

DLIST MEDA Input Report

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Acronyms

ASCLME	Agulhas and Somali Current Large Marine Ecosystem
ASSODEV	Association for Local Economic Development for Vilanculos
BCLME	Benguela Current Large Marine Ecosystem
BMU	Beach Management Unit
B&B	Bed and Breakfast
CLA	Coastal Livelihoods Assessment
CIDD	Comité Insular pour le Developpement Durable (Comoros)
CNDD	Comité National pour le Developpement Durable (Comoros)
CORDIO	Coastal Oceans Research and Development in the Indian Ocean
CPUT	Cape Peninsula University of Technology
DANIDA	Danish International Development Assistance
DLIST	Distance Learning and Information Sharing Tool
DNAC	National Directorate for Conservation Areas Designated for Tourism
EIA	Environmental Impact Assessment
FFP	National Fisheries Aid Fund (Mozambique)
GAPI	Gabinete de Consultoria e Apoio à Pequena Indústria
ICZM	Integrated Coastal Zone Management
IDPPE	Institute for the Development of Small Scale Fisheries (Mozambique)
IKM	Integrated Knowledge Management
JKPB	Jomo Kenyatta Public Beach
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
LED	Local Economic Development
LME	Large Marine Ecosystem
LMHTF	Le Morne Heritage Trust Fund
MACEMP	Marine and Coastal <i>Environment Management Project</i>
MEDA	Marine Ecosystem Diagnostic Analysis
MICA	Misali Island Conservation Association
MMCS	Mauritius Marine Conservation Society
MPA	Marine Protected Area
MPRC	Multi-Purpose Resource Centre
MoESD	Ministry of Environment and Sustainable Development (Mauritius)
MUHURI	Muslims for Human Rights
NEMA	National Environment Management Authority (Kenya)
NGO	Non-governmental Organisation
NMPA	National Marine Protection Agency (Mozambique)
PA&ID	Public Awareness and Information Dissemination
PCU	Project Coordinating Unit
PECCA	Pemba Channel Conservation Area
PFA	Praslin Fisher's Association
PMM	Parc Marin de Mohéli (Comoros)
PPAGI	Project for Artisanal Fishing for Inhambane and Gaza (Mozambique)
ReCoMaP	Regional Coastal Management Programme of the Indian Ocean Countries
RUMAKI	Rufiji-Mafia-Kilwa
SAP	Strategic Action Programme
SASOL	South African Synthetic Oil Limited
SC	Steering Committee (ASCLME)
SCMRT-MPA	Seychelles Centre for Marine Research & Technology – Marine Park Authority

SDAE	Serviços Distritais de Actividades Económicas
SEED	Le Service d'Ecoute et de Development
SEMPA	South East Marine Protected Area (Mauritius)
SNPA	Seychelles National Parks Authority
SWOT	Strengths, Weaknesses, Opportunities and Threats
TDA	Transboundary Diagnostic Analysis
ToR	Terms of Reference
TV	Television
UBC	University of British Colombia
UEM	University of Eduardo Mondlane
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNOPS	United Nations Office for Project Services
UT	University of Taomasina/Tamatave (Madagascar)
W&EA	Water & Environmental Affairs
WCS	Wildlife Conservation Society
WIO	Western Indian Ocean
WIOMSA	Western Indian Ocean Marine Science Association
WWF	World Wide Fund for Nature
ZAWA	Zanzibar Water Authority
ZECO	Zanzibar Electricity Corporation

MEDA Input Report

1. MEDA input from the DLIST demonstration site communities

The ASCLME Project includes eight countries, and possible later a ninth (Somalia). Nine demonstration sites have been selected in these eight countries. There is one site per country, except for Tanzania where it was decided that one site on the mainland and one site on Zanzibar was needed to reflect the differences between the island communities and the ones along the mainland coast. The purpose of the demonstration sites are explained in the DLIST ASCLME Progress Report (July 2010) and Addendum 1 of the July DLIST report; Revised DLIST Terms of Reference.

In the DLIST demonstration sites, the DLIST team have worked closely with communities to identify issues related to living marine resources, coastal issues and processes, creation of livelihoods options, food security, health and welfare as well as communication and changes in the environment. In all the demonstration sites the team has met with groups of stakeholders (community members, NGOs, the private sector, government representatives, etc) to get input into the strategic action planning process of the ASCLME Project.

More detail on the methodology used is found in the DLIST progress report from July 2010; *Ad Hoc Addendum 1: Implementation Plan for DLIST ASCLME Demonstration Sites* and more detail on what activities that have been undertaken are presented in *Addendum 5: LED Plan for Mauritius Demonstration Site*, which provides a site-specific example. Below is an overview of the output from the activities in the demonstration sites to inform the national Marine Environment Diagnostic Analyses (MEDA) in the various countries.

The format of the MEDA input from the DLIST demonstration sites has been discussed with the ASCLME MEDA coordinator, Ms Lucy Scott, the ASCLME Training and Capacity Building coordinator, Mr. Warwick Sauer and the ASCLME Coastal Livelihoods Assessment coordinator, Mr. Tim Andrew, at and after the ASCLME Steering Committee meeting in Dar es Salaam in September 2010. The below format with an executive summary, an introduction to each site and the sections focusing on; a) how the community feels about the way the marine and coastal resources can support them, b) alternative livelihoods options, c) weaknesses and opportunities for sustainable community development and d) bottom-up and top-down communication issues.

Furthermore, input and huge volumes of data collected during field trips that occurred in the last year are still being analysed and LED plans are still being developed for all of the demonstration sites. The current report presents a useful broad overview of the most important issues that have been identified and should be incorporated in the country MEDA reports, as community input from the DLIST demonstration sites.

2. Hamburg, South Africa

2.1 Executive Summary

Hamburg is a small town next to the Keiskamma River mouth in the Eastern Cape, South Africa, with around 3000 inhabitants, dominated by the IsiXhosa tribe. People in the community are highly dependent on the natural resources through small scale farming and fishing. The natural resources such as fish and sea food from the river mouth, estuary and shoreline are rich and abundant and the landscape is relatively fertile. The DLIST initiative in Hamburg has followed a Local Economic Development (LED) approach to identify weaknesses, opportunities and possible interventions. Community meetings, special interest group discussions and individual interviews have informed the planning process. A vision for the future of the community in Hamburg was developed as follows;

“We envision Hamburg to be more developed with housing, good road infrastructure, shopping and bank facilities, art projects, education for all and importantly more job opportunities. We also want the Hamburg community to have access to the coastal and marine resources.”

The community are disadvantaged through restrictions on access to the rich natural resources due to lack of land ownership and lack of access to permits to fish and collect seafood. Many of the women in Hamburg used to support themselves by collecting oysters and abalone. Since it has been forbidden and the controls have become stricter, the community has lost this income generating activity and this is seen as a big problem. Some community members have reported that there are outsiders, carrying out illegal and organised abalone poaching in the area and they suggest that by giving the community members permits to harvest abalone on a sustainable level while increasing the law enforcement it would actually reduce the pressure on this valuable resource while at the same time contributing to the well-being of the local community. The lack of access to natural resources has been raised as one of the main obstacles to development by the community, who want to regain access to fish permits and land ownership.

There are notable effects on the environment. Examples are degraded coastal forests through intensive collection of firewood and building material. Also the ecologically important estuary and salt marshes in the river mouth are impacted by human activities such as increased sedimentation, overharvesting (there are notably no black oysters found in the area and Abalone populations are also not very abundant) and driving with cars on the sensitive salt marsh and sandy beaches and dunes. The community in Hamburg have expressed a somewhat negative attitude towards conservation efforts (the Hamburg Nature Reserve and the ban on Abalone fishing) and it is seen as important to involve the community more in awareness raising activities and to improve communication between the community and authorities such as the Marine and Coastal Management (MCM). People have also pointed out that coastal erosion is becoming more of an issue in the area, as well the structural changes of the beach due to major shifts in the sand dunes on the beach.

The community is well organised with a fishing association, church groups, the Keiskamma Trust and other interest groups. The Keiskamma Trust (an NGO that has been very active in Hamburg for many years) has started a lot of positive community initiatives focusing on skills development and income generation activities such as a well-known art project (embroideries, pottery etc), a HIV hospice, and

an organic farming initiative, which is seen as very positive by the community. The Amahlathi Local Municipality are running a town development project under the ASPIRE Economic Development Initiative. The anchor project in Hamburg is an art colony where the community are now involved in the construction. Further development is being planned as part of a town consolidation project.

Tourism has been hailed as a good alternative livelihoods activity by the community. They want to get more involved and start initiatives such as community operated B&Bs, local cafés, bakery, nature guides etc. This would need capacity building initiatives to go hand in hand with any development. Other alternative livelihoods activities suggested in the planning process are related to development of the agricultural and fishing sector. Examples include upgrades of agricultural techniques, poultry farming, bee keeping, a fish processing facility, an aquaculture facility and access to Abalone harvesting and processing. The community has also pointed out that there are many people that are semiskilled in construction work and any development taking place in the area should involve local workers.

Other issues that hinder good development in Hamburg are related to inadequate municipal service, such as insufficient hospital services, bad road and general infrastructure including school transport, street lights and garbage collection services. The community also ask for government housing initiatives and access to state land for agriculture initiatives and development of projects. The community has also pointed out that they suffer from unclear and or conflicting government department interactions and roles, lack of local businesses to serve community needs, and bad community relationships.

Proposed interventions in the Hamburg development plan include a fish/seafood processing facility (which will only be possible if the community can access permits to harvest the resources), a community nature information centre (in collaboration with MCM and the Hamburg Nature Reserve), development of nature trails with associated community guide training, development of a community B&B/restaurant, a youth centre with access to internet, and different training initiatives such as modern/ecological agriculture and technical skills. Other interventions that have been suggested are for example general infrastructure development and improved health care facilities.

2.2 Introduction to the Hamburg demonstration site

Hamburg has a total population of around 3000 people. People in the area are highly dependent on the natural resources through small scale farming and fishing. The community is situated along the western shores, and next to the mouth of the Keiskamma River. The estuary is stated in the South African Coastal Green Paper as a place of high importance with marshes that are still able to filter water naturally. The Keiskamma estuary is flanked by dense coastal scrub forest on both eastern and western shores. This dense forest belt stretches inland for about a kilometre. The local community's extraction of firewood and building materials from the forests has had a large impact on these forests. Historically, the forest stretched much further inland. Gently rising slopes around the estuary is mainly covered with lush grassland. Valleys carry remnants of what appear to be valley bushveld vegetation. The estuary is considered by some as one of the important estuaries in South Africa with extensive salt marshes along its floodplains. Large numbers of fish fry enter the estuary annually from the ocean to make use of the rich sheltered waters. Soil erosion upstream has a huge effect on the turbidity of the river waters. The large silt load has an important impact on estuarine and near shore life. There are extensive sandstone reefs all along the shoreline, creating a very

favourable habitat for marine life in the inshore areas. The beach has large expanses of white sandy beaches with beautiful sand dunes close to the coastal forest fringe (see figure 1). There are two plantations visible behind the dune forest just west of the village. A narrow road behind the dunes leads to the Umtana River estuary. This is a very scenic drive and could form part of a circular hiking trail between Hamburg and Umtana. In general, the sand dunes and beach area around Hamburg are very beautiful and have a high potential for coastal tourism activities.

The community in Hamburg have many stakeholders that are interested in how the marine and coastal resources are managed. These stakeholders include;

- i. The community in Hamburg, including the following associations;
 - a. Fishers' Association
 - b. Farmers' Association
 - c. Parents and teachers' Association
 - d. Youth groups
 - e. Church groups
 - f. Local business Association
- ii. The Keiskamma Trust (a local NGO);
- iii. Local Government (such as the Mayor and the local councillors);
- iv. Holiday makers and outside holiday house owners;
- v. The Angling Club (which includes members from outside Hamburg that come to this area to enjoy the fishing);
- vi. The administration and management of the Hamburg Nature Reserve;
- vii. The Department of Marine and Coastal Management;
- viii. Aspire (a consultancy firm that has been very active in the area, registered as the Amatole Economic Development Agency)



Figure 1: Beach and sand dune vegetation in Hamburg

2.3 Can the marine and coastal resources support the community?

A rapid evaluation was done of the conservation possibilities of the Hamburg coastline. There runs a band of dense coastal shrub forest stretching between the Keiskamma and Umtana River estuaries. In the protected area behind the dune system there is an area of low thorny bushveld vegetation. A small herd of domestic goats were noted grazing in the thornveld to the west of a small blue gum plantation. The coastline has a series of flat rocky shelves, (probably sandstone) that erodes away to provide interlinking rock pools that are exposed at low tide. These rocky shelves and rock pool system provides many habitat opportunities for vegetation that is favoured by the energy-rich shore environment such as *Hypnea spicifera* and *spicata*. Lush patches of *Plocamium* were also visible in places. The community members pointed out oyster beds and *Haliotis Transkei* abalone, a smaller

version than the Cape abalone. During the beach visits, a number of bryozoans and colonial tunicates washed up on the shore were noted. These indicators point to an energy-rich system that has the potential to support rich fish life. Recreational anglers found on the beach were angling for Shark and Cod as well as Yellowtail. A notable absence on the shore is the presence of black mussels. The whole system (marine, shore and dune forest) should be managed as a unit to unlock the potential effectively. This natural area has great ecotourism potential if planned and managed properly. The landscape combined with the human resource potential and the historical features on the landscape can be turned into a potentially successful tourism destination.

The vast majority of community members in Hamburg are poor and marginalised. The community members raised issues such as difficulties to obtain fishing permits as a limitation to how they can support themselves off the rich marine and coastal resources in the area. Many of the women in Hamburg use to support themselves by collecting oysters and abalone. Since it has been forbidden and the controls have become stricter, the community has lost this income generating activity and this is seen as a big problem. Some community members also reported that there are outsiders, carrying out illegal and organised abalone poaching in the area and they suggest that by giving the community members permits to harvest abalone on a sustainable level while increasing the law enforcement it would actually reduce the pressure on this valuable resource while contributing to the well-being of the local community.

Hamburg demonstration site at a glance...

In April 2010 the DLIST team visited the site for the first time. At the initial community meeting the Deputy Minister of Water and Environmental Affairs was present together with other high ranking officials to show that the Government of South Africa supports the initiative. A second field trip occurred in July 2010. The DLIST team has thus far included marine biologists, EIA specialists, LED specialists, a coastal protected area specialist, stakeholder involvement specialists and tourism specialists. There has been one public meeting, which resulted in the selection of a planning committee that has been working with the DLIST team. A total of 190 individual interviews were done, and one public meeting and 9 interest group meetings and a film festival have been conducted thus far. Organisations involved include the Ministry of Water Environmental Affairs and other Government departments like the Department of Agriculture, Forestry and Fisheries (DAFF). The DLIST team mainly worked with the Forestry and Marine and Coastal Management divisions under DAFF and the following community based groups: Abalone group, fishers group, local business association, tourism operators. Private sector involvement included the angling club and, holiday home owners and NGOs included, 2540 Finishing College, Keiskamma Trust Art Project, and ASPIRE.

Some people in Hamburg reported that they have been seeing big changes in the environment. They say that the structure of the beach is changing every few years, with very big sand dunes building up in areas which used to be perfect recreational areas and flat beach. They don't know why this situation has changed, but people seem to think that the wind pattern has somehow changed over the years, bringing more sand to the Hamburg area.

In general, the people in the community in Hamburg have a slightly negative attitude towards the marine conservation efforts in the area. The community don't see the benefits of conservation which they view as simply putting restrictions on what they are allowed to do and what not. Many people also said that the system is unfair and favours outsiders rather than small local operators/people when it comes to giving people temporary permits to fish, drive on the beach or

other activities that are normally restricted inside the Nature Reserve. It is important that the Hamburg Nature Reserve works closely with the community members and undertakes more educational activities and actively involve people from the community in the conservation activities. How some people from the outside can get permits to arrange fishing competitions or drive on the beach, while community members are not allowed to engage in these activities should also be closely looked into with the authorities giving these permits.

2.4 Alternative livelihoods options leading to poverty reduction

When meeting with stakeholder groups and conducting individual interviews with people in the community, they were asked to list alternative livelihoods options. In Hamburg the options identified by the community members are listed in Table 1 below.

Table 1: List of alternative livelihoods options identified by the community in Hamburg

Alternative livelihood	Activities	Notes
Tourism	Local Bed and Breakfast opportunities for community members	In high season there often is no accommodation available and, although the indigenous culture is interesting to tourists no cultural B&Bs are available
	Fishing guides	Local fishermen, of which there are many, know the best fishing areas and can be honorary wardens
	Tour guides	Fishing Bird watching Hiking companions Cultural tour guides
	Hiking trails	Beach hike mouth to mouth /estuary to estuary Coastal forests meander through the costal dune thicket forest
	Boat trips upriver	The river is navigable for at least 6 km. Small boat tourism trips upriver will be a good experience. Rural landscapes with large salt marshes and water birds make this possibility reasonably attractive
	Xhosa traditional hut home stay	Here is opportunity and even possibly a local operator for creating traditional Xhosa huts along the trails where hikers can experience local traditional Sleep on reed mat, Xhosa food and cultural opportunities.
Agriculture	Cattle farming	The conditions for cattle are quite favourable and it would bring good additional income
	Goat farming	It is not very common with goat farming in this area today and it could be combined with processing of goats milk for cheese etc
	Vegetable gardens (tunnel farming)	New methods would improve the productivity
	Beekeeping	Honey is a popular product both locally and for tourists etc. Beekeeping and honey production would therefore bring additional income
	Poultry	Some women suggested that they can keep chickens in cooperatives and put them up for sale
Arts and crafts	Existing programmes	Keiskamma Trust (doing good work) Aspire (not yet in operation)
	New possibilities.	Pottery. Traditional pots for the interior decorating Reed mats and reed baskets, could also be good products

		that can be used by locals as well as sold to tourists
Building / industrial opportunities	Brick making	If the right material is available, it would be relatively easy to set up a brick making facility which could bring income and create jobs
Financial and business services	Bank or ATMs	People say the lack of these services hinders tourism
	Mini Spar or ShopRite.	Before a project like this is initiated it will be necessary to carry out a thorough market analysis to assess the need
	Small butchery at local market area	
Infrastructure and housing	Road upgrade	The road to Hamburg is in a bad shape and it would do a lot for the development of the town if it was improved
	Sewerage disposal facility	Much needed to avoid pollution of the sensitive coastal and estuary environment
	Additional housing for officials eg.MCM	
	Need for more land for development	Many of the proposed interventions need available land to become a reality – i.e. goat and chicken farming
	Additional electricity for those who do not have.	
	Solar power and wind generated electricity	Alternative and renewable energy solutions should always be considered. For Hamburg it is foreseen that wind power in particular has great potential
Other opportunities	Collecting natural sea salt	Could bring income and job opportunities for uneducated community members
	Collecting sea shells for collectors	Could bring income and job opportunities for uneducated community members

These alternative livelihoods options have not been ranked or listed in order of priority. But a SWOT analysis of the identified alternative livelihood opportunities was conducted. In this analysis also possible interventions to address these issues were included. See Table 2 for more detail.

