coastal Development (NIACDEV).

3. Focus Group Outcomes and Findings

Which ES are recognized and valued?

1. The beach is used for swimming
2. Although the beach can draw vacationers, tourism is not developed. Guests just drop by to swim. Service businesses have not been stimulated.
3. They identify coconuts as source of lumber for house construction and bring in income.
4. Salt water is used for preserving bamboo and wood to prevent wood pest/mites.
5. Recreation and festivity is focused on the sea which is the venue for the pump boat race, an annual activity in April.
6. Sea provides therapy for fatigue, coughs and respiratory ailments. It is refreshing.
7. The DENR has put up a Mangrove Eco-Park capitalizing on its corals although only one participant seems to appreciate this, because he is a dive master.

Bean Exercise

Table 1 presents the results of the bean exercise where participants express their ranking of importance of the identified ES by allocating colored squares.

Table 1. Long list of ES and value to Focus Group Participants

Ecosystem Service	*No. of colored paper squares*
Provides food	15
Provides livelihood	20
Corals provide shelter for fish	16
Tourism-ecopark/dive	2
Recreation and medicinal value	0
Use salt sea water to preserve bamboos, wood, by prolonged soaking.	5
Coconut, typically grow along the beach	8

The most important ecosystem service is the income derived from the sea. Only one did not attach any of his squares to this ES. Four of the six who did, ranked this with the highest number of paper squares. Next in importance are the corals selected by four with two giving it the highest number of paper squares.

Third in importance to this group is its being a source of food. This ES was selected by five, with only one giving it the highest number of paper squares. It is usually a second or third choice among the individual choices.

Also selected as second or third choice are the coconuts which are endemic to beaches. Although the participants recognize recreation as an ES, none of them allocated any of the squares to it. Perhaps they do not have much time for enjoying this service and also does not contribute to their livelihood. It is notable that they value the supporting service provided by corals.

Who benefit?

They identified fishers who started fishing earlier, especially when arong or fish aggregating devices were still allowed. Now it is banned, and so fewer fish are caught. These early fishers were able to send their children to school.

Traders also benefit more because their financial capital works for them while they themselves don't have to put in too much work. This includes those with small stores that sell fish products.
The participants singled out the migrant fishers as benefiting through illegal fishing practices.

Perceived changes

1. There are more people (increasing population).
2. The increasing number of new fishing technology results in fast depletion.
3. There is rampant use of dynamite fishing. This practice creates conflict with other fishers.
4. Fry of fish are gone due to use of fine mesh nets.
5. Laws exist but enforcement is lax. Violators pay penalty and continue violating.

Future

1. If there is no change in trends, they will not be able to send children to school.
2. They foresee an increase in out of school youth because fishers' P300 daily income is not enough to educate their children along with other needs.
3. They want artificial reefs to be allowed. Besides they opine that these reefs can ward off violators who use illegal nets, and these can entangle in artificial reefs.
4. There will be hunger with declining fish catch. People will only be eating porridge and root crops.

Table 2. Focus Group Summary Table for Top Three ES

Ecosystem Services	***Access***	***Trends***	***Governance***
Provides livelihoods	Provides income for both men and women who fish and glean.	They note the decline in fish catch where currently they can catch only 2 kilos or less. They project a future where there is hunger, eating only porridge and rootcrops. Also fishers will be unable to send children to school	They cite policy where fishers are no longer allowed to put up artificial reefs. They find this disadvantageous because there is less fish that congregate.
Corals provide shelter for fish	Access is curtailed because of destruction of reefs by illegal fishers.	Dynamite fishers are rampant and destroy the corals.	
Provides food		Decline in fish catch	Enforcement of laws penalizing violators such as dynamite fishing.

4. Summary

The fishers in Concepcion value the livelihoods that they can derive from the sea and they note the decreasing catch in the last several years. They look back with nostalgia to the past where fishers can reasonably send their children up to higher school levels, which is no longer the case. Hand in hand with the value they put on livelihood is the importance of the food provided by the sea. Among the FGD groups conducted in ESPA-Philippines, Concepcion fishers (along only with Concepcion women FGD group) recognize the value of corals in maintaining fish stock. They see this declining production trend to continue in the light of increasing population, banning of use of artificial reefs, and the government's poor enforcement of regulations that would preserve the fisheries for subsistence fishers like themselves.

This group of fishers who live in an island which is off the main land is more isolated than fishers who reside along the main coast. This isolation from more opportunistic influences is observed in their responses to the questions. There is no awareness of the structures that are available to help fishers, such as the FARMC's; neither are they in the know about plans of the municipality for their development. They feel helpless against the bigger boats with banned gears, such as fine mesh nets.

Although not among their top three choices for ES, the fishers mention the health benefits that the sea environment provides. They also cite the many uses of coconuts (esp for it lumber) that grow easily along the beach.

The cultural ES can be enhanced through government intervention. The island is designated as one of the municipality's coastal eco-tourism sites, where the DENR will construct a lodging house/ hostel for visitors. The fisher folks in this island barangay are setting their hopes for supplementary family/ households income from eco-tourism, which will also be one major driver to encourage them in conserving the coastal and marine ecosystems. However during the FGD the fishers were not so knowledgeable about such plans.

Suggestions for research agenda:

1. Study the readiness of the poor to participate profitably in new uses of ecosystem (e.g. marketing, commercializing of services other than Provisioning). Do the poor have the skills and

access to capital and political resources, or will the new enterprises be, as in the past, more favorable to those with money and influence.

2. Schemes for ensuring education of children of fishers. If government recognizes the difficult situation of fishers and the need for strategies that will lessen pressure on marine (decreased fishing effort) resources, then it should explore schemes that give in kind (vs direct money aid) to improve welfare of fishers' family. Education goes a long way to assure a better future for fishers' children.