Table 2: SWOT analysis for the identified alternative livelihood options for Hamburg, including possible interventions.

Alternative Livelihood	Strength	Weakness	Opportunities	Threats	Intervention
Tourism	Beautiful landscape	Poor infrastructure	Community interest	Lack of trained community members	Availability of capital for boats canoes
	Peace and Quiet	Insufficient accommodation	Available labour	Unbridled development	Training of tour guides/B&B operators
	Rich Estuary	Unskilled potential operators/business people	Young community members with some language skills	Bad roads	Creation of links with known tourism operators such as Drifters, Kayak Africa
	Close to big centres and airport	Lack of capital to start small businesses		Poaching/Overuse of resources	Creation of local a community market
	Available labour	Lack of training facilities		Lack of law enforcement	Upgrading of municipal public facilities and service contracts for maintenance
	Community needs it	Lack of supporting tourism facilities		Lack of service station facilities for motorists	
	Available skills in the community			Alcohol abuse	

				Loss of tranquillity	Road upgrade DLIST training and service hub Effective control of resource use Creation of an effective local tourism development agency
Agriculture	Healthy cattle stock Tradition of stock farming Cultural links with farming	Lack of land Insufficient water Lack of specialized knowledge Lack of identified market Identification of optimum farming products	Additional state land Integrated chicken/pig/fish/vegetable farming Products delivered to local market when established Wood for fires and building	Lack of applicable knowledge Drought, Traditional farming methods Soil erosion Overpopulation Too small land allotments	Get agricultural/mariculture experts to make assessment of opportunities
Business	Known community needs Proximity to big centres Potential of increased tourism visitors	Relatively small customer base Low average income in community Proximity to bigger centres Experience and understanding of business principles	Ferry service Banking facility Operation of booking service Service station Tourism support services	Proximity to big centres Opening of big chain stores Crime Bad roads	Training principles and "tricks of the trade" through DLIST Business plan concepts and operations training
Construction	Number of semi skilled labourers in village Relatively cheap labour available	Not enough land for development Capital for development	Road building Repairs to municipal infrastructure Construction of traditional huts for tourism opportunities	Lack of local opportunities Lack of supervisory skills	Training through DLIST Training at school level
Conservation	Local environment relatively undisturbed High biodiversity Sea, beach, estuary, forests and grasslands Community willingness to conserve Hamburg Nature Reserve head office	Ineffective law enforcement Multiple agencies involved Lack of effective equipment	Possible local conservation area Possible environmental education at schools during normal school holidays Involve local subsistence fishers as conservation support	Overpopulation Poaching/overfishing Destruction of forest for firewood. Lack of effective law enforcement Upstream dam Mariculture in	Estuary management plan and management committee Appointment of local estuary manager Specialist training of conservation staff Creation of a gazetted conservation area Perhaps a local community

	Conservation legislation			inappropriate places	conservation area
	Relative abundance of marine organisms				

2.5 Weaknesses and opportunities for sustainable community development

Through discussions with local communities and different stakeholder groups in the community, a number of weaknesses/issues that hinder good development in Hamburg were identified. Below is a list of some of the issues raised:

1. Poor municipal infrastructure and services;
2. Unclear and or conflicting government department interactions and roles ;
3. Poaching and compliance monitoring problems;
4. Lack of subsistence fisheries permits;
5. Lack of tourism facilities;
6. Lack of local businesses to serve community needs;
7. Land Issues;
8. Availability of state land for development;
9. The issue of buying buildings/houses on state land;
10. Availability of state land for agriculture;
11. Lack of resources;
12. Bad community relationships;
13. Lack of tourism opportunities and activities.

2.6 Bottom-up and top-down communication

Official communication in Hamburg is mainly done through the local municipality and announcements made in schools. If there is for example an important meeting, the local municipality is contacted and they make announcements through a loud speaker so that the local people will receive the information and may attend the meeting. In other cases, people communicate important news through word of mouth or by posting announcements on signboards in the village. In general people complain that communication is not always effective and better ways of communication should be sought.

The DLIST team can work with the community to invest effective protocols by which two-way communication can be established and maintained. It is important that the people on the ground can formulate their agendas and clearly spell out problems, and that they then find ways of communicating it to the relevant authorities in government departments. It is admirable that the Deputy Minister and Chief Director visited Hamburg, and this showed commitment and the interest of the government in the community. However, such visits are clearly not enough.

One option that has been suggested is to place a "DLIST node" in Hamburg. A DLIST node can be one or two computers with internet connection placed at a strategic point in the village to give as many people as possible access to this facility. Not only will they be able to access up to date information

from the government, but they may also use it and learn more about the DLIST ASCLME Project and marine and coastal issues in general. A place where people can get access to a computer and internet will also contribute greatly to the education of the community in Hamburg, by making people computer literate and give them access to a wide range of information available on the internet. During the next eighteen month such communication mechanisms will be investigated and, as far as possible be put into practise so they are in place for ASCLME Project implementation.

The Hamburg community is typical of a number of predominantly Xhosa speaking communities along the Eastern Cape coastline in South Africa. Communities in which replication of successful interventions may be possible will be listed in the Final Report.

3 Vilanculos, Mozambique

3.1 Executive Summary

Vilanculos is a coastal town in the Inhambane province in the central parts of Mozambique with around 30,000 inhabitants in the urban area (2010). Across the bay from the town of Vilanculos is the rich Bazaruto Archipelago National Park and World Heritage site, which was gazetted in 1971 and spans over 1,430 km². The terrestrial area around Vilanculo town is not very fertile, with sandy soils and the main vegetation consisting of coconut palms, cashew nut and mango trees. There are lakes around the town area, some with fresh water, which potentially are an asset for tourism, Tilapia fishing/farming as well as a fresh water source for the town and for irrigation for agriculture. Even though the people in Vilanculos at times engage in subsistence agriculture, their main source of income and protein is through inshore fisheries. The DLIST initiative in Vilanculos has followed a Local Economic Development (LED) approach to identify weaknesses, opportunities and possible interventions, with the main focus being on the fishing community. Community meetings, special interest group discussions and individual interviews have informed the planning process. A vision for the future of the fishing community in Vilanculos was developed as follows;

“We envision Vilanculo, to be more developed with more education and skills development, good road and basic infrastructure, and most importantly we want more job opportunities. We also want the people of Vilanculo to have access to coastal and marine resources without disturbing the ecosystem and practice a sustainable fishery.”

The artisanal fishery in Vilanculos targets the sand oyster, juvenile fish in the seagrass areas and the blue swimming crab as well as prawns. When targeting fish the most common method is to use fine-meshed drag-nets; most boats are sail-powered and neither cold storage nor ice-making facilities are available to the artisanal fishers; these factors impact the value that can be added to fished resources. Drag nets, spearing and even the use of mosquito nets for fishing are common and very destructive to the wild stocks. Fishers as well as traders in Vilanculos have reported a decline in catches in the recent years. Most people recognise that there is a need to find more sustainable fishing methods to reverse this trend.

Overfishing, illegal fishing by outside/foreign long-line vessels, pollution and possible negative impact from the gas exploration activities are mentioned as environmental problems in the marine and coastal environment. For the terrestrial side, issues like coastal erosion and changes in rain patterns have been highlighted as issues of major concern. The fishers have also pointed out that

they see a conflict with tourism operators that sometimes destroy their nets and other fishing gear. Since much of the tourism activities in the area are linked to the national park it would be good with improved communication between the park management, the fisher's association and the tourism association. Lack of law enforcement among the artisanal fishers is also recognised as a problem that contributes to the current situation of ever diminishing resources.

Through the consultative process the fishing community in Vilanculos listed the following weaknesses; lack of marine resources in the sea, lack of reliable alternative livelihoods, lack of funding, lack of basic education, lack of law enforcement, degradation of the harbour, degradation of the marginal, lack of public infrastructure, lack of marketing for Vilanculo, limited English language knowledge, lack of local involvement in tourism.

The following are the proposed interventions, which are described in detail in the Development Plan for the Fishing Community in Vilanculos (DPFCV), produced by the DLIST team in collaboration with representatives from the fishing community. Aquaculture development (for Tilapia) in the river and lakes could be a good activity to diversify the fishing and income. To reduce the pressure on the resources further it has been suggested that more sustainable fishing methods should be introduced in the marine fisheries. One of the "quick-win" methods that have been identified so far is to ban all methods other than cages for the crab fishing which mainly targets the blue swimming crab. If the only method allowed was catching fish with cages, rules on minimum size could easily be introduced along with a ban on killing the egg-carrying females. These activities should be combined with awareness raising activities in marine ecology, better law enforcement, an improved fish licensing system as well as the creation of artificial reefs. To address the issue of conflict between the fishers and the tourism sector it will be necessary to find a way so that the fishers can participate or contribute to the tourism activities and benefit from these activities in the area.

Related to alternative livelihoods activities the fishers have also identified that small scale agriculture projects such as cashew nut and potato farming would be possible with some financial support and training. General development of the infrastructure in Vilanculos, such as the road and the harbour has also been identified as a great need and something that would contribute to good development and support the tourism industry.

Many possible partners exist in Vilanculos for addressing the issues raised by the fishing community by implementing the proposed interventions in the development plan. These include Eduardo Mondlane University and some groups in the university, namely Tudo Verde, who could support initiatives related to farming, aquaculture and awareness rising. The private sector has also shown a great interest in the DLIST initiative and it is hoped that they can also support some of the interventions by providing needed expertise and/or funding. These include fish and seafood processing factories such as "Café de Pesca", tourism operators like Dive Bazaruto, a fish and prawn farming factory (MARBAR) and the gas company SASOL. The team have also met with various NGOs and projects including KUKULA, GAPI (a micro finance institute), WWF, Conservation International (CI) and ASSODEV, and they are also supportive of the process.

3.2 Introduction to the demonstration site in Vilanculos

Vilanculos town is located on the coast, around 500 km north of Maputo, in the central parts of Mozambique. Across the bay from the town of Vilanculos is the Bazaruto Archipelago National Park

which was gazetted in 1971 and spans over 1,430 km². The archipelago is rich in biodiversity with a healthy coral community, many sea birds, dolphins, sea turtles and even one of the few (or the only as claimed by some) viable dugong populations in the entire Western Indian Ocean region. A recent survey by WWF estimates as few as 60 dugongs remaining. The current management agreement (for the Bazaruto Archipelago National Park) between the Ministry of Tourism and an NGO called International Conservation is unclear and the only enforcement taking place at the moment is carried out by the rangers based on the islands.

The bay between the mainland and the islands is mainly made up by seagrass meadows and sand banks and there are some mangrove areas near the river mouths in the bay. The mangrove stands support juvenile fish and reduce the sediment load in the bay as well as out in the archipelago and are therefore extremely important for the health of the entire ecosystem. The terrestrial area around Vilanculo town is not very fertile, with sandy soils and the main vegetation consisting of coconut palms, cashew nut and mango trees. There are lakes around the town area, some with fresh water, which potentially are an asset for tourism, Tilapia fishing as well as a fresh water source for the town and for irrigation for agriculture.

Even though the people in Vilanculos at times engage in subsistence agriculture, their main source of income and protein is through inshore fisheries¹. There are about 150,000 inhabitants in the district of which an estimated 30 000 inhabitants live in the urban area (municipality) and 120,000 in the rural part of the district. The population growth rate in the Vilanculos town is estimated at 8.3% with the majority of the people not engaged in the formal economy. Due to the high level of dependency on the natural resources and the rapid population increase in the area along with a constantly growing tourism industry – the pressure on the coastal and marine resources is growing rapidly. Therefore, there is an urgent need for action to ensure a more sustainable resource use. The fishers in Vilanculos are part of a wide network of stakeholders when it comes to the use of marine and coastal resources. There are many levels of national, district and local government and NGO's, local businesses and others that influence the lives of the fishers. A stakeholder map with draft links between the different groups is found in Figure 2.

¹ For more information see the Vilanculos District Tourism Master Plan, 2010

The lack of fish has been one of the main problems identified by the artisanal fishing community in Vilanculos. It seems like most fishers don't know why the fish stocks have decreased in the last 5-10 years, but different reasons such as illegal long liners, pollution from the gas exploration company (SASOL) and too many fishers have been mentioned among the likely causes to this big problem. The artisanal fishers are suffering because they can no longer support their families on the fish that they catch. Some of the fishers, who mainly engage in drag net fishing along the beaches when the tide is right, reported that they sometimes don't even catch enough fish to feed their own families when they divide the catch between the fishers in the team. Another problem is that the amount of catch is very unpredictable, sometimes leading to a lot of waste when the catch all of sudden is bigger than expected and the group of fishers don't have the facilities to store and distribute it effectively.



Figure 3: Blue swimming crabs caught by net in Vilanculos, including egg carrying females

To reduce the pressure on the resources further it has been suggested that more sustainable fishing methods should be introduced in the marine fisheries. One of the "quick-win" methods that have been identified so far is to ban all methods other than cages for the crab fishing which mainly targets the blue swimming crab. Today this fishing uses mainly spears and drag nets, which means that crabs of all sizes will be caught and killed as well as female crabs with eggs. If the only method allowed was catching fish with cages, then rules on minimum size could easily be introduced along with a ban on killing the egg-carrying females. There are a number of international companies and NGOs that are involved in this type of sustainable crab fishing initiatives and many are willing to assist by sharing lessons learned, give input on how traps can be produced locally etc. The DLIST team have been in contact with people at the Sustainable Fisheries Partnership (<http://www.sustainablefish.org/>) and Phillips Foods discussing future collaboration possibilities for the area around Vilanculos.

Another opportunity which would reduce the pressure on the marine fisheries is to encourage fishing of Tilapia in the river and lakes. More about this opportunity is found below under the alternative livelihoods section.

In general the fishers in Vilanculos have nothing against the Bazaruto National Park and they are positive to conservation efforts. This is quite different from other parts of the WIO, and there may be some lessons that can be learned here. They do however see a conflict with tourism operators that sometimes destroy their nets and other fishing gear. Since much of the tourism activities in the area are linked to the national park it would be good with improved communication between the park management, the fisher's association and the tourism association. To really address the issue of conflict between the fishers and the tourism sector it will be necessary to find a way so that the fishers can participate or contribute to the tourism activities and benefit from these activities in the area.

Another idea has also been raised which would address the issue of unsustainable fishing in the area. It was suggested that a compulsory course in basic marine ecology, consequences of destructive fishing methods and how to fish more sustainably should be introduced in association with giving people licences to fish. Both fishers and educational initiatives would benefit from this type of compulsory training that could be compared with the training people have to go through before getting a drivers licence.

3.4 Alternative livelihood options leading to poverty reduction

For the community in Vilanculo it was seen as very important to find alternative livelihood options, mainly because of the changes in the environment and the diminishing resource base in the coastal and marine environment. They have identified that they need more education, more alternative livelihood options and better law enforcement of fishing restrictions as well as stopping local pollution. At the moment they have no reliable alternative livelihoods options during the two months of the year when drag netting on the beach is prohibited. Most of the fishers have small plots for farming, but with irregular rainfall and increased cyclones along with poor soil quality, the farms can no longer sustain the fishers and their families during these periods. And the artisanal fishers were complaining that they have no other alternatives to turn to for income generating activities.

Some of the solutions for alternative livelihoods that came up in the group interviews as well as individual questionnaires were:

1. Animal farming has come up as a possible alternative livelihoods option for the fishers, as it can be done in the Vilanculos area without needing to provide much additions of food etc. Depending on what kind of animal farming the fishers would engage in, they would need training and assistance with the initial investment as a type of micro-finance loan. It has been identified that there is a good market in Vilanculos for chicken as well as eggs, and also for pork (particularly from pink pigs).
2. Another option that has been suggested is to re-introduce game to the area around Vilanculos. A group of people who are now fishers could set up a project where they keep

Vilanculos at a glance...

Two field trips have been undertaken thus far. The latest field trip, in February 2010, included a site visit by the MEDA coordinator Ms. Clousa Maueua from the “Instituto Nacional de Hidrografia e Navegação (INAHINA). The DLIST team has included marine biologists, LED specialists, stakeholder involvement specialists, a heritage specialist and tourism specialists. The LED planning process has not been started yet, but there have been 16 interest group meetings including with fishers, academic institutes, government, NGOs and private sector during the field trips. There have been 77 individual interviews, and 3 group sessions/film festivals conducted thus far. The team met with the Mayor of Vilanculos District from time to time to give feedback and obtain valuable input from him. Organisations involved include the Ministry of Fisheries, Ministry of Agriculture, Ministry of Tourism and the Ministry of State Administration and various departments under these ministries. The DLIST team met with the fishers association – a community based group in Vilanculos. In addition, they also worked with the Eduardo Mondlane University and some groups in the university, namely Tudo Verde. Private sector involvement included fish and seafood processing factories such as “Café de Pesca” and “Stoben”, tourism operators like Dive Bazaruto, a fish and prawn farming factory (MARBAR) and SASOL. The team met with various NGOs including KUKULA, GAPI, WWF, Conservation International (CI) and ASSODEV.

game in a specific area and either use it as a tourist attraction, or even keep the game for hunting. The vegetation around Vilanculos is said to be very suitable for game and not much extra care would be needed as game is generally more tolerant than cattle or other livestock to common diseases in the bush. As a start to the game park initiative, a small scale “animal park” for children could be set up and if it has the desired effect on tourists and brings income to the local community it could later be expanded to a bigger game area. The DLIST team encountered a potential partner that is eager to explore a joint venture.

3. Cashew nuts grow everywhere in Vilanculos and with very little extra care of the trees during the growing period the nuts would be of much higher quality and could then be processed and generate good income to the community. The University of Eduardo Mondlane² has set up a cashew nut farm where different types of fertilisers are tested to see what gives the best nuts. This initiative could easily be expanded to the local communities and the cashew nut production would be enhanced in the area. To then combine the farming activities with skills in how to roast, process, and pack the nuts, a very attractive product could be created locally and sold on the market as well as to the local hotels for consumption by tourists who visit Vilanculos.
4. Another promising option as an alternative to marine fisheries is fresh water lake and river fishing and along with Tilapia farming. There is a local expert in Tilapia farming who has experimented with community-based Tilapia farming initiatives in the river and sees great potential in this activity. It might also be possible to enhance the natural Tilapia stocks in the small lakes around the district by re-introducing a new gene pool to the existing Tilapia populations in all the hundreds of small lakes around Vilanculos. This new gene pool could be consisting of 5-10 “fresh” individuals from the river and this would boost the existing population dramatically, as has been seen in two of the lakes near the river where this happened naturally during the last big flood a few years ago.