Philippines Focus Group 3: Barangay Ingore, Iloilo, Philippines

Date: *May 17, 2008*
Location: *Barangay Ingore, LaPaz District, Iloilo City*
Facilitators: *Prof. Elisa Baliao, Prof. Ida Siason, Prof. Rodel Subade*
Research Assistant: *Chanderlyn Igpuara*

1. Focus Group Participants

How the group was selected: The barangay was recommended by a regional research officer of the Department of Environment and Natural Resources because it is coastal and, despite its being only 4 kilometers from the city proper, it still has a community of fishers. It is the site of the local power plant which was established about ten years ago. Because of this privately owned plant, this barangay has the highest revenues among the city barangays. The barangay secretary assisted in identifying the fisher-participants.

Eight fishers came, seven males and one female. Their ages range from 21 to 57 years old, with the median at 49.5 years. Two of them reached grades 3 and 4 respectively, three graduated from elementary, two high school graduates and one obtained a marine degree in college.

2. Social-Ecological Setting

The barangay is in the city district of LaPaz and is located along the Guimaras Strait. The Strait is the navigation path for ships and ferries that leave Iloilo to other parts of the country, notably the daily ferries to Bacolod City. The barangay has a population of 2,792 residents in 634 households. Many of the residents are private employees, itinerant vendors, small store owners, tricycle drivers, fishers (7%), and a significant number of recorded Overseas Workers.

3. Focus Group Outcomes and Findings

Which ES are recognized and valued?
The participants mentioned a variety of fish gears that they commonly use in order to access the fish and mollusks. These include: pushnets, shell gathering, crab traps, fish nets, diving, scoop nets, catching baits for fish.

Seaweeds and seagrasses are sparse although these use to be abundant in the 1980's. They consider the drift wood carried by the waters from the uplands as a significant ES provided by the sea, especially after a typhoon. The sea also carries other "waste" that they are able to sell by weight, such as cans and plastic containers. They extract clean gravel from the shore line, which they mix with cement for building structures around their houses.

They did not spontaneously mention mangroves, but when asked by facilitator, they said only a few of this remain and it is used as Christmas trees. They are aware of the regulation that prohibits cutting of mangroves. Whenever there is clearing of mangroves for fishponds, they take the wood for fuel. They also mention another plant – bungalon- also found in mangrove areas. But it is of no significance for them.
Sea water is also used for cleaning screen. They mend/repair nets along the shore.

Ranking exercise of values

The result of the Bean Exercise is shown in Table 1.

Table 1. List of ES and value to the Focus Group Participants

ES	*No. of paper squares*
Locate fish corals	21
Gear for trapping tiny shrimps	10
Drift wood	10
Net fishing	3
Shell gathering	3
Crab traps	6
Fishpond	8
Swimming	2
Health – coughs	
Seaweeds, abundant in 1980's	
Source of drifting plastic containers that they recycle or sell by weight	
Sea cucumber	
Seagrass, but has become fewer	
Mangrove trees, used to cut for Christmas trees, but now prohibited	

Do others benefit more?

Yes, those with more gears that they can use depending on the fish season. The fish coral is the least expensive in terms of capital requirements to start fishing.

Changes and trends

1. Loss of seaweeds caused by fastcrafts which rummage/disturb/agitate the water, creating pressure that affects the plantlife in the water, such as seaweeds, seagrass. Even trees in mangroves are uprooted. Fishpond dikes are damaged too. They are quite emphatic about this change. Even the food (peanuts) in soil eaten by fish is affected. This refers to the supporting function of sea organisms. They also mention the stones and sand which are disturbed and eroded by the water pressure from the passing of fastcrafts.
2. Production of catfish is lower and smaller sizes are harvested (10 pieces to a kilo).
3. Fewer kinds of fish and the rareness of first class species like tangigui, lison, because of dirty water from plastic, which scare off the fish.
4. The proliferation of plastic from overflow of river.
5. Fishpond fish size don't grow big.
6. More frequent occurrence of typhoons.
7. Oil leaks from boats that pass their shores.
8. Water level has risen, while ground level has lowered. High tide is higher than in the past. The calendar is no longer an accurate basis for predicting tides.

Future of natural resources

1. Islands will disappear with rise of water.
2. Fish corals will no longer be possible.
3. Fish habitat will disappear due to hotter days, and no shade for fish.
4. Erosion because of deforestation.

What to do

1. They want to put to a stop the use of fastcrafts. This is seen as a difficult task because fastcraft companies pay more taxes.
2. The fishers need to be organized. They have no BFARMC's in their area; no associations.
3. They would like to be involved in projects like reforestation of mangroves but they were not asked to participate. According to them the agency undertook replanting but brought in outsiders to do the job.

It is noted that because they are not organized they seem not to have a strong voice in the community.

Refer to Table 2 for the summary table.

For this poor group of fishers residing close to the center of the city, the sea provides a survival source of livelihood. Those who are able to afford more gears that can be used depending on what fish species is in season, their incomes are slightly better. However their use this ES is seriously threatened by its use as sea transportation lanes to the city. We (researchers) think that there is no way to stop the growth of transportation so eventually the corral fisheries will have to go, either by government regulation or by the eventual non-productivity of the waters. Fishers will have to look for other livelihood sources, most likely not marine-based. Even fishpond areas in this barangay will eventually not prosper inasmuch as urban pollution is affecting water quality to the ponds.

Research agenda suggestions:

1. Effect of sea transportation growth on coastal communities
2. Displacement of fishers – is it always the road further down poverty lane
3. Case studies on efforts of poor coastal groups to assert their priorities over more influential groups.