In order to achieve any sustainable and long term change in terms of more sustainable fishing, alternative livelihoods activities, it is very important that all these initiatives are combined with basic environmental education and training in financial management. Many initiatives already exist related to training, but there seems to be a lack of awareness about these initiatives and that has to be improved.

3.5 Weaknesses and opportunities for sustainable community development

Lack of funding for better boats, improved fishing gear as well as for alternative livelihoods options is another big problem for the fishers. There are a few different organisations that provide money in the form of loans for people to invest in new boats, etc. It is however difficult for the fishers to get access to this money because they are not organised well enough and they don't know how to handle these types of loans very well. Some of the fishers said that they would like to see the government giving out subsidies to them during the periods when drag net fishing along the beach is not allowed, as a daily allowance. The fishers who have looked into trying to find alternative income activities said that it is difficult for them to save any money to invest in a shop, a freezer to produce ice or even to buy a few cashew nut trees.

² The DLIST team has forged a strong relationship with staff and field workers from the satellite campus of the University of Eduardo Mondlane that has already participated in some of the DLIST activities and provide strong possibilities for continuation during the implementation phase.

Another important issue that came up over and over again when talking to the fishers about how to address these issues was that they lack basic education and training for any alternative skills. Many of the fishers agreed that they do need more education about the marine ecology to understand the effects of what people from the outside refer to as “destructive fishing methods”. The fishers who already know enough to understand why it is not good to fish with mosquito nets for example, pointed out that it is very hard for them to convince others not to use this type of fishing, unless everyone has at least a basic knowledge and understanding. In general the fishers also say that they lack skills and training to be able to engage in other income generating activities. Many don’t know how to farm vegetables or keep chicken on a larger scale, or even how to process cashew nuts to add value to the product. Another issue is also that most fishers don’t know how to speak enough English to engage in activities with tourists, which could be a potential alternative for them. They also complain about the lack of technical courses in Vilanculos. The fishers mean that the lack of technical training leads to a situation where the investors prefer to hire people from other countries to do the job that the locals could have done if they only had the training (carpentry and basic constructions were mentioned as examples).

Stricter law enforcement is also an issue that has to be addressed to ensure that the use of illegal and destructive gear is minimized. Law enforcement should also be improved so that the no-fishing zones inside the National Marine Park and around the Sanctuary as well as the special time periods when fishing is restricted are respected so that the marine life is given a chance to recover. The issue of illegal vessels using long liners during the night was also pointed out as a major problem along the coast and it is very important that this issue is addressed on a national level. From Vilanculos it has been reported that the illegal long liner ships are very aggressive and don’t refrain from using weapons to scare off any local boats trying to come close, even if the marine police and the military are involved.

In the southern area, near Chibuene, there is an artificial reef since more than 5 years. This reef has become very rich in marine life and if left alone (i.e. no fishing on the reef) it would function as a nursery and breeding area for all the fish in the lagoon. The situation at the moment is however that the fishers drag their nets over the reef on daily basis, not allowing for the fish to recover. One option that has been discussed and could bring benefits to the local fishers as well as tourist operators would be to introduce more artificial reefs in the channels in the lagoon. This would contribute to increased fish populations in the area and if the reefs are placed strategically some can be used for fishing, while other reefs would primarily be there for improved fish breeding by providing “protected” nursery sites where fishing would not be allowed.

3.6 Bottom-up and top-down communication

Problems with communication were also identified as an issue for the fishing community in Vilanculos. One reason this was identified as an issue was that the knowledge of the existing organisations that provide funds and training for the local community was only known by a few individuals, while most of the fishers have no idea how, when and where to turn for support. Even within the fishing association who has less than 30 members it was clear that some individuals had received training and funding opportunities from organisations and structures that other members had never heard of. Another issue related to poor or lacking communication was that some fishers continue fishing even during the periods when it is not allowed, because they don’t even know when

that period is. Not knowing the rules and regulations makes it very difficult for fishers to adhere to them, and for them to plan with their families on how to survive during these times.

One way of addressing the issue of lack of information is to involve the most popular media – the local radio station. Radio is the most efficient way to spread information, to reach many people with educational programmes etc in a community where very few people have access to printed newspapers or TV. The radio can advertise special events such as film festivals and awareness days with certain activities and it can also be used to broadcast educational programmes and messages related to environmental issues. Important dates for deadlines for funding applications etc can also be made public knowledge through the radio.

4 Kilwa Kisiwani, Tanzania

4.1 Executive Summary

Kilwa Kisiwani is a small island in front of Kilwa Masoko town, in the Kilwa district, which is one of six districts in the Lindi region. The community on the island consist of around 1,200 people. The island is well known for its impressive historical ruins, which made it a World Heritage Site in 1981. The ruins and the World Heritage status gives the island good potential for cultural and eco-tourism initiatives. The ruins are however not well maintained and there is a need for better management and more community involvement in the preservation of this historical treasure. The climate is tropical and humid, but the soil layer on the coral rag natured island is not very favourable for farming activities. Small scale integrated farming of cashew nuts, mangoes, oranges and cassava is common, but not very productive as water for irrigation is insufficient and the soil is of relatively poor quality. The main source of protein for the community is through inshore fisheries; both fish and marine invertebrates. The DLIST initiative in Kilwa Kisiwani has followed the Local Economic Development (LED) approach to identify weaknesses, opportunities and possible interventions, engaging with all community groups on the island. Community meetings, special interest group discussions and individual interviews have informed the planning process. A vision for the future of Kilwa Kisiwani was developed as follows;

“Kilwa Kisiwani should be an island where people live a good life in unity and under good governance while sustaining its natural resources including the ancient ruins. People should have employment, access to water, electricity, better hospital and a good quality education for children, youth and adults. Modern equipments for agriculture and fishing should be available along with a well established market centre and assistance with small grants to promote alternative livelihood activities including handicraft activities for women. Leadership and good governance training is needed to reduce political conflicts. Tourism in the ruins should be carefully developed in collaboration with the community to make the people of Kilwa benefit more and local manpower should be utilized in any development, which should always be respectful to the religious and cultural traditions of the people.”

The area around Kilwa Kisiwani is shallow and the island is surrounded by mangroves, seagrass and some coral reefs. Kilwa in general is known for being a region with rich marine resources and fish catches are high here compared to most other regions along the Tanzanian coast. The artisanal fishery in Kilwa mainly targets inshore fish, invertebrates such as prawns, crabs and different shells

and bivalves. Common fishing methods are traditional fish traps (dema traps), hook and line fishing and some net fishing. The local fishers from Kilwa Kisiwani use sail-powered boats and the fish is either sold to the markets in Kilwa Masoko or consumed locally on the island. Destructive fishing practices are sometimes practiced, mainly by fishers from outside, including drag- and ring net fishing methods. People however have a very negative attitude towards conservation efforts as it is seen as a way for “foreigners” and people from the outside to take the marine resources away from the local people. The fishers report reduced fish catches in recent years, and the attitude is that this is caused by the destructive fishing by outsiders and by God. Even if the destructive fishing by outsiders is seen as a problem, the community don't want to introduce any marine conservation efforts in the area, at least not at present.

The main environmental problem reported by the community is coastal erosion and changes in weather patterns. The unreliable rain makes it more difficult for the farmers. Insufficient fresh water resources on the island are also seen as a major problem for the community. The coastal erosion on the other hand is threatening some of the historical buildings and this is a real worry for the community. They value the ruins highly and see tourism activities in the ruins as a good alternative income generating activity, so the threat caused by the increased coastal erosion is very serious.

Through the consultative process the community in Kilwa Kisiwani listed the following weaknesses; lack of financial capital for investments, poor fishing boats and gears, inadequate dispensary/clinic with insufficient staff and material, lack of access to proper toilets, lack of community involvement in any development initiatives, lack of good primary school and facilities, lack of electricity, lack of access to clean and safe water, few alternative livelihoods activities, low level of formal education among community members, lack of community benefits from the ruins, lack of market area on the island, absence of government office on the island, absence of community meeting hall, lack of modern techniques for farming and livestock keeping, absence of secondary school, and a very degraded jetty.

The following are the proposed interventions, which are described in detail in the Local Economic Development Plan for Kilwa Kisiwani which is being developed by the DLIST team in collaboration with representatives from the community. A Multi-Purpose Resource Centre has been proposed for the island community; which can be a ‘one stop shop’ for community activities, training and provide space for awareness activities, programmes, and community services such as a market place etc. The MPRC could be equipped with solar power, rain water harvesting and toilets to be a pilot project for new simple technologies that could be used in the community. An enabling environment and support to small businesses and SMME is also proposed as an intervention. This can possibly be achieved in collaboration with TASAF, MACEMP, WWF and other initiatives and organisations. Support to the fishers in terms of training and awareness raising activities and better fishing equipment for deep sea fishing has been listed as a key intervention, since fisheries is the main livelihoods activity in the community. Improvements to the school and health services on Kilwa Kisiwani are urgently needed and should be coordinated with the local government in Kilwa Masoko. Heritage tourism development where the community can take a more active part in tourism activities will also bring income to the community. This could be combined with a community guest house and also gives an opportunity for private sector involvement. Infrastructure development has also been proposed as an intervention; such as upgrade of the jetty, electricity connection and better water access.

Many possible partners exist for the proposed interventions in Kilwa. The community members and the different groups within the community are the key groups for implementation, but they need support. WWF is one of the few NGOs that have been active in the area. Unfortunately they are very much associated with conservation of marine and coastal resources, which is not a popular thing among the community members. They could still support initiatives in the community, but should rather not be the lead party, at least not at this stage. The Marine and Coastal Environment Management Project (MACEMP) and the Tanzania Social Action Fund (TASAF) can support and hopefully fund some of the interventions in the LED plan as well as the Tanganyika Christian Refugee Service (TCRS). When it comes to issues related to the ruins and heritage tourism it will be important to involve UNESCO and the Department of Antiquities. Other ministries and department that must be involved in different steps of the implementation are the Ministry of Natural Resources and Tourism (where the Antiquity Department is part), the Ministry of Land, Housing and Human Settlements Development, the Ministry of Infrastructure Development, the Ministry of Industries and Trade, the Ministry of Finance and Economic Affairs, the Ministry of Transportation, the Ministry of Livestock Development and Fisheries, the Ministry of Energy and Minerals, the Ministry of Health and Community Development, the Ministry of Information, Youth and Sports, the Ministry of Education and Vocational Training, and the Prime Minister's Office – Investment and Empowerment. The involvement of private sector should also be investigated carefully.

4.2 Introduction to the demonstration site in Kilwa Kisiwani

Kilwa is one of the oldest towns in East Africa, with the earliest records of settlements dating back as far as the 9th century. It was a famous trading centre where Arab traders shipped ivory, slaves and other valuables from the African continent. Archaeological investigations were initiated in the 1950's and in 1981 the ruins of Kilwa (Kilwa Kisiwani) were declared a World Heritage Site. The modern part of Kilwa (Kilwa Masoko) is a small town in the Lindi region in Tanzania, around 240 km south of Dar es Salaam. Data from the 2002 National Census for Kilwa district indicates that there were approximately 171,850 inhabitants in the district. Administratively, it is divided into 6 divisions, 20 wards and 97 registered villages. Among these, 31 are coastal villages. The most famous villages/areas are Kilwa Masoko, Kilwa Kisiwani and Kilwa Kivinje. The community in the modern Kilwa are generally poor and highly dependent on the coastal and marine resources for food and income. Fish is the main sources of protein in the district. Virtually all fisheries production is from the marine fisheries. The Marine Fisheries Frame Survey carried out in 2007 observed a total of 18 landing sites (15 permanent and 3 temporary) in Kilwa District, which supports around 2,267 artisanal fishers (2,110 fishers using crafts and 157 foot fishers). Nowadays there is an increase of other sea products being harvested such as lobsters, seaweed and seas shells for export. Seaweed farming is however on the decrease since 2007 due to a problem of seaweed die-off. Tourism is not a big industry in this area as it is difficult and expensive to get from Dar es Salaam without chartering a private plane, but the main road is being upgraded and this is expected to contribute to growing opportunities for alternative livelihoods in the area.

The area has extensive shallow water areas with several Islands, mostly sandy, that are all surrounded by coral, seagrass, seaweeds and mangroves on the coast. Most of the coral reefs are pristine and rich in biodiversity and fish catches are high compared to many other regions. The sandy islands are also important breeding sites for sea turtles. Large marine animals in the district include dugong, dolphin and turtles, which all have high conservation values. To secure the future of these species as well as the rich marine resources it is important to ensure that fishing continues in an environmentally sensitive manner. Kilwa is said to have the best fishing grounds in Tanzania (together with Mafia) and fishermen are now coming into the district, from as far away as Mtwara, because local fish stocks are high in comparison with the depleted stocks elsewhere. Two major institutions play part in the development of local coastal communities in Kilwa. These are WWF through Rufiji-Mafia-Kilwa seascape programme (RUMAKI) and Marine and Coastal Environmental Management Project (MACEMP).

At a glance – Kilwa Kisiwani

Two field trips have been undertaken during the first half of 2010. The first was a brief introductory visit in January 2010 to get an overview of the area and the second trip, which was longer, was arranged in June 2010. During this visit, the ASCLME Focal Point, Ms Rose Sallema-Mtui from the National Environment Management Council (NEMC) participated. The DLIST team also consisted of marine biologists, experts in indigenous knowledge, national TV journalists, and specialists in tourism and LED planning. Two community meetings were arranged to ensure that the community wanted to take part in the DLIST ASCLME project. So far a total of 75 individual interviews have been undertaken to give input to the LED plan for the area. One film festival has been shown in the school on the island and 130 community members attended this event. The team also met with the District Administration office in Kilwa Masoko to obtain valuable input from them, mainly related to the site selection process. Other organisations involved so far include the Department of Fisheries, the Department of Antiquities, projects such as MACEMP and NGOs like WWF. A third site visit is taking place already in August 2010 to meet with stakeholder groups and to conduct more individual interviews to give input to the planning process.

Important stakeholders in Kilwa Kisiwani are:

- i. The community on the island (including the fishers, the women, the elders, the students and other groups in the village);
- ii. The school and the Madras (religious school) on the island;
- iii. The Department of Antiquities;
- iv. The tourism industry in the area (there are hotels and guesthouses around Kilwa Masoko that organise visits to the island for the tourists to see the ruins);
- v. Local Government;
- vi. Programmes, projects and NGOs such as WWF and MACEMP.

4.3 Can the marine and coastal resources support the community?

The community in Kilwa Kisiwani, the DLIST demonstration site for mainland Tanzania has around 1200 inhabitants which are almost entirely dependent on fishing and small scale farming activities for their livelihoods. In the interviews conducted with members of the community it is clearly pointed out that the fish catches have decreased in the recent years. The fishers also complain that there are fishers from outside who come to the reefs and areas around Kilwa and compete for the same, ever declining resources. These outside fishers often use destructive fishing methods and

even if the community in Kilwa Kisiwani have a very negative attitude towards existing marine conservation efforts, they would appreciate support to address this issue. The fishers are complaining that it is getting more and more difficult for them to support their families on the catch they bring home. In general the local farming is not very diverse and the population lack proper food security.

Around Kilwa Kisiwani the people have not noted many changes in the environment. The only really obvious change for them is the coastal erosion and the sea level rise. This is a problem for the people on Kilwa Kisiwani because the erosion is a major threat to one of their biggest assets – the famous ruins (see Figure 4). The people in the community don't know much about why this is happening to them and they have expressed an interest in more environmental education – both for the children in the school and as adult classes. The films shown during the DLIST film festival were much appreciated.



Figure 4: Coastal erosion along the shoreline poses a serious threat to the ruins of Kilwa Kisiwani.

As previously mentioned, the people on Kilwa Kisiwani have very little trust in the existing marine conservation efforts that exist in the area. Their common attitude seems to be that anything that has to do with marine conservation is just ideas made up by foreigners who want to come and “take the reefs and fishing grounds away from the community”. The resistance to the conservation efforts has been very strong and even on the border to violent when WWF and representatives for national government wanted to launch a Beach Management Unit for the area. To change these attitudes a totally new approach is needed and the initiative must come from the community members themselves.

4.4 Alternative livelihoods options leading to poverty reduction

With the current situation on Kilwa Kisiwani the community does not have many opportunities to adapt to changes in the environment. They have very few alternatives for income/food generating activities and have very limited buffers to sustain the families if the fish catch is poor or the crops fail.

The people have however identified a number of opportunities that could contribute to the well-being of the community. The following is a list of identified opportunities;

1. Improved fishing through better boats and gear as well as training;
2. Improved farming through training in good agricultural methods and diversified crops (composting, use of fertilisers etc.);
3. Good potential for chicken and goat keeping;

4. Tourism (many possibilities were suggested such as guided tours in the ruins, dolphin trips, hippo viewing trips, bird watching walks as well as visits to the caves on the island);
5. Skills for handicrafts are common among the women and this could be developed;
6. A market area for the women to sell handicraft to the tourists.

The community on Kilwa Kisiwani sees tourism as the main alternative livelihood options, with the ruins and enormous heritage value as the main asset of the island. The main obstacle to this activity is the fact that Kilwa is not a major tourism destination, due to difficulties in accessing the place from major tourist hubs such as Zanzibar or Dar es Salaam.

4.5 Weaknesses and opportunities for sustainable community development

The community meeting was attended by almost 70 adults (28 women and 40 men and many children). In the meeting the community listed many issues that hinder good development in the village. There are many problems with lack of basic health care. The existing clinic is very run down and lacks resources and staff. They also stated that the school has insufficient capacity for the number of children in the village. And for the older children it is difficult to get from the island to the secondary schools in Kilwa Masoko. Lack of reliable water supply, lack of electricity and problems with coastal erosion are other issues that were listed by the community as major weaknesses/issues for the community. A list of the weaknesses identified by the community is found below;

- a. No secondary school on the island and insufficient capacity of the existing primary school. Also lack of assistance for students to travel to the secondary schools on the mainland is a problem;
- b. Insufficient clinic/dispensary facilities;
- c. Lack of electricity;
- d. Lack of capital for small businesses;
- e. No good water supply (the wells are good, but it is far for people to walk to collect water);
- f. Coastal erosion and sea level rise;
- g. No community meeting hall;
- h. No community government office;
- i. No market area;
- j. The jetty is not in a good condition;
- k. The ruins are not benefiting the community.

Opportunities for an improved situation on the island were identified as follows;

- a. Improve fishing (better gear and boats as well as training);
- b. Improved agriculture;
- c. Tourism;
- d. A market for handicraft.

In the community meeting the villagers were also asked to think about how they would like Kilwa Kisiwani to be in the future – in other words, to develop a vision for their community. The community agrees that they all want to see their island developed compared to how it is today. For

example they want most of the houses to have running water and electricity. They would like the primary school to be expanded and to have secondary school with easy access for the children from the island – either through arranged and well functioning transport to Kilwa Masoko or a secondary school on the island. Improvements to the hospital and doctors' accommodation were pointed out as something very important for the well-being of the people on the island. In addition to improved infrastructure and education facilities, a grocery shop and a market area with running water and electricity came up as something people would like to have on the island.