Table 2: Focus Group summary table for top three ES (refer to text above for elaboration)

Ecosystem Service (ES)	***Access***	***Trends***	***Governance***
Waters provide opportunities to set up fish corrals.	Setting up a fish corral is among the inexpensive gear for catching fish, so it is accessible to the poor. The unspoken rule is that the entrant has to provide sufficient distance from the corral of existing fish corrals.	The increasing use of their coastal waters by more sea crafts used for transportation. In particular the speed of passing fastcrafts produce sharp waves that disturb the water, fish life and habitat. The same sea crafts produce pollution which harms the habitat of fish. **Future outlook:** Fish corrals will no longer be viable livelihood source.	The participants to the FGD report that FARMC has not been organized in their barangay. They have not been involved by the pertinent govt agency in projects, such as mangrove reforestation, although they would have wanted to participate. They believe that their use of the sea for their fish corrals can be sustained if government can put a stop to the operation of fastcrafts. But they opine that they don't stand a chance because the owners of fastcrafts are more influential especially because they pay high taxes.
Gears for catching small shrimps			
The sea carries drift wood from higher forested areas especially after typhoons.	Driftwood can be pulled out of the water by any one who finds it. They use this for household fuel.	They note the deforestation and resulting erosion, so when trees are cut indiscriminately wood carried by water will also eventually disappear.	

Philippines Focus Group 4: Concepcion, Iloilo, Philippines

Date: May 26, 2008 9:30 AM-12:00 noon
Location: NIACDEV office, Poblacion, Concepcion, Iloilo, Philippines
Facilitators: Prof. Lisa Baliao
Co-facilitators and documentors: Dr. Ida Siason, Dr. Rodelio Subade
Research Assistant and Documentor: Chanderlyn Igpuara

1. Focus Group Participants

Seven fishers attended the morning session. Five of them have motorized boats of 6.5 horsepower and two use paddle boats. They are chiefly hook and line fishers with one also engaging in squid fishing. Their wives engage in shell picking, although even the men join in during days where they are unable to go to sea due to poor weather.

2. Social-Ecological Setting

Botlog is an island barangay, and is one of the 18 islands of the coastal municipality of Concepcion, Iloilo which is located in Western Visayas, Philippines. It is designated as one of the municipality's coastal eco-tourism sites, where the DENR will construct a lodging house/ hostel for visitors. The fisher folks in this island barangay are setting their hopes for supplementary family/ households income from eco-tourism, which will also be one major driver to encourage them in conserving the coastal and marine ecosystems. Of the 98 households in the barangay, 90% were dependent on fishing for livelihood.

On the other hand, the local government unit (LGU) of Concepcion has made big strides in addressing the problem of poverty in the municipality, particularly in the coastal areas. Concepcion has been in the forefront in the establishment of inter-LGU alliance among the coastal municipalities of northern Iloilo --- Northern Iloilo Alliance for Coastal Development (NIACDEV).

3. Focus Group Outcomes and Findings

Which ES are recognized and valued

8. The beach is used for swimming
9. Although the beach can draw vacationers, tourism is not developed. Guests just drop by to swim. Service businesses have not been stimulated.
10. They identify coconuts as source of lumber for house construction and bring in income.
11. Salt water is used for preserving bamboo and wood to prevent wood pest/mites.
12. Recreation and festivity is focused on the sea which is the venue for the pumpboat race, an annual activity in April.
13. Sea provides therapy for fatigue, coughs and respiratory ailments. It is refreshing.
14. The DENR has put up a Mangrove Eco-Park capitalizing on its corals although only one participant seems to appreciate this, because he is a dive master.

Bean Exercise

Table 1 presents the results of the bean exercise where participants express their ranking of importance of the identified ES by allocating colored squares.

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Ecosystem Service	*No. of colored paper squares*
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Recreation and medicinal value	0
Use salt sea water to preserve bamboos, wood, by prolonged soaking.	5
Coconut, typically grow along the beach	8

The most important ecosystem service is the income derived from the sea. Only one did not attach any of his squares to this ES. Four of the six who did, ranked this with the highest number of paper squares. Next in importance are the corals selected by four with two giving it the highest number of paper squares. Third in importance to this group is its being a source of food. This ES was selected by five, with only one giving it the highest number of paper squares. It is usually a second or third choice among the individual choices.

Also selected as second or third choice are the coconuts which are endemic to beaches. Although the participants recognize recreation as an ES, none of them allocated any of the squares to it. Perhaps they do not have much time for enjoying this service and also does not contribute to their livelihood. It is notable that they value the supporting service provided by corals.

Who benefit?

They identified fishers who started fishing earlier, especially when arong or fish aggregating devices were still allowed. Now it is banned, and so fewer fish are caught. These early fishers were able to send their children to school.

Traders also benefit more because their financial capital works for them while they themselves don't have to put in too much work. This includes those with small stores that sell fish products.

The participants singled out the migrant fishers as benefiting through illegal fishing practices.

Perceived changes

1. There are more people (increasing population).
2. The increasing number of new fishing technology results in fast depletion.
3. There is rampant use of dynamite fishing. This practice creates conflict with other fishers.
4. Fry of fish are gone due to use of fine mesh nets.
5. Laws exist but enforcement is lax. Violators pay penalty and continue violating.

Future

1. If there is no change in trends, they will not be able to send children to school.
2. They foresee an increase in out of school youth because fishers' P300 daily income is not enough to educate their children along with other needs.
3. They want artificial reefs to be allowed. Besides they opine that these reefs can ward off violators who use illegal nets, and these can entangle in artificial reefs.
4. There will be hunger with declining fish catch. People will only be eating porridge and rootcrops.

Table 2. Focus Group summary table for top three ES

Ecosystem Services	*Access*	*Trends*	*Governance*
Provides livelihoods	Provides income for both men and women who fish and glean.	They note the decline in fish catch where currently they can catch only 2 kilos or less. They project a future where there is hunger, eating only porridge and rootcrops. Also fishers will be unable to send children to school	They cite policy where fishers are no longer allowed to put up artificial reefs. They find this disadvantageous because there is less fish that congregate.
Corals provide shelter for fish	Access is curtailed because of destruction of reefs by illegal fishers.	Dynamite fishers are rampant and destroy the corals.	
Provides food		Decline in fish catch	Enforcement of laws penalizing violators such as dynamite fishing.

4. Summary

The fishers in Concepcion value the livelihoods that they can derive from the sea and they note the decreasing catch in the last several years. They look back with nostalgia to the past where fishers can reasonably send their children up to higher school levels, which is no longer the case. Hand in hand with the value they put on livelihood is the importance of the food provided by the sea. Among the FGD groups conducted in ESPA-Philippines, Concepcion fishers (along only with Concepcion women FGD group) recognize the value of corals in maintaining fish stock. They see this declining production trend to continue in the light of increasing population, banning of use of artificial reefs, and the government's poor enforcement of regulations that would preserve the fisheries for subsistence fishers like themselves.

This group of fishers who live in an island which is off the main land is more isolated than fishers who reside along the main coast. This isolation from more opportunistic influences is observed in their responses to the questions. There is no awareness of the structures that are available to help fishers, such as the FARMC's; neither are they in the know about plans of the municipality for their development. They feel helpless against the bigger boats with banned gears, such as fine mesh nets.

Although not among their top three choices for ES, the fishers mention the health benefits that the sea environment provides. They also cite the many uses of coconuts (esp for it lumber) that grow easily along the beach.

The cultural ES can be enhanced through government intervention. The island is designated as one of the municipality's coastal eco-tourism sites, where the DENR will construct a lodging house/ hostel for visitors. The fisher folks in this island barangay are setting their hopes for supplementary family/ households income from eco-tourism, which will also be one major driver to encourage them in conserving the coastal and marine ecosystems. However during the FGD the fishers were not so knowledgeable about such plans.

Suggestions for research agenda:

1. Study the readiness of the poor to participate profitably in new uses of ecosystem (e.g. marketing, commercializing of services other than Provisioning). Do the poor have the skills and access to capital and political resources, or will the new enterprises be, as in the past, more favorable to those with money and influence.

2. Schemes for ensuring education of children of fishers. If government recognizes the difficult situation of fishers and the need for strategies that will lessen pressure on marine (decreased fishing effort) resources, then it should explore schemes that give in kind (vs direct money aid) to improve welfare of fishers' family. Education goes a long way to assure a better future for fishers' children.

Philippines Focus Group 5: Tres Martires City, Cavite, Philippines

Date: June 6, 2008 1:00-3:05pm
Location: DA office, Tres Martires City, Cavite, Philippines
Facilitators: Ms. Miah Malixi
Co-facilitators and documentors: Dr. Ida Siason, Dr. Rodelio Subade
Research Assistant and Documentor: Chandelyn Igpuara

1. Focus Group Participants

Six fisher folks - five females and one male, were the participants in this afternoon FGD. They came from various coastal municipalities of Cavite, and most of them are members of the people's organization called Democratic Organization for People's Concerns (DOPC).

1 Evangeline (W)
2 Priscilla (W)
3 Pearlie (W)
4 Cynthia (W)
5 Renato (M)
6 Juanita (W)

2. Social-Ecological Setting

Located 20 kilometers south of Manila, Cavite is one of the provinces that surrounds the Manila Bay, a huge body of water that opens to the South China Sea. It has a total population of 2,991,295, out of which 15,666 (0.523%) are fishers and 47,677 (1.59%) are farmers. Out of 20 municipalities, 9 or nearly half are coastal, showing the major role that coastal ecosystem and ES might have provided to the coastal residents

Over the years, the expanding urban waterfront developments in Manila spill over to Cavite, creating usage conflicts among various stakeholder groups, specifically the fisherfolk. Coastal localities of Cavite are undergoing rapid developments to give way to the establishment of an expansion of a coastal road network and a casino and tourism complex in Manila Bay.

3. Focus Group Outcomes and Findings

Which ES are recognized and valued?
Coastal and marine ecosystem services (ES) and/or benefits identified by the FGD participants were: livelihood or source of income (provisioning), food (provisioning), health benefits (provisioning & cultural ES), fresh air (provisioning), tourism/ recreational fishing (recreational), protection from erosion (regulating ES from mangroves). Other ES benefits which were cited, but which were not given votes during the "ranking and voting exercise" were: firewood/ fuel (provisioning), decoration materials (provisioning), spawning ground of fish as provided by coral reefs (supporting)

The FGD participants were asked to select three most important ES from the list, by sticking on the list the most number of paper stick ons. Of the identified ES, provisioning ES --- livelihood or source of income, was ranked as the most important ES which they derived from coastal and marine resources. This was followed by the food (provisioning), and health benefits (provisioning & cultural ES)

Just like in other FGDs, the benefits which the participants recognized and identified were dominated by provisioning ES. It is interesting to note that this group had some acknowledgement of cultural/ recreational ES, supporting ES, and regulating ES. However, the participants gave very low votes on C-ES and R-ES, and did not put their "votes" on the S-ES.