Considering that Kilwa Kisiwani lies at the heart of a most impressive World Heritage Site (see Figure



Figure 5: Well preserved mosque ruins on Kilwa Kisiwani

5), tourism undoubtedly is a major possibility for alternative livelihoods to fishing. The DLIST team has now involved two tourism experts to do a preliminary investigation into tourism products, heritage tourism, routes, marketing and the willingness of the private sector to engage in tourism development with entities on the island. These studies are in progress and the thirds field trip is scheduled for the first half of August when much more input into the MEDA for Tanzania is expected.

4.6 Bottom-up and top-down communication

When asked about how communication spread in the community people mentioned that they often hear about news when they meet in the mosque. The teachers in the school and villagers who leave the island for some time were also reported as people who bring news. In general there is no central and clear way for information to be given to the community.

One of the interventions that have been mentioned in relation to improving the communication in Kilwa is the creation of a community information centre. This centre could be situated in or near the school, which is also where visitors from the outside are likely to arrive when they first come to the island. The centre should be equipped with a computer and internet as well as tourist information about the island, the history and the heritage. It could favourably be combined with other DLIST activities such as film festivals and training sessions and it could become a "DLIST node" for the region.

5 Ras Mkumbuu, Pemba, Zanzibar, Tanzania

5.1 Executive Summary

Ras Mkumbuu is a Peninsula on the west side of Pemba, near the capital Chake Chake in the middle of the island. The area consists of two Shehias (local administrative units); namely Weshia and Ndongoni, with a total population of around 9,000 people. Ras Mkumbuu falls within the Pemba Channel Conservation Area, which was designated a Marine Conservation Area in 2005. The bay that

surrounds Ras Mkumbuu is shallow and contains rich mangrove areas, extensive seagrass beds and the coral reefs of the biodiversity hotspot Misali Island is near the tip of the peninsula. Small scale farming of cassava, rice, mangoes and other crops is common in the area. The main source of protein and income is from fish and seafood from the surrounding reefs and seagrass and mangrove areas where collection of molluscs is very common practice at low tide. At the tip of the peninsula, a permanent fish camp is located where people live under very simple conditions. Ras Mkumbuu is very rich in heritage. At the end of the peninsula the ruins of one of the largest and most impressive mosques of around the 10th century in East Africa can be found. Oral history has it that there once was a city that disappeared into the sea when an earthquake occurred a long time ago, and the fishers speak of the 'houses under water'. A fault line is clearly visible under water but thus far, no tangible evidence has been found to prove this legend. The ruins have very high potential for development of community and cultural/historical tourism.

The DLIST initiative in Pemba has followed the Local Economic Development (LED) approach to identify weaknesses, opportunities and possible interventions for the people living in the two Shehias on Ras Mkumbuu. Community meetings, special interest group discussions and individual interviews have informed the planning process.

The artisanal fishers in the area mainly use dugout canoes and sails to navigate the fishing areas and very few motorised boats operate from Ras Mkumbuu. The fishers mainly use locally made fish traps (dema), hook and line fishing and to some extent net fishing. Diving for sea cucumbers, shells and manual collection of molluscs is also common. A traditional method of preservation of shellfish and anchovies is through drying in direct sunlight, which is very unreliable and impossible during the rainy season. Destructive fishing practices in the area include drag nets and in some cases even dynamite fishing which causes damage to the habitat. The fishers all say that the fish populations are decreasing and it is getting more difficult to support the families on what they catch. Alternative income generating activities are therefore necessary for people.

Overfishing, oil and ship pollution, deforestation of mangroves and other forest, coastal erosion, salt water intrusion and destructive and illegal fishing methods are mentioned as environmental problems in the area. The coastal erosion is seen as a threat because it destroys low lying farm land and destroys and threatens the ruins on Ras Mkumbuu. The community sees the ruins as a great potential for them, mainly through community tourism development, and they are very worried to see the ruins being damaged.

Through the consultative process the community listed the following weaknesses; lack of access to safe water for people, environmental degradation (such as tree cutting, pollution and low awareness about environmental issues), lack of health care facilities (particularly related to maternal health), lack of ideas and training for improved agricultural techniques, lack of funds for initiating small businesses, lack of a community meeting room, no clean and suitable market area for agricultural products, poor road infrastructure, no electricity, problems with destructive and illegal fishing being practiced, lack of good agricultural practices, lack of efficient fishing gear, and political conflict. Also lack of facilities in the schools was mentioned as weaknesses in terms of a good future development. The communities also express a wish to be more involved in tourism, which they would like to see being more encouraged to this area.

The community members were asked to list alternative livelihoods options and interventions that could address the identified weaknesses. A central market area with running water and clean food storage facilities, a grinding machine for cassava and other products, a drying oven for anchovies and fruits, poultry farming, fish farming or aquaculture, improved facilities and training for vegetable farming, community meeting hall, handicraft project for women to sell products to tourists, community tree planting initiative, bee keeping for honey production in the mangrove, mangrove replanting activities, training opportunities and funding to start small businesses such as tailoring.

Together with the DLIST team, the communities have developed a Multi-Purpose Resource Centre proposal. This initiative received funding from Danida and the proposal is finalised. According to the proposal, each Shehia will have one MPRC constructed next to the existing Shehia schools. The MPRCs are proposed to contain a community meeting hall, a market area with cold storage facilities, a maternity clinic (for Ndagoni), a solar trying hub with a grinding unit (for Weshu), a tourism information centre, class rooms for adult education and training activities, a library and computer room for improved information access. Both MPRCs will also be equipped with toilets, sustainable energy solutions (solar and wind power) and rain water harvesting.

Many possible partners exist to support development activities in Ras Mkumbuu. Danida and the Ministry of Health and Social Welfare have already given support through the MPRC proposal development. Other possible partners are for example the Pemba Channel Conservation Area (PECCA), within which Ras Mkumbuu falls, is the forefront stakeholder in this area. PECCA is a conservation and management project funded by the GEF/World Bank through the Marine and Coastal Environment Management Project (MACEMP). At community level, MACEMP operates a "community fund" which is administrated by the Tanzania Social Action Fund (TASAF). MACEMP also has another fund focusing on deep sea fishing (the EEZ). A local NGO, Misali Island Conservation Association (MICA) have been active in the area for many years, supporting projects related to mangrove replanting, environmental education, tree planting etc. Related to land based issues, the Sustainable Management of Land and Environment (SMOLE) programme, funded by the Finnish Government is also an important stakeholder that should be consulted and involved. A microfinance program, Pemba Savings and Credit Association (PESACA) is operating in the area, though at a very low level. An agricultural programme called the Participatory Agricultural Development and Empowerment Project (PADEP) also operates in the area and the Zanzibar Control Program (ZCP) operates an awareness and education programme on HIV/AIDS.

The Department of Antiquities is also involved in the area around Ras Mkumbuu due to its historical values. A programme on the ground is involving local communities in small scale eco-tourism activities on the peninsula like tour guiding in the ruins of what is believed to be the oldest mosque in Pemba and other associated features. This could be further developed. Zanzibar Electricity Company (ZECO) is also an important stakeholder in this area. The company used to run the fuel power generator which was stationed at Weshu and used to supply electricity for the entire island of Pemba. There are a lot of environmental issues related to this power station, such as oil spills in the bay, which is characteristically covered with dark sediments with evident large areas of mangroves dead. Pemba now has reliable electricity supply through an underwater cable that comes up on land on the Ras Mkumbuu peninsula and the generator is no longer operating. CARE International in Tanzania in collaboration with the local Department of Forestry is also active in the vicinity of Chake Chake where they are working on a REDD project, funded by the Norwegian Embassy in Tanzania.

There is also an initiative for a so called “Millennium Development Village” near Ras Mkumbuu, but information and status on this is not yet explicit. A small community support has also been installed by UNIDO in the form of a solar drying station in Ndagoni. Zanzibar Television (TVZ) can also contribute a lot through outreach opportunities. It has further also been observed that US Aid are active in the area, running a programme on computers for schools.

5.2 Introduction to the demonstration site in Pemba

The demonstration site in Ras Mkumbuu, on Pemba Island in Zanzibar, Tanzania consists of two main shehias (areas/villages); Ndagoni and Weshia. The Ras Mkumbuu peninsula is located in the Chake Chake Bay, at the centre of the west coast of Pemba in the Chake Chake district, South Pemba region, about an hour’s drive from the main town of Chake Chake. The bay is relatively shallow and covered by dense seagrass meadows. Not far from Ras Mkumbuu is the famous Misali Island which is a core zone in the large Pemba Channel Conservation Area (PECCA). This is a marine conservation area since 2005 which covers the entire west coast of Pemba. The magnificent west coast of Pemba is full of islets, bays, lagoons and shores covered with mangroves. Around the islets there are rich coral reefs which harbour a diversity of fish and other marine organisms. Although the bay around Ras Mkumbuu is characteristically faced with land based runoff and high sediment loads, it is nevertheless an area with very rich marine resources. The communities use mainly local and traditional fishing methods to collect shells, molluscs and other marine resources at low tide (see Figure 6). The ideal location, with Misali Island just in front of the bay, also supports a large group of artisanal fishers in the area.

The population in Pemba is a mix of Arab and “Waswahili” inhabitants of the island, commonly referred to as the Wapemba ethnic group. Recent local estimates indicate that Weshia has a population of 4176 (2022 males and 2154 females) while Ndagoni is inhabited by 4863 people (2406 males and 2457 females). The people along the coast of Pemba are as many other coastal communities in the WIO-region highly dependent on the marine and coastal resources for their livelihoods, there is considerably biodiversity as well



Figure 6: Piles of shells in a village in Ras Mkumbuu indicates how extensive the harvest of these molluscs is in the area

as globally important cultural heritage, and this all made Pemba the perfect choice for the second DLIST demonstration site in Tanzania.

Broad consultations and discussions/interviews have been conducted in the two identified communities of Weshia and Ndagoni representing the grassroots, as well as higher levels of the district administration, including various natural resource managers, planners and community

development officers and political elites. Local NGOs were also consulted to clarify their field of operations and potentials for future collaboration and augmentation of viable economic development interventions. The focus of these interactions was primarily to capture first hand information, perceptions and knowledge of the local people and conditions with regard to the economic development prospects for the area.

Management of coastal and marine resources is, at least to some extent, a political process that has to involve a number of actors and interest groups under the umbrella of either a local or a central government. These local stakeholders (community members, local NGOs etc) often have different perspectives on coastal management and see new types of solutions for how the resources can be sustainably managed for the future. It is therefore important to elucidate the significance of the participatory and collective responsibility when it comes to achieving a positive change in community welfare, reaching all the way down to individual households.

Important stakeholders in the area include:

- i. The community committees (fishers committee, environment committee, health committee, women's committee, the Sheha's committee, development committee etc.);
- ii. Misali Island Conservation Association (MICA), a local NGO active in environmental and development issues;
- iii. The Department of Fisheries and Marine Resources (which has the responsibility for the management of PECCA, the marine conservation area);
- iv. The Department of Antiquities;
- v. Local Government (Sheha³ and District Commissioner);
- vi. Zanzibar Electricity Corporation (ZECO);
- vii. Zanzibar Water Authority (ZAWA);
- viii. The MACEMP project.

5.3 Can the marine and coastal resources support the community?

In the consultation process the community in Ras Mkumbuu identified many problems with livelihoods and food security. The communities are in general very poor and lack many basic infrastructures to ensure a good standard of living. When discussing development and visions for the future, these communities therefore focused mainly on issues of water supply, electricity, better roads, access to school and health facilities etc. When talking to the fishing committees in particular the picture becomes very clear about what is happening to the marine and coastal resources. They all agree that the fish stocks were much richer in the past (comparing today's state with what it was like 5 and 10 years ago) and they identify the main reasons for this change to problems with illegal and destructive fishing, cutting of mangroves, pollution and overutilization of the resources. Previously, during a study for the PECCA as a potential World Heritage Site, there were also complaints about fishers from other areas using the same fishing grounds.

The amount of fish that the fishers bring back to the village is constantly decreasing, even if the fishing effort remains the same or even increases, and this is starting to affect the food security and nutrition state of the village. The fishers themselves state that they need more modern gear and

³ The Sheha is the leader in charge of a shehia, which is a geographically demarcated administrative unit

bigger boats to be able to fish more effectively to feed their families. With the improved equipment they mean that they could leave the inshore resources to recover, while harvesting the pelagic fish stocks that at the moment have much less pressure on them. This would however, in the end not necessarily lead to “better management” of the resources, but rather to more pressure on the total fish stocks.

They also mention that alternative livelihood options such as improved agriculture would be needed for them to be able to reduce the overall intensity of the fishing. Other alternative livelihood options that have been identified in the area is cultural tourism to the historical sites, low scale food processing industry such as fruit and fish drying facilities, as well as poultry farming and aqua culture. For all these activities the community says they need training and support as the only thing they know how to do is subsistence fishing and small scale vegetable and fruit farming with traditional equipment.

The community in Ras Mkumbuu are reporting that they see changes in the environment. One very obvious change is the increased coastal erosion in this area. This has caused salt water intrusion in the rice fields and people are very worried that this will increase in the future. The community in Ras Mkumbuu do not really know what is causing these changes, but they want to know more about issues such as climate change and are requesting adult education and training to increase their understanding of environmental issues. Both the communities of Wesha and Ndagoni identified deforestation as a big problem and they have suggested that chain saws should be banned and there should be more control over who can cut what trees where.

Ras Mkumbuu and Wesha in particular is the area in Pemba where the main power generator is located. The generator has had problems with oil and diesel leaks in the past which has polluted the bay in front of the station and killed vast areas of mangroves. A

local NGO has worked with the community on mangrove rehabilitation projects, but in this particular area also the re-planted mangrove has died due to the high pollution levels. Wesha also has a port for ships and the community complain that they sometimes see ships cleaning their fuel tanks in the

Ras Mkumbuu demonstration site at a glance...

Since the demonstration site in Pemba was officially selected, the DLIST team has visited the community three times – in January, March and June/July 2010. The National Focal Point for the ASCLME project in Tanzania, Ms Rose Sallema-Mtui, was present at the initial trip in January 2010. The DLIST team has thus far included marine biologists, LED specialists, local journalists, stakeholder involvement specialists, indigenous knowledge specialists, architects as well as representatives from a local NGO called Misali Island Conservation Association (MICA) and local government representatives from the Department of Fisheries and the Department of Antiquities. The team have also worked closely with the Department of Forestry and the Department of Environment in Pemba. In total there have been six public community meetings arranged and the two Shehias (local administrative areas) within the demonstration site have selected a LED Planning Committee to represent them in future meetings. 13 interest group meetings and one film festival have been conducted thus far. Community groups that have been involved include: the fishers committee, the environment committee, the health- and HIV committee, the women’s’ committee, the students’ group, the antiquities committee and a group of elders. In this site, implementation has already started thanks to close collaboration and matching funding from DANIDA and the Ministry of Health. A proposal to develop a Multi-purpose Resource Centre for the two communities is being developed.

bay, which adds to the general pollution problem. People know that this situation is really bad and they hope that the local authorities will support them to improve the situation.

Conservation of marine and coastal resources is a difficult issue for people to address when they do not even have enough food for the day. The community express that they like the fact that they are inside the Pemba Channel Conservation Area. Thanks to different projects, such as MACEMP, some of them have received support with new boats and fishing gear, but those kinds of donations have not been enough to support the entire community. People still say that they do not know enough about marine ecology and why and how to conserve the resources and they ask for more education. Many of the older fishers also say that they have a big problem with people coming from other areas to fish in their bay, and they often use destructive and sometimes even illegal methods which puts increased pressure on the available resources. They think the management of the Marine Conservation Area should work more closely with the communities to create by-laws to regulate fishing and other environmental issues better. The students and youth groups in the communities have also expressed a will to participate more in the conservation efforts and learn more about it.

5.4 Alternative livelihood options leading to poverty reduction

For the community in Weshu and Ndagoni to adapt to changes in the environment and the diminishing resource base in the coastal and marine environment they have identified that they need more education, more alternative livelihood options and better law enforcement of fishing restrictions as well as stopping local pollution.

The following alternative livelihood options have been identified by the community;

1. A central market for agricultural products will boost business in the village. The people who want to sell things will have to pay rent
2. Chicken farming, both “native” free range chicken for meat and breeding chickens for eggs
3. A nursery school will be good business – the children get education and the parents will pay a small fee for the service
4. Fish farming, but a lot of training and support is needed to start this business
5. Vegetable farming, with good tools, fertilisers and training (onions, carrots, cabbage, green peppers, tomatoes)
6. A meeting place and ceremony hall – a committee could be in charge of the hall and rent it out for meetings, ceremonies, weddings, and official meetings etc.
7. Handicraft production – soaps, jewellery, baskets etc. A women’s group would need training and support to initiate these activities. It could be sold in Chake Chake to tourists
8. The village wants a plot to plant trees, which can be cut and sold for building material etc. This would also be good for the environment
9. A grinding/processing machine for rice, cassava, and maize. A committee/group would be in charge of the machine and people would pay to use it
10. Bee keeping would be good for the village, but they need training on how to do this professionally. To keep the bee hives in the mangroves will also provide protection for the mangroves as people will not be able to go in there and cut the mangroves if there are many bees

11. Cow and goat farming for milk production could also be expanded if people get training.

5.5 Weaknesses and opportunities for sustainable community development

One of the main obstacles for sustainable and equitable development in the Ras Mkumbuu communities was stated as the problem of “political conflict”. The community says that this causes the implementation of many development projects to fail and become inefficient. The secretary of the DLIST planning committee in Wesha stated that “we don’t want politics – we want development!” With the elections in 2010 and the new coalition government with the two main parties sharing power this should have improved since the main data collection was conducted earlier in 2010.

Other important obstacles are the lack of basic infrastructure such as water and electricity supply issues and road accessibility. The Zanzibar Water Authority (ZAWA) has plans to improve the water supply system in the near future (see Figure 7). Once the new under water cable, supplying Pemba with electricity is in place, it is more likely that even the

villages in Ras Mkumbuu might get access to electricity sometime soon. The fact that both safe and reliable water and electricity is lacking in the villages, this contributes to a lot of health related problems, particularly among children.

As part of the DLIST demonstration site work, a draft Local Economic Development Plan is being developed in collaboration with the community. Already at this early stage an opportunity for additional funding for Multi-Purpose Resource Centres (MPRC) for both of shehias has been found through DANIDA and the Ministry of Health in Zanzibar. The MPRCs will be differently designed for the respective Shehia and contain a small clinic, computer/internet room, a library, a community meeting hall and other functions.

5.6 Bottom-up and top-down communication

Local communication mechanisms are still very rudimentary. Nonetheless the formal channels of communication are characteristically bureaucratic and lack transparency. Shehas are pivotal for official communication up to the government and down to the community. This results in a situation where only the community issues that are supported by the Sheha will be communicated further upstream in the bureaucratic system. So, this is a very important institution in information delivery and communication loop. Community meetings are also used to relay information as the need arises.