Does everyone in the community benefit from the ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

The FGD participants believed that many people benefit from the ecosystem services of coastal and marine resources/ecosystems, but pointed out that some individuals/groups like the fish brokers, ice plant owners, and fishing suppliers are the ones who get the bigger share of the benefits

Those who benefit less are the fisher folks or fishers, salt-makers, fish vendors, store owners, researchers, and local government units

Trends

FGD participants have observed that there has been a decline in the conditions of marine and coastal ecosystems and resources, characterized by fewer species caught, destruction of mangroves. In particular they noticed the decline in fishers catch per trip over the years. Compared to many years (say 10 years) ago, nowadays the number of fishers have gone up. Moreover, they have senses that the see breeze have gone warmer

Problems/ Barriers to Benefits:

Problems which could hinder people from gaining benefits from the coastal ecosystem benefits are:

1 defective enforcement
2 conflict of resource users
3 pollution and waste, mainly from numerous factories
4 illegal fishing through the use of cyanide and prohibited fishing gear, buli-buli or trawl

Governance, Institutions and How to solve the problems cited:

Participants agreed that in order to solve the existing and forthcoming problems, the people should have unity and work together. Policies need to be formulated and implemented for the improvement and planting of mangroves and other trees. Local ordinances on illegal fishing need to be passed by the respective LGUs.

Table 1. List of ES cited by Focus Group Participants

	Number of "votes"
1. Kabuhayan - livelihood P-ES	30
2. Food (;pagkain) P-ES	15
3. Health benefits P-ES	7
4. Sariwang hangin (fresh air) P-ES	3
5. Tourism/ recreational fishing C-ES	2
6. Protection from erosion (mangroves) R-ES	2
7. Firewood (panggatong) P-ES	0
8. Decoration materials P-ES	0
9. Spawning ground of fish (coral reefs) S-ES	0
10. Recreational activities C-ES	0

Table 2. Top three Coastal/Marine ES

Ecosystem Services	*Access*	*Trends*	*Governance*
Livelihood / Kabuhayan (provisioning)	Benefits are widely shared though there are those who benefit more	Coastal development which has threatened and reduced their fishing areas.	Need appropriate ways to reduce negative effects on fishers' livelihood
Food	Benefits from conservation projects are largely distributed to the people who would be involved	Increase in the number of fishers have reduced the catch per fisher	Need to provide other livelihood or income source aside from sea-based ones
Health benefits	Benefits are widely shared though there are those who benefit more	Warmer sea breeze has somehow reduced the amenity benefits from coastal areas	

4. Summary

As expected and just like in other FGDs, the benefits which this (Cavite pm) FGD participants recognized and identified were dominated by provisioning ES. It is interesting to note that this group cited cultural/ recreational ES, supporting ES, and regulating ES. However, the participants gave very low votes on C-ES and R-ES, and even did not put their "votes" on the S-ES. Furthermore, participants believed that benefits from various ES are unequally accessed by and unevenly benefit various people and groups of society. They believed that there are those (fewer) who benefits more compared to many whose benefit less from ES. They believed that the number of fishers have gone up, while catch have gone low; weather has become warmer and the marine and coastal ecosystems conditions have deteriorated, signifying environmental degradation. There are various problems that hinder the attainment of benefits from coastal/ marine ecosystems or ES, such us, illegal fishing, resource use conflicts, pollution and defective enforcement. These call for a combined action and response from the people, local government and other sectors of society.

Vietnam Focus Group 1: Khanh Hoa, Vietnam

Date: *24th May 2008*
Location: *Community Centre, Xuan Tu 1 village, Van Hung commune, Van Ninh district, Khanh Hoa province.*
Facilitators: *Minh Hoang (facilitator), Ho Thi Yen Thu & Nguyen Thu Trang (assistants)*

1. Focus Group Participants

5 representatives of local fishing practices, 7 women (beach gleaners and small bussiness/traders), 1 representative of local authority, 1 local photographer

How was the group selected, including some description of why this group is poor
By using Community Profile and collected data during MCD's projects in the area, the poor fisher folks have been identified.

The meeting participants are small scale fisher folks active in near-to-shore zone such as fish netting, trawling, diving, tidal gleaning. In comparison with local aquaculturists (lobster cage, babylon snail), the participants are considered poor. Moreover, this invited people also suffer other disadvantages such as less interested by local credit agencies or more risky by accidents in the sea due to their working time at night.

2. Social-Ecological Setting

Some basic description of the social-ecological setting (i.e. what the main livelihood activities are, rural/urban area, what kind of ecosystem)

Van Hung is a coastal commune situated in the southern Van Phong Bay. It possess a long coastal line of 12 km characterised with the important marine ecosystems such as coral reef, sea grass bed…which are in use by local people serving their life and livelihood. The main fishery practices active in the area compose of marine aquaculture, coastal fishing, fishery business and other fishery services (boat building, netting, battery charging… Tourism activities are still yet presented officially in spite of some visits of tourists (international and domestic) led by tourism companies in Nha Trang city.

Especially, Trao Reef, a coastal coral reef is considered as wave barrier supporting coastal fishery practices run by local people. In 2001, International Marinelife Alliance (IMA), pre-organisation of MCD, worked with local communities and authority to organise and build Trao Reef locally managed marine area. Since then this coral reef has not only become increasingly more important to local people but also considered a typical model of community based coastal resources management in Vietnam.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?
15 ecosystem services have been listed (Table 1) in which the 3 most important ES selected by the participants are:

- People health facilitation
- Food supply
- Calamity damaged reduction

Fresh air and sea wind bring the comfortable feeling to people. Swimming in the sea can recover the health after hard working. The sea water even is possible to treat some skin disease. Some folk remedy has known to be made up from some plants living in the mangrove forest.

Most of local households use fishes and other marine species in their daily diet and it is the sea is a supply source of these foods. Furthermore, other visitors from various places in the whole countries enjoy the special seafood cooked from the fishery species.

The similarity of fishery job brings all villagers together and creates the close relationship between them. The beauty of the sea and coral reef have inspired local people to compose various songs and poems. A collection of those local spirit works written about Trao Reef has been printed and displayed in the community centre for people enjoyment.

Mangrove and coral reef are the natural barrier to impede the sea waves and storms from offshore and protect coastal land. Some local households using the dead coral reefs for shrimp culture have been planted some aegiceras as a hedge to protect shrimp pond.

The Song of Trao Reef

Wishing you come to my homeland of aloe wood,
the lovely Van land
Go off shore to visit Van Phong bay
taking joyous steps to Trao Reef
Oh Trao Reef, my homeland with nature
like a sweet dream and a beautiful poem
Palms cast shadows on the water at dawn
to welcome visitors to Trao Reef

Oh Trao Reef, bringing joy to my homeland
and happiness to everyone
Oh Trao Reef, our natural environment bringing
abundant resources

Let's hand in hand keep it for coming generations
Together we sing this song for the future of our environment and for our prosperous homeland
Let's together protect Trao Reef, enriching our nation
Today's Trao Reef gives promise
for a bright future for everyone
Let's sing for Trao Reef, a bright future for all

(Words and music by Hoang Tuyet)

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?
The people groups involving in using and benefiting from ES comprise of catching fishery, aquaculture, fishery purchase, the production of marine breeding stocks, net making and boat building.

Problems/barriers
Most of participants worried about the decline of marine species. In their opinion the destructive and unsustainable fishery practices such as dynamite fishing, strawling are reducing the recovery ability of fishery stock. In addition the redundant food and trash discarded from marine culture practices have polluted the water environment. The shelters and breeding places of marine species in coral reef, mangrove and sea grass bed have been narrowed in area and destroyed to convert to shrimp and grouper culture.

Too many fishery catching activities happening in a limited coastal zone caused the tension. Fisher folks catching fish by netting or squid by lure cage hang under water usually complain about the loss or damage of their tools caused by trawling boats. These boats, due to their operation at night and lack of light facilities, sometimes collide with lobster cages on the sea.

The current inflation making the price increase of materials together with the fluctuation of product selling price has effected significantly on the income of the fishing poor.

How could the situation be improved?
The participants agreed that the aquaculture and fishing planning is essential and required to be carried out as soon as possible. Additionally it is needed to strengthen the coordination between the local

stakeholders to patrol and treat strictly the violation cases fishing by dynamite. The involvement of community informants would support efficiently the local authority in fishery enforcement.

It is also necessary to organise the extensive awareness events/campaigns to spread the fishery regulations/laws of national and local governments with the target audience of local and outsider communities.

4. Focus Group Facilitators' Comments on Insights for ESPA

This meeting received valuable opinions from local fishery practitioners thereby it is demonstrated that local people in given extent has perceived 4 ecosystem services but not only be providing service. Despite their small proportion but small scale fisher folks using simple tools are put at the greatest disadvantage, both their competitive capacity in access to use of the natural resources and financial support from credit agencies.

Suggestions for research agendas which may inform or address priority issues of participants.

- What are the economic values of coral reef and associated ecosystems (seagrass) in the Trao Reef Marine Reserve ? How do local people use these resources for their livelihoods? How do the poor get access to the benefits of ES (coral reefs and seagrass?).
- What are the main causes of aquaculture impacts on the water environment and health of the local people? How could the environmental issues be taken into the aquaculture practice?
- How to improve co-management practice in coastal area and Trao Reef marine reserve of Vietnam? What are the challenges and lessons for community and government and how to replicate in other coastal area?

5. Summary

The meeting has been organised in participation of 14 local villagers representing the local users of marine resources serving their livelihood. These local representatives have contributed actively their ideas. Ecosystems discussed in the meeting are sea, coral reef, mangrove and seagrass. Generally ecosystem services are perceived and understood quite clearly by local people, it seemed that the previous awareness activities have brought some positive achievement. 15 ecosystem services have been listed by the participants (mentioned to the values of marine resources), 3 of which playing the most important role in the local villagers life have been identified to be: *People health facilitation, Food supply and Calamity damaged reduction.*

There are a lot of people enjoying these ecosystem services. Though the most beneficiaries have been identified in the meeting the outside conversations revealed that aquaculturists gain the most profits from ES and also cause numerous impacts on the whole ES in the area.

Several problems have been stated, however, most of them implied the resources decrease and environment pollution. One of the key factors mentioned to the causes of those disadvantages is the unplanned aquaculture development. Management issues also have been referred to but only the law enforcement to punish the dynamite fishing practitioners.

Numerous difficulties pile on small scale fisher folks restricting them to be accessed to and used ES.
Apart from the unfair competition with aquaculture and equipped fishing boats, these poor people are less interested by credit agencies.

Table 1: Long list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	***Resources / ecosystems mentioned that contribute to the ES***	***Priority (number of spots)***
Food supply	Sea	12
Decoration	Coral reef	4
Fire material (coal, wood)	Mangrove	0
Income generation source of people	Sea, coral reef	11
Medicine	Mangrove	12
Breeding place of fishery species (shrimp, fishes..)	Mangrove Coral reef Seagrass	10
Close connection between local villagers	Sea	10
Inspiration source of poem, songs	Coral reef	6
Pride of local people	Coral reef	10
Ecotourism development	Sea, coral reef	10
People health facilitation	Sea	15
Calamacity managed reduction	Mangrove Coral reef	10
Erosion preventing	Mangrove	9
Climate regulation	Mangrove	12
Living evironment of fishery species	Mangrove Coral reef Seagrass	8