For specific occupations like fishing, there is a local fisheries committee in each village which is charged with overseeing routine fishing activities in their respective areas. These committees are



Figure 7: Map over the planned extension of the water pipe system in the Ndagoni village area

recognised by the Department of Fisheries and Marine Resources and this structure therefore as well serves as a communication link between the government bodies and the fisher folk.

Various committees for specific NGOs, development partners/programmes are also in place and they sometimes convey communication to and from the community on issues of concern as they rise.

There is a growing potential for mobile phone use and this technology has considerably enhanced communication amongst and beyond the community. Radio and TV programmes are a resourceful opportunity to tap from for community outreach and sensitization programmes.

The community have identified specific issues/weaknesses related to communication as follows;

1. Political oppression. Community members of the two major political parties are discriminating each other in community socio-economic and cultural undertakings, jeopardizing development initiatives;
2. Village committees assigned to participate and oversee administration of development projects lack facilities and competence/education for effective participation. There is also considerable lack of transparency;
3. Communication inefficiency and lack of transparency in some existing projects and a lack of communication about what is going on.

When asked how these issues can be addressed the community identified the following strategy;

Leadership and communication skills training is needed for the Shehas and other village leaders (committee members etc) to instil senses of participatory democracy and transparent and effective leadership and ultimately reduce conflicts amongst community members and enhance development.

6 Jomo Kenyatta Public Beach, Kenya

6.1 Executive Summary

Jomo Kenyatta Public Beach in Mombasa is one of the most popular destinations for coastal tourism in Kenya. The long white sandy beaches in Mombasa, with fringing coral reefs and ample opportunities for water sports activities has attracted visitors from Kenya and all over the world for decades. Most of the land along the beaches is developed with hotels and restaurants and the small stretch of public beach is known as the last remaining public beach in Mombasa. The high level of development along the beaches in Mombasa has affected species diversity, and notable conflicts relating to resource use exists in the area. The Mombasa Marine National Park, established in 1986, protects an area from fishing and restricts other destructive activities in order to preserve the marine resources. The marine park is also a popular place to visit for tourists, increasing the attraction of the entire area. The DLIST initiative in Mombasa followed the Local Economic Development (LED) approach to identify weaknesses, opportunities and possible interventions for the people working and acting on the public beach as well as authorities, NGOs and research organisations with an interest in the beach and the marine and coastal resources. Community meetings, special interest group discussions and individual interviews have informed the planning process. A vision was put together based on the input from the stakeholders as follows;

“We envision Jomo Kenyatta Public Beach to be better planned and properly developed with a designated parking area, functioning toilets etc., to serve the purpose of a safe, clean and enjoyable public beach. JKPB should be a place where people from all over Kenya and the world can enjoy swimming and beach life while learning more about the precious marine and coastal environment and knowing that they don’t impact negatively on the environment. It should also provide a good place for local people to operate businesses and make money on coastal tourism in a controlled manner”.

The LED planning process identified a range of problems and issues that are faced by the people using the public beach, including environmental issues. The main environmental issues that have been highlighted through the planning process are coastal erosion, pollution on the beach and in the sea (caused by both people and the hotels), and increased sea temperatures causing coral bleaching and coral die-off. The destructive fishing and general overfishing was pointed out as a problem mainly by conservationists and tourism operators who suffer when the tourists complain that the reefs are in a bad condition.

All stakeholders agree that the beach is much disorganised which makes the area less attractive and reduces the opportunity for everyone to make a good business. Also, there is no good solution for toilets and showers, which leads to pollution on the beach and in the sea. Further people have identified a need for an organised parking space which should not be on the sand or in any way blocking beach access. The safety and security on the beach is insufficient. Sometimes it is too crowded to evacuate someone from the beach in case of emergency. There is also no public announcement system in place. The income people get from their businesses/activities on the beach are very unpredictable and it makes life hard. The fishers lack efficient equipment and good boats and there is a lack of enforcement of the fishing regulations and people in the area still use illegal and destructive methods to some extent. There is a lack of funds for people who want to invest and improve their business and it is hard to get bank loans. There is also a problem with conflict between stakeholders. Many of the stakeholders are quite organised in associations, but the leaders often lack good training and the general environmental awareness among people is low.

Ideas for how the situation can be improved and how the stakeholders want to see the beach in the future have also been collected. All stakeholders identify that the public beach itself is a great opportunity for the area. It is after all the “only” public beach left around Mombasa and it has great potential. The public beach also provides an excellent opportunity for education about the marine and coastal environment to the average Kenyan. It is the only place where people get a chance to see the beach and have the opportunity to swim and maybe even snorkel. This could be improved even further if there was an aquarium in the area for educational purposes. This idea exists and there is already a land area put aside for it and there is also a sponsor for the aquarium. It was also identified that the public beach has good opportunity to get support for producing a management plan since it is in everyone’s interest to improve the current situation. Another proposed intervention is that a percentage of the revenue collected at the Marine Park should come back to the operators on the beach. It would be used for management and service of facilities on the beach. In general people want the beach to be more structured and put under clear management to improve the situation. If this is done properly people can pay to enter the beach or for parking and this money can be used for management of toilets, beach lights, life guard services etc. All business operators should pay licensing fees – then the total number of operators could be limited and the

activities could be controlled. It is clear that proper zoning of the beach, development of some basic infrastructure and an association representing all stakeholders that can address issues collectively, will be great contributions to increasing the potential of this beach dramatically.

The fishers' association is one that needs special attention. If their group was better organised and educated they would be able to sell fish at high quality directly to the client – no more middle men making a lot of money. The marginalised groups (the wapemba fishers for example) should be more included in the existing structures to stop the criminal activities that presently take place. If this is not possible, the illegal fishing has to be taken more seriously and dealt with as a real crime. It is extremely destructive for the marine environment and if not stopped, it will reduce the value of this area tremendously in the future.

Many possible partners exist for a management plan initiative and other interventions at Jomo Kenyatta Public Beach. They are foremost the beach operators, including the boat owners association, the fishers association the camel riders, the beach photographers, the tube renters, the bicycle renters, the lifeguards association and the JKPB Community Traders as well as the massage ladies. Different authorities will also play a key role for successful implementation. They include the Ministry of Fisheries (including the Beach Management Units, BMUs), Kenya Wildlife Services (KWS), the Mayor/town clerk - The Municipal Council of Mombasa, the District Officer, the Coastal Development Authority, the Tourism information centre (under the Ministry of Tourism), the Kenya Tourist Police Unit (Bamburi), Kenya Marine and Fisheries Research Institute (KMFRI) and the National Environment Management Authority (NEMA). There are also a number of NGOs and other stakeholders with a long history in Mombasa such as CORDIO, WCS, Pact Kenya and the Kenya Seaturtle Conservation group that can play an important role in the implementation. Further, it is very important to involve the private sector in management initiatives, and the Mombasa Coastal Tourism Association and the Kenya Tourism Trust Fund could possibly coordinate the tourism sector involvement.

6.2 Introduction to the demonstration site in Mombasa

Mombasa city is located at the Kenyan coast about 432 km south east of Nairobi, the Capital of Kenya. Coral reefs, mangrove forests, beaches, lowlands and kaya forests characterize the area. The main socio-economic activities include tourism, fishing and trade around the coastal area. Mombasa is a historical trading town that attracts hundreds of thousands of tourists annually (see Figure 8).



Figure 8: A busy Sunday afternoon at Jomo Kenyatta Public Beach – in low season

The area is well known for its beautiful beaches and Jomo Kenyatta Public Beach (JKPB) is one of them. It is the only remaining stretch of beach in Mombasa that has free access to the general public all the way from the road to the water (where the shoreline is not blocked by private hotels, as is the case all along the beach in Mombasa). The high level of development along the beaches in Mombasa has affected species diversity, and notable conflicts relating to resource use exists in the area. There are also

disputes regarding private companies/developers wanting to develop the public beach area into a hotel.

Solid waste on the public beach is a major problem, despite there being official waste bins provided by the city council. There is however a local entrepreneur who makes his living by collecting plastic bottles, metal bottle tops and other plastic waste to sell it to recyclers and this activity has greatly improved the situation. Another major factor contributing to the degradation of the public beach area is overcrowding and tourists being hassled, which makes the area less attractive for visitors.

Efforts are however being taken to stop the trend of environmental degradation and some of the reefs in Mombasa were declared a Marine National Reserve already in 1986 with a 10 km² core zone known as the Mombasa Marine National Park. Kenya Wildlife Services (KWS) manages the marine protected area and fishing is not allowed at all inside the Marine National Park. This gives the fish populations a chance to recover and “spill over” into the surrounding areas where fishing occurs. The marine park is also a popular area for tourists to visit.

As part of the DLIST planning process with the community and stakeholders around Jomo Kenyatta Public Beach, broad consultations and discussions/interviews have been conducted. The grassroots as well as higher levels of the district administration, including various natural resource managers, planners and community development officers and political elites are represented among those that have contributed to the planning process. Local NGOs were also consulted to clarify their field of operations and potentials for future collaboration and augmentation of viable economic development interventions. The focus of these interactions was primarily to capture first hand information, perceptions and knowledge of the local people and conditions with regard to the economic development prospects for the area. Individual interviews with relevant stakeholders such as fishers, traders, lifeguards and other groups that are directly affected by the conditions on the beach, were also conducted.

At a glance – Jomo Kenyatta Public Beach in Mombasa

There have been two field trips arranged to the demonstration site in Mombasa, Kenya. The first introductory trip was arranged in January 2010 in close collaboration with the Data and Information Coordinator for the ASCLME project, Mr Harrison Ong’anda from the Kenya Marine and Fisheries Research Institute (KMFRI) and a longer site visits was arranged in July 2010. The DLIST team has included marine biologists, LED specialists, stakeholder involvement experts, heritage and tourism specialists as well as an expert in indigenous knowledge. The LED planning process has started and so far there have been 15 interest group meetings arranged to give input into the plan. The local stakeholder groups include the fishers association, the boat owners association, the camel riders association, the beach photographers group, the life savers, the tube renters and the community traders. Other interest groups that have been involved and consulted in the process are NGOs such as Coastal Oceans Research and Development in the Indian Ocean (CORDIO) and Wildlife Conservation Society (WCS), authorities such as Kenya Wildlife Services, the Coastal Development Authority, the Municipal Council, the District Office, and the Beach Management Unit under the Ministry of Fisheries as well as the National Environment Management Authority (NEMA). A total of 68 individual interviews have been conducted with stakeholders on the beach and this data will give a good background for the LED planning process that has been initiated for the area. During the July visit two film screening events were arranged for stakeholders on the public beach.

The identified stakeholders for Jomo Kenyatta Public Beach (JKPB) include the following;

1. Beach stakeholders

- a. The fishers association
- b. The boat owners association
- c. Camel riders
- d. Beach photographers
- e. Tube renters
- f. Bicycle renters
- g. Lifeguards association
- h. JKPB Community Traders
- i. Massage ladies

2. Authorities

- a. The Ministry of Fisheries
 - i. Beach Management Units (BMUs)
- b. Kenya Wildlife Services (KWS)
- c. Mayor/town clerk - The Municipal Council of Mombasa
- d. District officer
- e. Coastal Development Authority
- f. Tourism information centre (under the Ministry of Tourism)
- g. Kenya Tourist Police Unit (Bamburi)
- h. Kenya Marine and Fisheries Research Institute (KMFRI)
- i. National Environment Management Authority (NEMA)
- j. Maritime Authority (for boat licences etc.)

3. NGOs/independent institutions

- a. Kenya Sea turtle conservation
- b. CORDIO
- c. Pact Kenya (environmental issues and alternative livelihoods options)
- d. WCS (Wildlife Conservation Society)
 - i. The Coral Reef Research Project
- e. MUHURI (women's rights office)

4. Tourism development

- a. The Kenya Association of Hoteliers and Catering operators
- b. Mombasa Coastal Tourism Association
- c. Hotels and restaurants near the JKPB
- d. Kenya Tourism Trust Fund

6.3 Can the marine and coastal resources support the community?

In general, Jomo Kenyatta Public Beach has great capacity to accommodate big numbers of tourists, which is the main activity in the area. Many stakeholders express a wish that there would be more or a bigger area available for public beach access, so that the extremely high intensity of tourists and the pressure on the environment would be reduced. This is however a very complicated matter

relating to land ownership issues and it is not likely to change in the foreseeable future. With good planning and clear management the situation of the beach could however improve significantly and all the stakeholders are asking for better management of the public beach area.

Most of the people who use the beach on Jomo Kenyatta are there to enjoy themselves and are therefore not dependant on the beach and the natural resources for their livelihood. The state of the environment does however impact the quality of their experience on the beach and when the environment gets more degraded, it loses value also for the random visitors. Most of the people who make their living on the beach are in fact also not extracting anything from the natural environment, but are using the beach as a place to make business. The main limitation for these beach traders is the available space and the fact that the crowded environment makes the beach less attractive for tourists – and that will have an effect on their livelihood. But there are of course also some actors on Jomo Kenyatta Public Beach that are more closely linked with the state of the environment and the available resources. These are the fishers and the boat owners who mainly make their income from taking tourists to see the reefs. Scientists with long experience from the area say that the reefs and fish populations around Jomo Kenyatta are better than in many other areas in Kenya, but in general the Kenyan reefs are relatively degraded compared with for example Tanzania. A lot of the degradation of the reefs was caused by the large El Niño in 1998 and since then the pollution from beach developments and other activities has contributed to very slow or insignificant recovery. The fishers are also complaining that they would need better and bigger boats to reach the richer fishing grounds further away from shore. The boat owners on the other side say that the marine park authority (KWS) charge too high park entry fees in relation to the quality of the reef. People are not willing to pay that much to enter the sanctuary and the boat owners lose business.

Beach erosion is a problem also on Jomo Kenyatta Public Beach and this is a problem for all stakeholders on the beach as it reduces the available beach area and degrades the beach environment.

6.4 Alternative livelihood options leading to poverty reduction

Most of the actors on Jomo Kenyatta Public Beach have no alternative livelihoods options and they are all totally dependent on the future of the beach for their survival. The different stakeholder groups have been asked to identify opportunities and ideas for how the beach can become a better place and the one suggestion that comes back again and again is that the public beach needs a proper management plan and good maintenance and infrastructure. All stakeholder groups say that they want the beach to be more organised with public seats, umbrellas, free toilets, proper parking areas etc. The stakeholders emphasise that the development of the management plan has to use a participatory approach and include all of the different groups to succeed. There have been some projects in the past that have tried to deal with the management of the beach area, but have not succeeded.

In order to secure the future of the beach, it is very important that the land ownership issues and claims for parts of the public beach area are sorted out properly. This should be done in close collaboration with the Municipal Council and the Ministry of Tourism who are major role players when it comes to the public beach.

Some of the specific groups have identified interventions that will affect their activities in particular. One example is the lifeguards association who have identified that the beach needs a well equipped lifeguard centre. This would benefit all the stakeholders on the beach as it would contribute to increased safety for the visitors as well as the people who make their living on the beach. Security issues are also something that has been mentioned by all the different groups as a main priority for the future of the public beach. The security issues that need to be addressed are related to rescue services as well as tourist police and basic “order” in a crowded public environment.

6.5 Weaknesses and opportunities for sustainable community development

All the different stakeholder groups and organisations have been asked to list weaknesses and opportunities for the area. When grouped together the following list points come as the main priorities among the issues that hinder good development on Jomo Kenyatta Public Beach;

1. The beach is very disorganised and it makes the area less attractive, which reduces the opportunity for everyone to make a good business;
2. There is no good solution for toilets and showers. At present everyone has to pay to use the facilities and not everyone can afford that, which leads to pollution on the beach and in the sea;
3. There is no good parking space and people often drive all the way down on the beach, which contributes to erosion and blocks the access areas;
4. The safety and security on the beach is insufficient. Sometimes it is too crowded to evacuate someone from the beach in case of emergency. There is also no public announcement system in place;
5. The income people get from their businesses/activities on the beach are very unpredictable and it makes life hard;
6. The fishers lack efficient equipment and good boats;
7. There is a lack of enforcement of the fishing regulations and people in the area still use illegal and destructive methods;
8. There is a lack of funds from the Government or other sources for people who want to invest and improve their business;
9. There is a problem with conflict between stakeholders. For example there are sometimes conflicts between the fishers and the tourists as the fishing gear sometimes gets destroyed while visiting the marine parks;
10. Many of the stakeholders are quite organised in associations, but the leaders often lack good training and the general environmental awareness among people is low.

All stakeholder groups were also asked to identify opportunities for the beach. The following is a summary list from all the different groups;

1. All stakeholders identify that the public beach itself is a great opportunity for the area. It is after all the “only” public beach left around Mombasa and it has great potential;
2. Many of the stakeholders are quite organised and with more support and training this is a great opportunity for a better future of the beach;

3. The public beach also provides an excellent opportunity for education about the marine and coastal environment to the average Kenyan. It is the only place where most people get a chance to see the beach, the palm trees and have the opportunity to swim and maybe even snorkel. This could be improved even further if there was an aquarium in the area for educational purposes. This idea exists and there is already a land area put aside for it and there is also a sponsor for the aquarium;
4. It was also identified that the public beach has good opportunity to get support for producing a management plan since it is in everyone's interest to improve the situation.

Ideas for how the situation can be improved and how the stakeholders want to see the beach in the future have also been collected. The below is a summary of the vision for the coming years as well as a list of possible interventions;

1. A percentage of the revenue collected at the Marine Park should come back to the operators on the beach. It would be used for management and service of facilities on the beach;
2. The beach should be more structured and put under clear management to improve the situation. If this is done properly people can pay to enter the beach or for parking and this money can be used of management of toilets, beach lights, life guard services etc;
3. All business operators should pay licensing fees – then the total number of operators could be limited and the activities could be controlled;
4. It would be wonderful to see a well organised and educated cooperative of fishers who can sell fish at high quality directly to the client – no more middle men making a lot of money;
5. The marginalised groups (the wapemba fishers for example) should be more included in the existing structures to stop the criminal activities that take place now. If this is not possible – the illegal fishing has to be taken more seriously and dealt with as a real crime. It is extremely destructive for the marine environment and if not stopped, it will reduce the value of this area tremendously in the future;
6. It is clear that proper zoning of the beach, chances to some basic infrastructure and an association representing all stakeholders that can address issues collectively, will be great contributions to increasing the potential of this beach dramatically.

6.6 Bottom-up and top-down communication

Many of the stakeholders on the beach complained about lack of communication from the authorities and also between the different stakeholder groups on the beach. The different stakeholders have different ideas of how this situation could be addressed and improved. One interesting idea is to create a multi-stakeholder, multi-sectoral “beach management group or association” that could have a designated office and conduct regular meetings. This group should consist of representatives from all the different beach stakeholders as well as NGOs and government and they should meet regularly.