Table 2: Focus Group summary table for top three ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Food supply	Every one use/benefits from the food supply (but men tend to access more benefits since they are more directly involved in the fisheries capture)	Decline of marine species	Enforcement of law and regulations on the destructive fishing and overfishing. Rehabilitation of the habitats (coral reefs)
People health facilitation		Water quality is reduced partly due to unsustainable aquaculture (lobster and black tiger shrimp)	
Calamity damaged reduction		More calamity and natural disasters	

Figure 1 and 2. Focus Group Session in Khanh Hoa

Vietnam Focus Group 2: Nam Dinh, Vietnam

Date: *28th May 2008*
Location: *Giao Xuan Commune, Giao Thuy District, Nam Dinh province*
Facilitators: *Hien + Hoang (facilitators), Sergio and Chau (observers)*

1. Focus Group Participants

The group is selected through a core fisheries group leader of Giao Xuan commune and based on fisheries profiles that are currently being developed by MCD and local partners. The participants are not the poorest in the commune as observed, but they are small scale fishers who are highly dependant on the coastal resources for their living. They are currently engaged in agriculture, but also fisheries (such as aquaculture, fisheries capture and small services).

***Number of participants*:** 8 community members of Giao Xuan commune and 1 representative from Xuan Thuy National Park Management Board.

***Gender distribution*:** Among the group, there are 3 women (two of them are involved in coastal seashore fishing and one is involved in small fisheries service). 5 participants are men (two of them are involved in aquaculture of clam and shrimps and the rest are involved in fishing capture).

3. Social-Ecological Setting

Giao Xuan is a buffer zone commune of Xuan Thuy National Park, a first Ramsar site of Vietnam. It is located in Ba Lat Estuary of Red River Delta in the Northern region and recognized as a high biodiversity of typical wetland ecosystem of Vietnam. The park has a rich area of 3000 ha mangroves (including the re-planted ones) and a home for over 100 fish species and 500 aquatic species of which there is many economically valuable species including shrimp (eg. *Penaeus monodon*), crabs (eg. *Scylla serrata*) and molluscs (eg. *Meretrix meretrix*). The area is also an important migrating and stating area for the migratory birds (approximately 220 species and 9 of them are recorded in the Red List as endangered).

Giao Xuan commune consists of more than 9700 people, and 2600 households, a high density of the population. The main traditional livelihood in the commune is land based activities, agricultural production. Rice cultivation and (domestic) animal breeding are major economic activities in the area, engaging more than 70% of local laborers. Farming land is used for 2 seasonal paddy crops, and there is a typical model of Garden-Pond-Crop model for household economic development. However, the profits from agriculture and Garden-Pond-Crop model are quite low. A majority of coastal community households participated in the exploitation of resource in the mudflat and engaged in the clam farming. This has increased a pressure on the resources conservation and management of the National Park. There is an opportunity for other livelihoods such as ecotourism, which is currently being piloted in Giao Xuan commune.

3. Focus Group Outcomes and Findings

Which ES are recognised and valued?

The participants discussed and listed 21 values of the ecosystem services from the mangroves, tidal flats and sea (refer to the table 1). In summary, these ecosystems bring various values such as provisioning (food, fuel, medicines, mineral, salt), regulating (shoreline protection, storm prevention, climate regulating, water supply, people's health protection), cultural (tourism development, traditional customs, pride), supporting (habitat for migratory birds, fish species and support nutrition to other ecosystems). The local participants ranked the most 10 important values by using colorful spots. They also strongly pointed out that if these ES values are so important for their lives, if they are not maintained, people will get into the poverty and perdition.

The 3 most important ES are identified by participants i) food provision ii) income generation and iii) climate regulating (refer to table 2). It is understood that wetlands ecosystems of Xuan Thuy (especially the mudflats) are important for the livelihoods of many people and bring economic values for them (such as from aquaculture, fisheries and other services). It creates jobs and income opportunities for the community living around the national park but also puts a high pressure on the resources exploitation. The questions are if poor can get access to these ES and if there is any trends of changes in the ES in the future.

'Does everyone in the community benefit from these ES? Who benefits more? Who benefits less or does not benefit? Why? Why not?

It is recognised that community benefits from these ES, but there is a big GAP in the accessibility of the resources between different user groups.

- *Group(s) of users that has the most access to coastal resources:*

Aquaculturists, who invest in the clam farming, have most access to the land on the tidal flat. Geographically they live in proximity to the coastal areas.

- *Group(s) of users that has the least access to coastal resources:*

Agriculture farmers, who are the poorest in the commune and live in the land-based areas. Local hired labourers in the calm farming are also considered as the poor people and have less access to the coastal resources. Their work is seasonal and highly dependant on the local aquaculture farmers/owners.

There are different factors leading to least access of the poor to the ES (tidal flats) as observed at the discussion:

- Lack of access to capital to invest in the aquaculture,
- Low technical skills
- Limited availability of land
- Lack of policies/planning on the sustainable fisheries and aquaculture
- Natural disasters

Problems/barriers

There are conflicts of the users regarding access to resources (especially between aquacutlure and fisheries capture group and agriculture and fishing capture groups)

i) between aquaculture and fisheries capture group: Development of aquaculture ponds have reduced the area of fishing grounds that many people (especially poor) who are highly dependant for their living (such as collection of crabs, shrimps and mollusc).

ii) between agriculture and fisheries capture group: There is a concern on the water quality, which is now being degraded and polluted partly due to the pesticide and chemicals used from the agriculture production and rubbish discharged from the community households. This has reduced the productivity of fisheries exploitation.

Trends

- *Current status (5-10 years ago):*

The participants are aware of the changes in the mangroves during the historical periods. Before 1985 mangroves remain in a good condition, but during 1985-1995 a large area of mangroves were destroyed due to the induced human activities (such as clearing for aquaculture and fuels/goods). There was a considerable decline of number of birds and aquatic resources within the area during 1985-1995 years, and now being restored but the population accounts for just 20- 30% as compared to 1985.

Future trend (5-10 years):

Participants believed the mangroves are protected and grown both in the quantity and quality in the next years due to the efforts of community and government in the Ramsar Site.

The tidal flats are currently been extended by accretion, tensioning the estuary. It has a potential for estuary to be narrowed down or even closed in the future.

During the discussion, it is found that participants are aware of the climate change issues through observation of high sea level, and higher salinity and warning of natural disasters (floods, storms). These will have negative impacts to their livelihoods and community as a whole.

How could the situation be improved?

Participants recognized the situation of current coastal resources exploitation through unsustainable fisheries and aquaculture practices. Community participation in the livelihood development and protection of the coastal resources is of high priority in Xuan Thuy. It is recognized that enforcement and local capacity in the coastal resources management is weak and would be strongly strengthened in Xuan Thuy. With approval from the local government and community, Xuan Thuy National Park Management Board developed and currently piloting a community fishing regulation of the small wild clam capture in the mouth of the Red River Estuary. Additionally, community raising and education on the coastal wetlands ecosystems is also important and needs to be further strengthened and continuously undertaken for the local authorities and also a wider community group such as fishermen, women, and young generation (school children).

4. Focus Group Facilitators Comments on Insights for ESPA

Suggestions for research agendas which may inform or address priority issues of participants

- How do local communities (poor fishermen and women) access and use the coastal resources for their livelihoods? What are the suggested solutions for the coastal resources management in the area?
- What are ecological changes of coastal resources such as wild clam in the area? What are the driving factors and how could the government monitor the ecological changes in the area?
- What factors lead to compliance with fisheries planning and regulations (size and season fishing) within communities? How these regulations can be practiced and piloted?
- What are the vulnerability and adaptability of the community groups to the climate change impacts? How will the household livelihoods pattern change in the future? Who will be most affected (women, men, and children?).

5. Summary

The group meeting was interesting and it has drawn up participation of the small group involved in mixed activities: agriculture, fisheries, aquaculture and business. Participants are well aware of direct and indirect values of the main coastal ecosystems (including **tidal flats, mangroves and sea**) and have identified the 3 most important ecosystem services including **food provision, economic-income generation, and climate regulating** for their live and livelihoods development. The economic (income generation) values of ES provided to the local people could be an integration resulted from different ecosystems services/values including provisioning, regulating, cultural and supporting.

Participants also provided their opinions on the access to the ES (coastal resources) between different resources user group and also the trends/changes in the ecosystems in the area. It is found that aquaculturists gain most benefits from the ES, while the smaller fishers and agriculturists are the poor and vulnerable groups. There are critical social conflicts between different groups in the access to coastal resources in the tidal flats (between the aquaculture and fisheries captures groups and also between the agriculture and fisheries capture groups). A big loss of the mangroves in the last decade, recent reduction of fish species and birds, and the impacts/threats of climate change are the key threats recognized by the participants in terms of ES trends.

Participants discussed several options for the policy interventions to solve their needs on livelihoods development and improvement of the poor's access of ES:

- protection of the wild clam seeds(juvenile) for the current and future harvest

- development and implementation of the coastal aquaculture planning
- development and monitoring of the appropriate regulations for the fisheries and aquaculture practices
- government support policy on sustainable livelihoods (including non-fisheries options) by providing funds/capitals and skills training.

Table 1: Full list of ES, linked to resources / ecosystems mentioned as being important

Ecosystem Service (ES)	Resources / ecosystems mentioned	Priority (number of color spots)
Food	Fisheries, Mangroves	7*
Economic value (income generation)	Tidal Flat	9*
Decorative materials	Fisheries	0
Biochemical, natural medicines, and pharmaceuticals	Mangroves	1
Salt	Sea	2
Mineral	Sea	2
Firewood	Mangroves	0
Land	Tidal Flats	2
Climate regulation	Sea	4*
Wave reduction and storm protection	Mangroves	6*
Habitat and reproductive places for fisheries species (shrimp, fish, etc)	Mangroves	7*
Natural habitat of valuable and rare bird species	Tidal Flats	6*
Nutrient regulation	Tidal Flats	3
Water resources	Sea	7*
Tourism development	Sea	8*
Human health protection	Sea	8*
Make community united together	Sea	1
Environmental education for community	Mangroves	1
Pride of community	Sea	1
Traditional customs, habits, and culture	Sea	4*

** = 10 prioritized ES (highlighted)*

Table 2: Access, trends and governance results for most important ES

Ecosystem Service (ES)	**Access** *(can everyone use/benefit from this resource/ecosystem)*	**Trends** *(changes and future outlook)*	**Governance** *(institutions that affect resources)*
Provision of food (fisheries)		Less fisheries species, and reduction of the near shore fishing grounds	
Income (fisheries capture and aquaculture)	It seems rich people (aquaculturists) have more access to the fisheries resources for their aquaculture, while the small scale fishers (including the labourer in the clam farm) and agriculturist are the poor and they have less access to the resources	Low livelihood resilience in the local area, local people tend to migrate to other areas and get jobs outside their commune/village.	Unregulated and unplanned aquaculture (high density, pollution, natural disaster, market) Low enforcement of destructive fishing practices and coastal resources overexploitation. Development and monitoring regulation on appropriate size and season for wild clams catching.
Climate regulating		Climate change and sea level rise will affect the community (more natural disasters – floods and storms)	

Figure 1 and 2: Focus Group Session in Nam Dinh