For safety reasons there has to be a public announcement system installed on the beach. In cases of emergency, such as a tsunami threat or something similar, it is very important to be able to make public announcements. This should be combined with notice boards with basic information about what to do and what not to do on the beach and a guide to what activities are allowed where. The JKPB demonstration site will undoubtedly bring ‘lessons learned’ to the other growing urban areas in

the WIO, where similar problems exist at varying scales, such as Maputo, Lamu, Zanzibar Town, and many others.

Shortly after the site visit at Jomo Kenyatta Public Beach in the beginning of July 2010, a lively discussion took place on the DLIST web-based platform. Local, regional, national and also international members from the DLIST Community of Practice (CoP) contributed to the discussion about a sustainable future for the public beach. Issues of how to manage a public beach in general was discussed as well as problems with lack of public access and problem with private land grabbing for developments. Issues of safety and cleanliness on public beaches was also discussed and for example compared with the situation in Zanzibar. It was also pointed out that ReCoMaP recently provided funding to people at the Kenya Marine and Fisheries Research Institute (KMFRI) in collaboration with Kenya Wildlife Services (KWS) to develop a management plan for the public beach. The interest for the future of Jomo Kenyatta Beach area is great and the discussion forum will continue to provide input to the planning process for the demonstration site.

7 Curieuse Island, Seychelles

7.1 Executive Summary

Curieuse Island is a designated marine park since 1979 just off Praslin Island, which has an estimated population of around 6,500 people. The uninhabited Curieuse Island ecosystem comprises mangroves, seagrass beds and coral reefs, thick coastal forests, rough terrain, rocky outcrops and dry scrubland where endemic species of plants evolved for arid conditions predominate. Curieuse and Praslin are the only two islands where the famous coco-de-mer grows naturally. This tropical system plays crucial ecological and economic roles in the maintenance and successful management of this marine park, which is managed by the Seychelles National Parks Authority (SNPA). The people living near the marine park mainly engage in work related to tourism and fishing as income generating activities. The level of education is higher here and people are to a higher extent employed with monthly salaries than in most of the other demonstration sites. The LED planning activities have involved a wide range of stakeholders, mainly based around Côte d'Or Beach, but also marine park staff, authority representatives and others have given input through individual interviews and key informers meetings. Issues and weaknesses as well as opportunities have been listed and a draft vision has been developed as follows;

“We want a community that flourishes culturally, socially and economically. There should be more law enforcement to deal with the problems of drugs and theft. We want the community to be more actively involved in development processes and there should always be proper EIAs carried out to avoid costly mistakes. There should be less corruption in all sectors of society. We want an active youth centre, more sports facilities and cultural activities as well as a clean and nice looking beach front with a good road, street lights, a well equipped fish market/landing site, well maintained public toilets, and an improved sewage treatment system. The MPA should have better facilities such as mooring buoys, demarcation buoys and well trained staff. The community should be more engaged in the tourism industry through local handicrafts, local restaurants, and shops owned by people from the region.”

Related to the MPA and environment the results from the interviews show that people think there are too few mooring buoys in the MPA and the rangers don't patrol the area enough. Other facilities in the MPA such as the visitors' centre and the buildings should be upgraded since tourists pay so much to go there. There are environmental problems such as beach erosion, global warming, changes in the rainy season, and sedimentation from Raffles Hotel and other development near the beaches. There are in general too many hotels and other development close to the beaches, which increase beach erosion and cut off people's access to the beaches. There is a problem with insufficient sewage and waste water treatment which leads to pollution of the mangroves and the beaches, and there is more and more solid waste and dirt on the beach.

A wide range of weaknesses have been identified for the area through the LED planning process, including a big problem with drug use among younger people in the community. This is seen as a major problem which leads to increased criminality and unemployment and also causes problems for the tourism industry in the area. The community also say that there is a general problem of corruption, which leads to poor EIA processes, lack of police interference in criminal activity and lack of enforcement in the MPA among other things. The community has also identified that there is a lack of activities and sports facilities for youth in Côte d'Or and this increases the risk of people getting into drugs. Information is often not treated confidentially, meaning if someone reports a problem it often comes back to them in terms of some kind of revenge. This discourages people to contribute to law enforcement activities. The community also identified that there is a lack of communication and consultation from the authorities to the local community. Other general issues include lack of infrastructure development and maintenances (road, street lights, public toilets etc), high fuel prices and long distances to the nearest fuel station, insufficient bus services, bad hospital services, lack of water supply and frequent power cuts and overall problems with increasing costs of living while salary levels stay the same. Some people complain that there is political oppression by people who are outspoken supporters of the opposition, which makes it very difficult to get permits and licences etc. Lack of respect towards elders and to the traditions has also been mentioned as problems. Another important issue that hinders development in the area is lack of access to land for development of small businesses and community areas.

A number of opportunities and interventions have been identified through interviews and meetings. Tourism is seen as a great opportunity that can bring a lot of income to the community, if they can find ways to be more actively involved. The Creole Festival is mentioned as a good initiative which could be expanded or marketed better to attract even more people. There are rich marine resources that could be further developed to give more revenue to people, if cooling, storing and processing facilities were established there would be more opportunities for people to increase the revenue. In general, people could be more encouraged to do small businesses such as local handicrafts, a small take-away restaurant with local food, fruits and for this to happen people would have to be trained in entrepreneurial skills and get access to small start-up funds. Farming could also be developed further to bring income to people and a day-care centre would be a real asset for the community, which would allow women to work more.

There are many possible supporters and partners for implementation of activities in the area around and on Curieuse. The Seychelles National Parks Authority (SNPA) is of course a key stakeholder for any activities related to the marine park and environment. Others include the private sector such as dive operators, hotels, and larger tour and yacht operators. There is also a couple of NGOs that can

support some of the proposed interventions. They include the Green Island Foundation and Global Vision. Also the District Administration, the Seychelles Fishing Authority and the Praslin Development Fund will be important partners.

7.2 Introduction to the demonstration site in Curieuse

Curieuse is a marine park just off the north coast of the second biggest island in Seychelles, Praslin Island (see Map 1). Curieuse falls in the Baie St Anne District, which covers the northern half of Praslin Island. Praslin Island has an estimated population of around 6,500 people. There is one family living permanently on Curieuse Island, and the Seychelles National Park Authority (SNPA) has a number of staff members that are based at the rangers' station on the island. Curieuse Island and its surrounding waters obtained marine park status in 1979. The island is only 1 mile from Praslin Island and is small enough to be explored in a day, while at the same time ecologically and biologically very important. The island's ecosystem comprises of mangroves, seagrass beds and coral reefs, thick coastal forests, rough terrain, rocky outcrops and dry scrubland where endemic species of plants evolved for arid conditions predominate. Curieuse and Praslin are the only two islands where the famous coco-de-mer grows naturally. This tropical system plays crucial ecological and economic roles in the maintenance and successful management of this marine park, which is managed by the Seychelles National Parks Authority (SNPA).



Map 1: Showing the outline of the Curieuse Marine Park, the rangers' base on the island, the old doctor's house and also the large hotel development by Raffles Hotel on Praslin Island. The Côte d'Or beach is in the bottom right corner.

Its close proximity to Praslin makes it ideal for day trips for both local and foreign visitors of all age groups and natural interests. The local communities living near Curieuse earn their main income either through fishing or tourism activities. The tourism activities include taking clients on boat excursions to Curieuse and other smaller islands in the area for BBQ lunches and snorkelling on the reefs. There are also two dive centres operating in

the marine park and they have recruited some local staff employed. The professional yacht companies also employ some people from the local community, but a majority of the community members involved in tourism operate so called "boat taxi" services to and from the islands and run their businesses with very little investments. There are some professional fishers operating in the area (outside the MPA borders), and many people fish only for local consumption. Fishing as well as the tourism industry is very much dependant on the beautiful, clean, and healthy marine and coastal environment that has made this area a famous destination in the first place.

The main beach area, Côte d’Or, is very developed in terms of large hotel constructions along the beach and there are also some private housing developments on the slopes facing Curieuse Island. Recently, the construction of a new hotel (the Raffles development) resulted in soil and sediment run-off, which has had a negative impact on the marine and coastal environment (see Figure 9). People complained a lot about this construction site and claim that when it rains the sea become completely red with soil from the slopes of Praslin. It will however be very difficult to estimate the damage caused by this sedimentation as no regular monitoring has been taking place before and after the construction of the hotel.

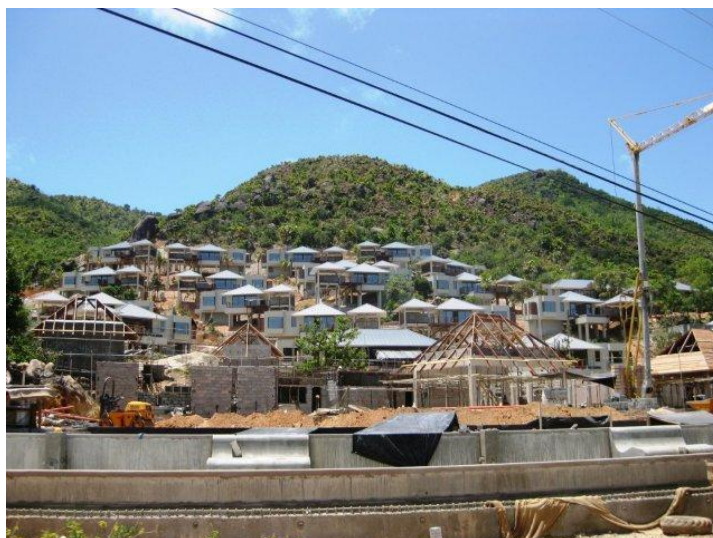


Figure 9: The construction site for the new Raffles Hotel

There are many stakeholders with an interest in the Curieuse marine park and how the resources are managed. These stakeholders include;

- i. Fishers – the Praslin Fishers’ Association
- ii. Fish traders on the beach in Côte d’Or
- iii. Dive operators (there are two on Côte d’Or Beach – Octopus and White Tips)
- iv. Hoteliers
- v. Residents in the community
- vi. Curio and souvenir traders
- vii. Taxi boat operators
- viii. Tour operators
- ix. Yacht companies
- x. District youth groups
- xi. Green Island Foundation
- xii. Global Vision International (an NGO that has an MoU with the marine park)
- xiii. Seychelles Fishing Authority
- xiv. District Administration
- xv. Seychelles National Parks Authority (SNPA)
- xvi. Praslin Development Fund (PDF)

7.3 Can the marine and coastal resources support the community?

A lot of information exists on the marine and coastal resources near Curieuse Island. The island itself is a sanctuary for the Aldabra Giant Tortoise, a breeding ground for hawksbill and other marine turtles and a paradise for many marine birds including occasional visits by the Seychelles Black Parrot. The local population is highly dependent on ocean resources for their sustenance and livelihood (see Figure 10). Before the MPA was set up, the local residents used to fish in the sheltered area between the two islands during the south-east monsoon when the sea was rough as they could hardly catch any fish elsewhere. Since the designation of a no-take zone within the MPA, there have been numerous conflicts between the decision-makers and the fishing community around the marine national park on the inaccessibility of the site as fishing ground. The community



Figure 10: Emperor Snappers are commonly caught in the area around Curieuse Island

has expressed their wish to find a way where they will be allowed to fish in this area during a specific time of the year, even if it falls inside the MPA, at least for local/household consumption. This could possibly be achieved if SNPA works closely with the community and develop a licensing and labelling system where each family had the right to fish with one fish trap a few days every week, and monitoring was carried out on a daily basis. Improved communication and community involvement are key factors to find a solution to this problem.

Recently, the SNPA established a new communication strategy to involve the local community in surveying the designated area and to work in close collaboration to find solutions to the fishing grounds issue. The fishermen living in close proximity with the marine park have shown keen interest in participating in all activities, from underwater rapid assessments to socio-economic surveys, to assist in settling the dispute. This approach seems plausible and can be of massive benefits for both the local community and the policy-makers. The local authority works in close collaboration with both local and international NGOs as well as funding bodies for the advancement of conservation management and education and awareness.

People in the area are very well aware that there are illegal poaching activities taking place inside the MPA on regular basis. There are many reasons for this and lack of alternative livelihoods is one, limited law enforcement by the rangers on the island is another.

Some people around Curieuse have reported that they have seen changes in the environment. Coastal erosion and beach erosion is one problem, but the main worry is the sediment run-off caused by the large hotel constructions. Other environmental problems identified by the community include inadequate sewage treatment which causes pollution to the mangrove and swamp areas behind the beaches (see Figure 11). Many people also complain about the changes in the weather patterns where rainy seasons are shorter, causing a problem with lack of fresh water, and generally hotter climate which causes coral bleaching and other problems for the people living in the area.



Figure 11: Polluted fresh water stream on Praslin with Curieuse Island in the background

People's attitude towards the marine park is in general positive and people say that they like the marine park, but they are a bit disappointed with how it is managed. The boat operators would like to see that they get better services out on the islands, since they pay an entrance fee (tax) for every tourist they take to the island. The dive operators and some others would like to see more active law enforcement from the rangers and for that to happen better patrolling equipment and regular maintenance is needed. Some community members also complain that they don't see enough benefits from the conservation efforts. It would be good if SNPA could increase their community outreach efforts and initiate an environmental education programme of the community members living near the MPA. This can be a good way to involve them more in the MPA and to increase people's awareness of the importance of conservation.

Curieuse demonstration site at a glance...

In November 2010 the DLIST team visited the site for the first time. Due to the situation in Seychelles it was decided to avoid calling for a public meeting and instead meet directly with the people living near the Curieuse Marine Park and conduct as many stakeholder interviews as possible. A total of 76 individual interviews were carried out, and 8 key informers interviews. A site visit to the marine park and a visit to the reefs have also been undertaken. Organisations involved include the Seychelles National Parks Authority (SNPA), Seychelles Fishing Authority, Praslin Fishers' Association, Praslin Development Fund, District Administration, and the Green Island Foundation. Private sector involvement included White Tip Divers and Octopus Divers, charter/yacht operators, the taxi boat owners, the hotels and the other tour operators.

7.4 Alternative livelihoods options leading to poverty reduction

When meeting with the people in the area near Curieuse Island and in the meetings with Praslin Fishers' Association and other stakeholders they were asked about opportunities and alternative livelihoods options. A list of the opportunities identified through interviews and meetings is found below;

- i. Tourism is a great opportunity that can bring a lot of income to the community,
- ii. The Creole Festival is a very good initiative which could be expanded or marketed better to attract even more people,
- iii. People are generally well educated and speak many languages,
- iv. The people are friendly and helpful,
- v. There are many jobs available, mainly thanks to the tourism industry,
- vi. The marine park and the beautiful environment is a good opportunity as it brings tourist to the area,
- vii. There are rich marine resources that could be further developed to give more revenue to people,
- viii. Cooling, storing and processing facilities would give more revenue for the fishers,
- ix. People could be more encouraged to do small businesses such as local handicrafts, a small take-away restaurant with local food, fruits (see Figure 12) etc.,
- x. Farming could also be developed further to bring income to people,
- xi. A day-care centre would be a real asset for the community.



Figure 12: Local entrepreneurs engaged in fishing, local art, and selling fresh fruit and juices on and near the Côte d’Or beach.

A draft vision of the community, based on the input given in the interviews is as follows;

“We want a community that flourishes culturally, socially and economically. There should be more law enforcement to deal with the problems of drugs and theft. We want the community to be more actively involved in development processes and there should always be proper EIAs carried out to avoid costly mistakes. There should be less corruption in all sectors of society. We want an active youth centre, more sports facilities and cultural activities as well as a clean and nice looking beach front with a good road, street lights, a well equipped fish market/landing site and well maintained public toilets. The community should be more engaged in the tourism industry through local handicrafts, local restaurants, shops owned by people from the region etc. Any further hotel construction in the area must be done in close consultation with the community and in balance with the environment. The sewage treatment system should be more developed. The MPA should have better facilities such as mooring buoys, demarcation buoys and well trained staff.”

7.5 Weaknesses and opportunities for sustainable community development

Through the interviews and discussions with stakeholders in the community, a number of weaknesses/issues that hinder good development in the area have been identified. Below is a list of the issues raised by the community members during the DLIST interviews and meetings⁴:

- i. There are lots of drugs in the community, particularly among the young generation. This is a big problem that leads to increased criminality and unemployment,
- ii. There are too many hotels and other development close to the beaches, which increase beach erosion and cut off people’s access to the beaches,
- iii. There is a general problem of corruption – which leads to poor EIA processes, lack of police interference in criminal activity and lack of enforcement in the MPA, and many other problems,
- iv. There is a lack of activities and sports facilities for youth in Côte d’Or and this increases the risk of people getting into drugs,
- v. The crime rate is increasing and tourists are being harassed on the beach, which makes the area less popular for tourists,

⁴ All these issues are identified by members in the community and some points are more of personal opinion than real fact.

- vi. There is a general problem with lack of law enforcement – thefts and drugs on the beach as well as poaching in the MPA,
- vii. There is a problem with insufficient sewage and waste water treatment which leads to pollution of the mangroves and the beaches,
- viii. There is more and more solid waste and dirt on the beach,
- ix. Information is not treated confidential – if someone reports a problem it often comes back to them in terms of some kind of revenge,
- x. There is a lack of communication and consultation from the authorities to the local community,
- xi. Many people complained that they have to go very far to buy fuel, which makes it expensive,
- xii. The road through Côte d’Or is in bad shape – it should be renovated and street lights should be installed,
- xiii. The bus service should be expanded to facilitate transport to other areas,
- xiv. There are no public toilets on the beaches and not enough rubbish bins,
- xv. Some people complain that there is political oppression by people who are outspoken supporters of the opposition, which makes it very difficult to get permits and licences etc.,
- xvi. The village sometimes suffers from lack of water and power-cuts,
- xvii. The hospital often runs out of medicines and people have to wait very long to get help,
- xviii. There is a lack of good communication within families in the community and people don’t respect the traditions any longer,
- xix. There are too few mooring buoys in the MPA and the rangers don’t patrol the area enough. Other facilities in the MPA such as the visitors’ centre and the buildings should be upgraded since tourists pay so much to go there,
- xx. The cost of living is going up all the time, but the salaries remain the same, which makes it very hard for people to make a living,
- xxi. There is not enough land available for the local people if someone wanted to develop a business,
- xxii. There are environmental problems such as beach erosion, global warming, changing in the rainy season, and sedimentation from Raffles Hotel etc.

7.6 Bottom-up and top-down communication

Official communication on Praslin is done through the district administration. In other cases, people communicate important news through word of mouth or by posting announcements on signboards in the village. In general, people complain that communication is not always effective and more efficient and inclusive ways of communication should be sought, that does not leave some people out. Some community members were complaining that politicians only come to the community before election times to collect votes; they don’t see the reality of the people.

The DLIST team can work with the community to develop effective protocols by which two-way communication can be established and maintained. It is important that the people on the ground can formulate their agendas and clearly spell out problems, and that they then find ways of communicating it to the relevant authorities in government departments. It was also clear that there are divisions and groups within the community and that communication within the local community is also not always functioning very well.

One option that can contribute to improve the access to information and facilitate communication is to place a “DLIST node” in the area, preferably in Côte d’Or since that is where the highest population is found. A DLIST node can function as an information centre consisting of a few computers with internet connection placed at a strategic point in the Côte d’Or community to give as many people as possible access to this facility. Not only will they be able to access up to date information from the government, but they may also use it and learn more about the DLIST ASCLME Project and marine and coastal issues in general. Such a centre could be an attractive place for the youth in Côte d’Or and keep them away from the beach and hopefully motivate them to do well in school rather than going in to the destructive drug trade that is continuously growing in the area. This could be put into place during the ASCLME Project implementation.

The communities around Curieuse Island are very typical for smaller villages around Seychelles and if the Curieuse Marine Park through the DLIST intervention can improve the communication and relations with the local community, it will be something very valuable which can be replicated across Seychelles.

8 Mohéli, Comoros

8.1 Executive Summary

The southern side of Mohéli is a marine park since 2001 and includes many small islets, healthy coral reefs, some mangrove areas, and seagrass beds. It is one of the most important breeding grounds for green turtles in the Western Indian Ocean and is home to healthy populations of reef fish as well as larger predatory fish such as sharks, stingrays, trevallies and barracudas. There is also a population of dugongs inside the MPA. Inside the MPA it is not allowed to use nets, spears, dynamite or poison for fishing. Most people on the island of Mohéli live in small villages and are highly dependent on marine and coastal resources for their livelihoods. The main income generating activities is artisanal fishing (line and hook), collection of shell fish at low tide as well as small scale integrated farming in the forests (e.g. coffee, vanilla, ylang-ylang). The LED planning activities have focused on the fishing community. Information has been collected through individual interviews and group discussions and developed the following vision for the future development of Mohéli;

“We, the people of Nioumachoi, Ndrondroni and Hoanie, want our communities to be more developed and people to have a better quality of life. We want our villages to have reliable electricity supply, good quality education and health care and access to water. The fishing industry needs to be developed by getting access to sustainable cold storage facilities, better navigation equipment and better boats. We want to be more involved in the conservation efforts and see them expand over Mohéli Island. The communities should have more influence in decision making processes and get more involved in tourism activities.”

The LED planning process revealed that people find it hard to make a good living by fishing in the area. The resource base is good and people often catch a lot of fish, but when the catch is big, the price drops drastically and the income remains small. The main reason for this is the lack of cold storing facilities, which is not easy to solve since there is no reliable electricity supply. Access to better boats with bigger engines and navigating equipment would allow the fishers to sell the fish at higher prices at Grand Comoros, the neighbouring island.

Some fishers, fishing inside the MPA, report that the fish stocks have increased in the recent years. This increase would be attributed to the successful management and enforcement of the fishing restrictions inside the MPA. Outside the MPA fishers report decreasing catches. Also the number of nesting turtles on the beaches is going down. One of the reasons for the decline is coastal development in the villages, another is poaching of nesting turtles and one new major factor is the coastal erosion which disturbs the traditional nesting areas. During certain seasons the coral reefs are also affected by bleaching. The people who are originally from Mohéli have in general showed a positive attitude towards the marine park. The communities feel that they are involved and they benefit from the conservation activities through better fish catch, the construction of community managed tourism bungalows etc.

Weaknesses and issues related to development that are not linked to fishing include inadequate health care facilities, insufficient school facilities and low education level among the adult population. Lack of electricity is a general problem as well as lack of work opportunities, poor road access, and general underdeveloped infrastructure.

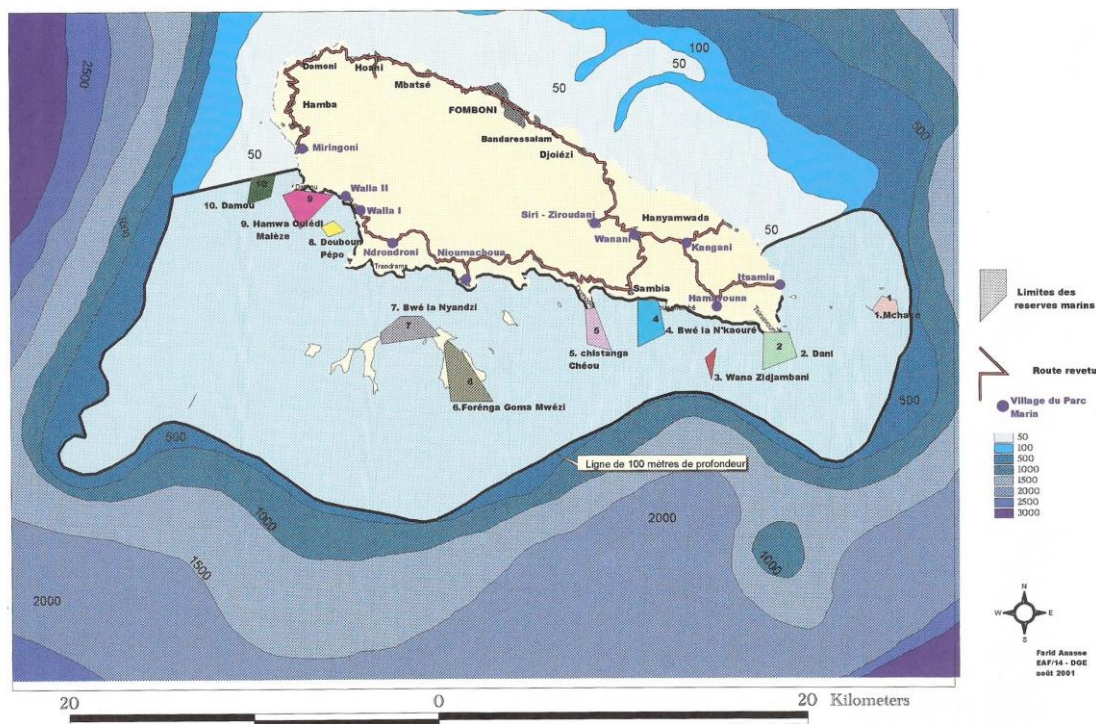
Interventions and opportunities for future development is mainly focusing on the improvements of the fishing sector through access to better boats, navigation equipment and cold storage facilities using sustainable electricity such as solar and/or wind power. Agriculture could be improved by providing training on improved techniques and capital for starting up poultry and goat farming. Some people also say they would like to get involved in tourism, but they also point out that there are too few tourists available to really make it a good alternative. People want the government to market Comoros more as a tourist destination, reduce the prices and work hard to increase the number of tourists visiting the country. Tourism is then foreseen to increase the opportunities for alternative income generating activities such as community bungalows, handicraft markets etc. would also increase. People want to learn more from the Itsamia Turtle Conservation initiative. Training in other skills such as car, engine or boat mechanics is also something that people are asking for.

The Mohéli Marine Park (PMM), the Ministry of Fisheries and Environment, the “Comité National pour le Développement Durable” (CNDD = National Committee for Sustainable Development) and the island specific sub-committees “Comité Insular pour le Développement Durable” (CIDD = Island Committee for Sustainable Development) will be the most important implementation partners to the community for any of the identified interventions. ReCoMaP has previously funded some initiatives in Mohéli and might be able to do so again if a suitable project is developed. Also the Itsamia Turtle Conservation project can support training of community members to set up similar initiatives in other villages to encourage tourism and conservation of turtles.

8.2 Introduction to the demonstration site in Mohéli

The marine park of Mohéli covers the southern side of the island of Mohéli and includes many small islets (see Map 2 below). Most people on the island of Mohéli live in small villages and are highly dependent on Marine and Coastal Resources for their livelihoods. The main income generating activities is artisanal fishing (line and hook), collection of shell fish at low tide as well as small scale integrated farming in the forests (e.g. coffee, vanilla, ylang-ylang). The marine environment in the area is pristine and the marine park is well-known for being one of the main breeding sites for green turtles in the entire WIO-region. There are also healthy populations of reef fish as well as larger

predatory fish such as sharks, stingrays, trevallies and barracudas. Inside the MPA it is not allowed to use nets, spears, dynamite or poison for fishing and people from Mohéli don't often break the rules and do illegal fishing. The main fishing that takes place is therefore done using line and hook which means that the populations of herbivorous fish inside the MPA are very healthy.



Map 2: Mohéli Island showing the border of the marine park and the special protection zones

In close collaboration with the local government representatives from the Ministry of Fisheries and Environment and the managers of the marine park, it was decided that the DLIST project should focus its efforts on *three* villages with the demonstration site activities. Two of the villages are inside the MPA (Nioumachoi and Ndrondroni) and one is on the north-western site (Hoanie). The main stakeholders from these communities and in relation to the DLIST activities are;

- i. The fishes
- ii. The government institutions involved in coastal and marine issues such as the “Comité National pour le Développement Durable” (CNDD = National Committee for Sustainable Development) and the island specific sub-committees “Comité Insular pour le Développement Durable” (CIDD = Island Committee for Sustainable Development);
- iii. Parc Marin de Mohéli (PMM = Marine Park of Mohéli);
- iv. ReCoMaP (have funded ICZM initiatives in Mohéli).

8.3 Can the marine and coastal resources support the community?

Fish is the main source of protein for people in Mohéli. The individual interviews conducted with the community members show that people only eat meat or chicken around 1-2 times/month while they

eat fish every day. The people from Nioumachoi, Ndrondroni and Hoanie made it clear that they find it hard to make a good living by fishing in the area. The resource base is good and people often catch a lot of fish (sometimes as much as 1-2 tons during one successful fishing trip). When the catch is big, the price however drops drastically and the income to the fishers is limited. The main reason for this is the lack of cold storing facilities. It is however not an easy problem to solve since most of the villages in Mohéli don't have access to reliable electricity. In Nioumachoi for example, the village has electricity from 5 pm until 11 pm most of the days. The electricity is generated by a high capacity generator located near the village. Last year, a fish centre with many freezers was built for the fishing community in Nioumachoi with funding from the European Union through the Government of Comoros. This centre has however never been used, because of the high electricity demand to operate the freezers and the limited resources among the unorganised fishers to pay the electricity bills and fuel for the generator. Ndrondroni has no electricity and to install cold storing facilities it would be necessary to deploy solar/wind power or to install a generator, for which the fishers would most likely not be able to afford the fuel. The other option identified by the fishers is better boats with bigger engines. If they had good boats and navigating equipment they could go all the way to the neighbouring island, Grand Comoros, to sell the fish at a higher price.

Some fishers, who mainly fish inside the MPA, report that the fish stocks have increased compared to what it used to be five and ten years ago. This increase would be attributed to the successful management and enforcement of the fishing restrictions inside the MPA. The fishers in Hoanie on the other hand, report that the fish stocks have decreased in recent years, which could indicate that the fishing in the non-protected areas is at an unsustainable level. In the areas outside the specific turtle conservation initiative in Itsamia, people report that the number of nesting turtles on the beaches is going down. One of the reasons for the decline is coastal development in the villages, another is poaching of nesting turtles and one new major factor is the coastal erosion which disturbs the traditional nesting areas. During certain seasons the coral reefs are also affected by bleaching.

The people who are originally from Mohéli have in general showed a positive attitude towards the marine park. The communities feel that they are involved and they benefit from the conservation activities through better fish catch, the construction of community managed tourism bungalows etc.



Figure 13: A carcass of a poached green sea turtle on an island in the Marine Park

Some of the communities have shown an interest in knowing more about the community turtle initiative in Itsamia. If more villages could set up turtle conservation initiatives and gain some additional income from tourism, it would benefit both the communities and the turtles. There is however a large group of people living on Mohéli originating from Anjouan and these immigrants tend not to respect the rules in the MPA as well as the native inhabitants do. They are also often the ones suspected for

poaching nesting turtles on the beaches inside the MPA (see Figure 13).

Lack of good education was not identified as something very important for the community. Even the issue of inadequate health facilities was not often mentioned in the interviews and group discussions. It seems like people were more directly concerned with their income generating activities and to find alternatives for how to make more money. People did however mention that they would like to know even more about the marine environment. They say that the MPA have contributed to better awareness among the fishers and adult population in the communities, but more is needed.

Parc Marin de Mohéli

Thus far, one field trip has been undertaken to the demonstration site in Comoros, in June 2010. The ASCLME National Focal Point and the Data and Information Coordinator, Mr Farid Anasse (Head of GIS Department - Ministry of Agriculture, Fisheries and the Environment) participated in the trip to the demonstration site. The DLIST team also included a marine biologist, a marine protected area specialist, stakeholder involvement and tourism specialists as well as an expert in slave trade history of the WIO-region. The LED planning process has started by conducting group meetings and individual interviews with local fishers in the area. So far, a total of 6 interest group meetings have been conducted, including fishers from the three selected communities, representatives from the marine park, a local marine conservation NGO and local government representatives in Mohéli. There were 23 individual interviews, and 3 film festivals conducted during this site visit.

The communities also showed some concern about lack of organisation. As everyone does their own thing there is no real structure or systems in place. They realise that should this be improved it may provide more opportunities. In some of the villages there are association such as the women's association, the fishers association and people involved in the marine park activities.

A major environmental problem in Mohéli is beach erosion. The erosion is threatening houses along the beach side and this problem is being increased by the intensive sand mining taking place all along the beaches. The main reason for collecting large quantities of beach sand is to use it for construction, to make cement. This was particularly obvious in the village of Nioumachoi where many roads in the

villages were lined with piles and bags full of beach sand. It is already illegal to collect sand on the beaches, but law enforcement is not functioning.

8.4 Alternative livelihoods options leading to poverty reduction

The majority of the community members are totally dependent on fishing and if they cannot fish they have few or no alternatives available to them. People living inside the area of the Mohéli Marine Park are beginning to realise the positive benefits of the conservation efforts as they say it helps provide more fish for them and they are learning more about environmental issues. The only available alternative livelihoods activity identified by the communities was agriculture. People have identified a need for more training to improve the efficiency of the agricultural activities. Some people also say they would like to get involved in tourism, but they also point out that there are too few tourists available to really make it a good alternative. People want the government to market Comoros more as a tourist destination, reduce the prices and work hard to increase the number of tourists visiting the country. Tourism is then foreseen to increase the opportunities for alternative income generating activities such as community bungalows, handicraft markets etc.

Some people have also said that they try to develop other skills such as car or boat mechanics, but it is hard to get the right training and tools. Another alternative to fishing could be to work as a fish trader. With facilities to freeze, store and then sell fish as opposed to fishing themselves, they could also make a good living. But at the end of the day, a fish trader is just as dependent on the marine resources as the fishers themselves, and it might not really reduce the pressure on the fish stocks.

8.5 Weaknesses and opportunities for sustainable community development

The community seems to be relatively stable socially and politically, without serious conflicts and problems that are apparent to outsiders during a short visit. There is not even much conflict between the fishers from Mohéli and the ones coming from the other islands (Grand Comoros and Anjouan). Even if they often fish in the same areas they tolerate each other's and say there is no conflict.

Few people made comments about the health facilities available on the island even though the hospital in Nioumachoi is often not open and the staffs are not always there. This is caused by the problems with the government not being able to pay people's salaries in time. When people were asked what they see as the main opportunity for the community they were more concerned about electricity, work opportunities, road access, education, freezers for fishing and other infrastructure. It is worth noticing that most people interviewed were responsible for supporting many people, and that might influence their focus on issues related in income generation rather than social welfare and community services.

Education is a concern but the community is more worried about the fishing opportunities. Most people interviewed had a primary education of some sorts, only a third of the people attempted a secondary education although few completed it and only the old major of Nioumachoi and one more person had a tertiary education. An NGO had helped establish a school, which is now under renovation. Although the community feels that more opportunities should be made available for the youth and education is very valuable they feel that sustaining their livelihoods is more important.

8.6 Bottom-up and top-down communication

Communications in Mohéli seems to be very informal. People gather information primarily through word of mouth, chatting in public areas, the mosque and communicating over the phone. Many people share information while fishing. News and information from the outside comes from visitors and people travelling to other areas. The television, radio and the marine park also bring news from the outside. There is a village chief who also provides some information to the community. If people have concerns or issues they need assistance with they can approach the village chief, the associations, the police or even the army/navy.

Communication seems fairly open and people seem comfortable to approach the village chief, the police and army/navy authorities. They are also able to communicate with the marine park and other associations. There is a new "computer centre" opened in the community building in Nioumachoi with four computers. At present these are not equipped with internet, but that is something the community would like to learn more about. This centre was installed to provide computer training for women in particular, but it will benefit the entire community of Nioumachoi. If

this centre was equipped with an independent energy supply source (solar power) and internet it could function as a centre for communication and training which would benefit the community tremendously.

Note that socio-economic and other information will be treated in detail in the Demonstration Site Status Report, which is an evolving report that is not an outcome for the current reporting period but where most data will be presented.

9 Ambodiletra, Madagascar

9.1 Executive Summary

Ambodiletra is a small village at the southern tip of the Masoala peninsula in the north-eastern region of Madagascar. The community in Ambodiletra is isolated and it takes at least one day to travel to Maroantsetra, the biggest town in the region. During the cyclone season it becomes impossible to travel by boat and often for many months at a time. This is one of the richest areas in the country in terms of irreplaceable biodiversity, and the largest remaining lowland rainforest is found here. Many local people live in poverty and few community members are aware of the universal value of the area where they live – in spite of the fact that UNESCO puts a high premium on community involvement in World Heritage Sites. The community of Ambodiletra are more or less self-sustained, growing their own rice, cassava and other vegetables, raising chicken, pigs and zebus. But their main source of protein is from the ocean – through fish and other sea food. Cash income is generally very small and comes mainly from small scale vanilla farming and dried octopus or shark-fin fishing. The LED planning activity in this community has involved a number of community meetings, individual interviews and meetings with the national park authority and tourism operators in the region. A vision for the community has been developed as follows;

“The people of Ambodiletra want our village to develop in a sustainable manner so we keep our close links with nature. We want the school to be expanded and we want a village clinic to be developed. Electricity should be installed in the village and the road should be improved as well as a port facility. Ecotourism to the community and the National Park should be developed together with the villagers to increase employment opportunities.”

Since the beginning of the current political crisis in Madagascar, Marojejy and Masoala National Parks have been particularly subjected to illegal cutting of precious woods, including rose wood. Many local people who are involved say that they would prefer to not participate in the destruction but at least can earn a little money through this activity. The biggest and most acute threat to the environment around the Masoala peninsula is deforestation. The deforestation contributes to the siltation of the sea water, which reduces coral growth in the area. Over the last two decades it has become much harder to walk into the lagoon and gather enough protein to feed your family, as marine resources are declining. People also mention that in the recent years, the cyclones have been very strong and destroyed a lot of the corals in the lagoon, which was demarcated as a Marine Park in 1994. The poor state of the coral reef in and around the lagoon has resulted in a reduction in available fish and this is something that many people in the community are worried about. The community have also noticed a rise in temperature and less rain in the area in recent years.

The LED planning activities in the community in Ambodiletra identified a list of weaknesses and issues as follows; lack of an available market to sell their products (dried octopus, smoked fish, handicraft etc), and conflict among people in the community. People reported that some individuals take less responsibility for the development and well-being of the overall community and don't respect the rules of the marine park and that makes it worse for everyone else. Many people say that the marine park is the only thing positive in the area. The community is also concerned that there are no hospital/dispensary facilities available in the village. If someone gets sick or has to deliver a baby they have to travel very far and it is very difficult in cases of emergency. The community still feel that natural environment in the area is still quite good from a health perspective, but there were reports of children being sick with a lung disease, which could possibly be avoided if a vaccination programme was in place and enforced on regular basis. The new school is good, but it is getting too crowded with more than 90 children registered at the school, which only has two teachers and two classrooms. Adult education level is minimal with most adults being pretty much illiterate and from the interviews it appears that no one has a tertiary education. The few people who have had some schooling have a T2 to T5 education with one person having a T9 education.

Opportunities and interventions identified through the planning activities with the community in Ambodiletra include an organised increase in the intensity of vanilla and sugar cane farming for export to Maronatsotra, and to look for other alternative crops such as rice and fruit. Chicken and pig production is also a good alternative, but it has limited opportunity to grow much. The people also believe that the marine park has great potential and this can help support the fishing also in the future. An example of sustainable fishing methods that are deployed inside the marine park is octopus fishing by using clay pots as traps. This should be encouraged further. Community tourism could potentially contribute to the development of the village. Due to the remote location and the limited resources available in Ambodiletra it is not likely that tourism will ever grow to a big industry, but if done right even one or two small groups of tourists per year would contribute significantly to the economy of the village. EcoAfrica have done "trial runs" for eco-tourism in the area in the past and some of the people in the village asked for this activity to be started up again. It would also add on to the opportunities for the women from the village to sell handicraft, vanilla and other products at a higher price than to local dealers.

Possible partners that could support community development initiatives in Ambodiletra are International Knowledge Management (IKM), an international NGO, Madagascar National Parks and Feon' ny Ala (a small local NGO based in Maroantsetra) as well as a school in Connecticut, USA. All these have previously been active in Ambodiletra, by supporting the construction and operations of the school in the village. The construction was funded by the Masoala National Park, while IKM pay for the teachers' salary with donations from a school in Connecticut, USA, and provide material for the school. Related to marine conservation, any intervention could also collaborate and learn from the Blue Ventures initiative in the southwest Madagascar – the *Velondriake* (www.livewiththesea.org).

9.2 Introduction to the demonstration site in Ambodiletra

Ambodiletra is a small village at the southern tip of the Masoala peninsula in the north-eastern region of Madagascar. The biggest town in the area is Maroantsetra. The community in Ambodiletra is very isolated and it takes at least one day to travel to Maroantsetra. During the cyclone season it becomes impossible to travel by boat and for many months at a time, the community is rather isolated. This is one of the richest areas in the country in terms of irreplaceable biodiversity, and the largest remaining lowland rainforest is found here. Many local people live in poverty and few community members are aware of the universal value of the area where they live – in spite of the fact that UNESCO puts a high premium on community involvement in World Heritage Sites.

The community of Ambodiletra are more or less self-sustained. They grow their own rice, cassava and other vegetables, they raise chicken, pigs and zebu, but their main source of protein is from the ocean – through fish and other sea food. Cash income is generally very small and comes mainly from small scale vanilla farming and dried octopus or shark-fin fishing.

Since the beginning of the current political crisis in Madagascar, Marojejy and Masoala National Parks have been particularly subjected to intense illegal ransacking and trafficking of precious woods, including rose wood. Many local people who are involved say that they would prefer to not participate in the destruction but at least can earn a little money through this activity.

Many people say that poverty on the peninsula is worse than ever before. For sure, over the last two decades it has become much harder to walk into the lagoon and gather enough protein to feed your family. People in Ambodiletra know they cannot rely on salvation coming from the outside; distances are too far and they are too small to warrant much attention.

9.3 Can the marine and coastal resources support the community?

The community is heavily dependent on fish and octopus as a regular source of protein (see Figure



Figure 14: Drying octopus on the beach in Ambodiletra

14). They may eat chicken once or twice a month and most people only eat meat once or twice per year, for very special occasions. The majority of the community members say that the income received from fishing is not sufficient to support their families. This is because they are increasingly catching less fish and the rice is not enough to act as a substitute. Income generated from farming sugar cane and vanilla is very small and doesn't contribute much to support people.

The biggest and most acute threat to the environment around the Masoala peninsula is deforestation. Many of the old, large trees are being removed and sold and the community is concerned about this. The deforestation contributes to the siltation of the sea water, which reduces coral growth in the area. In the recent years, people also mentioned that the cyclones have been very strong and destroyed a lot of the corals in the lagoon, which was demarcated as a Marine Park

in 1994. The poor state of the coral reef in and around the lagoon has resulted in a reduction in available fish and this something that many people in the community are worried about. People have also noticed a rise in temperature and less rain in the area in recent years.

International Knowledge Management (IKM), an international NGO, together with Madagascar National Parks and Feon' ny Ala (a small local NGO based in Maroantsetra) have been active in Ambodiletra over a long period of time. One of the main achievements was to build a school for the village. The construction was funded by the Masoala National Park, while IKM pay for the teachers' salary with donations from a school in Connecticut, USA, and provide material for the school. IKM and Madagascar National Parks have also contributed to the general development and cleanliness of the village. The people feel that the marine park has helped to improve the fish stocks and has overall really benefitted the village. The majority of the community feel that more conservation areas should be developed and people should not be allowed to fish in these areas. They would also like to see a plantation developed so the natural forests can be protected. Other NGOs that have contributed to conservation efforts are for example WWF and WCS. But with the current political instability in Madagascar there are not many outside organisations that are active in the area any longer.

9.4 Alternative livelihoods options leading to poverty reduction

In a remote community such as Ambodiletra it is very difficult to find any alternative livelihoods options. People can potentially try to increase the intensity of vanilla and sugar cane farming for export to Maroantsetra, look for other alternatives such as rice and fruit. Chicken and pig production is also a good alternative, but it has limited opportunity to grow much. The people also believe that the marine park has great potential and this can help support the fishing also in the future. An example of sustainable fishing methods that are deployed inside the marine park is octopus fishing by using clay pots as traps.

Tourism could potentially contribute to the development of the village. Due to the remote location and the limited resources available in Ambodiletra it is not likely that tourism will ever grow to a big industry, but if done right even one or two small groups of tourists per year would contribute

At a glance - Ambodiletra

The demonstration site in Madagascar have been visited a total of four times with two initial trips in 2008, one trip at the end of 2009 and one in April 2010. The DLIST team has included marine biologists, LED specialists, stakeholder involvement specialists, history and heritage specialists as well as experts in community-based tourism. The LED planning process has been initiated and there have been at least one big community meeting arranged during each of the site visits. The community meetings have been complemented by a total of 48 individual socio-economic interviews to give input and background information to the LED planning process. The community in Ambodiletra is very small compared to most of the other DLIST demonstration sites and there is only one association within the community – the parents association which is responsible for the management of the village school. Another important stakeholder in this community is the marine park which has contributed greatly to the school development and conservation initiatives in the village. Much progress has been made in forging partnerships between the private sector, the Madagascar National parks, a school in the USA and the community itself, as well as linkages with national institutions and the University of Toamasina.

significantly to the economy of the village. EcoAfrica have done “trial runs” for eco-tourism in the area in the past and some of the people in the village asked for this activity to be started up again. It would also add on to the opportunities for the women from the village to sell handicraft, vanilla and other products at a higher price than to local dealers.

9.5 Weaknesses and opportunities for sustainable community development

The Ambodiletra community find that one of the main weaknesses is that no one is available to buy their products. Even the local traders for dried fish and octopus come more rarely all the way to Ambodiletra for buying products and people want to have a better market.

There also seems to be conflict among people in the community. Many people that were interviewed reported that people in general take less responsibility for the development and well-being of the community. Some people don't respect the rules of the marine park and that makes it worse for everyone else. Many people say that the marine park is the only thing positive in the area.

Many people are concerned that there are no hospital/dispensary facilities available in the village. If someone gets sick or has to deliver a baby they have to travel very far and it is very difficult in cases of emergency. The community still feel that natural environment in the area is still quite good from a health perspective as the air is clean to breath and most people are very healthy. The marine park staff stationed in the village reported that many children have been sick with a lung disease, which could easily be avoided if a vaccination programme was in place and enforced on regular basis.

People are very grateful for the new school as it has made a big difference for the children. It is however getting too crowded with more than 90 children registered at the school, which only has two teachers and two classrooms. All adults are pretty much illiterate and from the interviews it appears that no one has a tertiary education. The few people who have had some schooling have a T2 to T5 education with one person having a T9 education.

The most important aspect to the school, in addition to providing essential basic education, is that it is evolving to become a type of multi-resource centre. During the first DLIST ASCLME-funded trip in



Figure 15: Commitments by different parties for future development with the school as focal point.

2008, before it was finally agreed that Ambodiletra will be the official demonstration site for Madagascar, significant planning meetings were conducted (see Figure 15 as an example). These were continued in 2009. During those meetings parties agreed to boost the school as a focal point for delivering programmes that will improve self-sustainability, develop alternative livelihoods that will, inter alia takes pressure off the marine park, and for environmental education.

During those planning meetings the different partners in the project agreed to their respective contributions and long-term commitment. Significantly, when the school was inaugurated in 2009, several representatives from other marine parks in Madagascar as far north as Antsiranana attended the ceremony and partook in discussions (see Figure 16). Undoubtedly the demonstration site can become a model in Madagascar of how to involve local communities that live in, or near marine protected areas.



Figure 16: Representatives from other marine parks during the inauguration of the school.

9.6 Bottom-up and top-down communication

Communication to and from outside the village in Ambodilerta is mainly done through radios and word of mouth. People have mobile telephones, but the reception in the village is very limited and since there is no electricity people also struggle to re-charge the batteries. Most of the information comes from visitors and through the Madagascar National Parks (the park management authority). If someone wants to communicate a specific matter, they can contact the chief in the village and the message will be passed on to the appropriate authority. It appears that most decisions are handled by Madagascar National Parks. The community doesn't have much of a say in how the marine park is run although they are concerned about many issues. Recently a system has been put in place where community members assist the marine park staff with patrols in the marine park. In exchange, the Madagascar National Parks pays a small contribution which partly goes to the volunteer that assists with patrolling and the other part goes towards covering the salary for the second school teachers.

The intention is that the school will be equipped with solar power, a computer with internet and a phone charging station which would make a big difference for the people in Ambodiletra. Communication with the outside communities would be improved and people could easily find a place to charge their telephones. The DLIST team has been in discussion with a school in Connecticut who is interested in adopting the Ambodiletra School as a sustainable energy model. Two film screening events have been organised in the village and it has been a very popular event both times. The first time was in 2008 and about 45 people attended, and the second event was in 2010 with more than 100 people attending. Film would be a very effective way to reach the community with awareness raising activities about marine conservation, illegal logging and alternative livelihoods activities.

10 Le Morne, Mauritius

10.1 Executive Summary

Le Morne is situated in the south-west corner of Mauritius and the village has about 1,700 inhabitants. The economy of the area ranges from subsistence and small-scale fisheries, to a number

of local guesthouse and five high end hotels. The small village is economically depressed with the inhabitants mostly depending on low income jobs elsewhere mainly because of a low standard of formal education. However, the exceptional heritage status and ecotourism potential of the area could offer additional economic opportunities to the community if developed sensibly. The community is highly dependent on the local lagoon for both fishing and tourism related activities and the lagoon is shared among various stakeholders. Currently the lagoon is not in a very good state, being polluted by increased levels of nutrients and sediment run-off and large amounts of algae are found in the lagoon. The LED planning process in Le Morne included all groups in the village in Le Morne. Information was collected through individual interviews, interest group meetings, key informers interviews and developed the following vision for future development;

“We envision Le Morne to be a safe place to live, where there are adequate facilities and infrastructure. Our natural resources, both on land and in the sea, and our cultural environment should be respected, kept clean and developed in a wise manner so the local population can benefit, and tourists will be attracted to our village. Our human resource should be developed through capacity building opportunities and access to equal education, leading to flourishing business opportunities. Development in Le Morne should always be mindful of our heritage values and way of life that makes our village so special.”

The community in Le Morne are quite aware of the environmental problems they face. A main issue that was raised through the consultation process was the pollution of the lagoon. Pollution is identified as untreated sewage from the village and the hotels. Also an old lime factory has been reported as a possible main contributor to the sedimentation and pollution of the lagoon. The sedimentation of the lagoon causes it to become shallower every year, which the fishers say is one factor that contributes to the killing of the corals. There are also a lot of algae growing on the corals and the fishers are concerned there is less and less fish. Coastal erosion is also noticed and seen as a problem. The village and the beaches are dirty and a clean-up campaign could be introduced to address this issue.

A total of twenty four issues and weaknesses were identified through the LED planning process. They include lack of functioning sewerage system, insufficient public health facilities, lack of child care facilities, lack of opportunities for training and capacity building, low education level, the need for a community “multi-purpose centre”, lack of sports facilities, and lack of ecotourism or community tourism development. The community also suffers from a disabling environment for businesses, low food security, insufficient safety in the village, low or lacking environmental custodianship among the community members, lack of facilities for arts and culture, lack of land accessibility and ownership, deterioration of the marine resources, and overall lack of management of the lagoon. All these factors contribute to a generally lower quality of life.

The community have also identified a number of possible interventions and opportunities that would improve the situation. A major issue that is seen as very important is that the community needs access to the Mountain. This will unlock a lot of opportunities linked to tourism, small scale farming etc. General access to land is also a cross-cutting issue, and this is coupled with *better use of land* that is currently available for development. A Multi-Purpose Resource Centre (MPRC) has been identified as an effective way to address many issues concerning social health, human development and capacity building. The creation of an enabling environment of business will give small business

development a great boost. Assistance to the fishing community is very important, considering that Le Morne is primarily a fishing community where almost everyone has some connection to the sea. Education, sport and social services require diverse improvements. Tourism development can contribute greatly to the overall development of the LMCL, and has to proceed along Sustainable Tourism and Responsible Tourism guidelines. Unlocking assistance from the private sector is also a priority, as is the provision of essential infrastructures. Considering the World Heritage Site status of the LMCL, heritage development is deemed essential and urgent.

There are a number of possible partners that can support implementation of the identified interventions. They include a range of government ministries and departments as well as private sector (corporate social responsibility, employment and other means of support). The Le Morne Heritage Trust Fund is also a very important partner along with possible donors such as UNDP. For activities related to marine conservation and the lagoon there are also a number of established NGOs that could provide support. They include the MMCS, REEF conservation, Forever Blue, and ECOSUD.

10.2 Introduction to the demonstration site in Le Morne

The Le Morne Village has about 1 700 inhabitants. It is the village that was chosen as a demonstration site for Mauritius and it is located on the south-western corner of the Island. The economy of the area ranges from subsistence and small-scale fisheries, to a number of local guesthouse and five high end hotels. The small village is economically depressed with the inhabitants mostly depending on jobs elsewhere and then usually only getting low-income types of employment because of a low standard of formal education. Nonetheless, considering its exceptional heritage status and ecotourism potential the area could offer additional economic opportunities to the local population, as well as to the country at large.



Figure 17: Fire coral surrounded by algae in the Le Morne lagoon

The community is also dependent on the local lagoon which is shared among various stakeholders who live or are economically active in the area. Currently the lagoon is not in a good state and seems to be highly polluted and large amounts of algae are found in the lagoon (see Figure 17). The fishers in Le Morne have stated that it would be good to have a management plan for the lagoon after a thorough assessment of the area has been done. This may be done in the near future with coordination from the Le Morne Heritage Trust Fund.

There are many stakeholders in Le Morne. The below list shows the ones identified through the interviews and group discussions;

- a. Le Morne Heritage Trust Fund

- b. SEED (Le Service d' Ecoute et de Development) – an NGO working with development and schooling issues all over Mauritius
- c. Women Association
- d. Senior Citizen Association
- e. Parents Teachers Association
- f. Youth Association
- g. Fishermen Association
- h. Fisherwomen Association
- i. Village council
- j. Black River District Council
- k. Hotel operators
- l. Promoters/land owners
- m. Government (Ministry of Arts and Culture, Ministry of Fisheries etc)

10.3 Can the marine and coastal resources support the community?

It should be noted that at various points it was stressed by the fishers that they are part of the larger Le Morne community (and in fact, the Draft LED Plan for the le Morne Cultural Landscape clearly shows that this is very much a fishing community – see Addendum 5) . Fishers and fishing issues cannot be approached in isolation. Many fishers also engage in other activities and the vast majority of people in the village engage in fishing activities, even though they are not classified as fishers (including fishing for shrimps, crabs, shellfish, etc.). The more commercial fishers catch a variety of fish which they store in fridges and sell to anyone who gives them a good price – including the local community and tourists from the nearby hotels. Most of the fishers say that the income they get from fishing is insufficient and they would like to find some alternative ways to make money. People

The demonstration site in Le Morne

There have been five field trips specifically focusing on the Le Morne demo site, and an additional five trips where 50% of the time was spent on the site. The DLIST team has included marine biologists, LED specialists, stakeholder involvement specialists, architectural specialists, heritage specialists and tourism specialists. The LED planning process is well on its way with the first draft already submitted for comment to the Government of Mauritius. There have been three main public and 9 interest group meetings. Feedback consultations on the LED plan is currently happening. The first meeting included the Le Morne Heritage Trust Fund (LMHTF) board, the LMHTF site office team and the local NGO, SEED. The second meeting was with community members and stakeholders. With the support of the LMHTF two meetings with the fishers were held. During the visioning phase, group based consultative workshops with six identified Community-Based Associations (CBA's) were undertaken, these included the senior citizens association, women's association, Le Morne village council, Parent Teachers Association (PTA), youth associations and NGO's. A total of 252 socio-economic questionnaires have been analysed and categorised. The third community meeting was held where the findings of the LED process and a draft Vision for Le Morne was presented to community members. Organisations involved include the Ministry of Environment and National Development Unit, Ministry of Tourism, Leisure and External Communications, Ministry of Housing and Lands, and relevant institutions such as the Black River District Council. Dedicated meetings with council and local authorities were paramount. Private sector involvement included consultations with developers, promoters, donor agencies and hotels. For more information about the LED plan for Le Morne, see Addendum 5.

are concerned that the fish catches are going down and they want something to be done to improve the state of the lagoon.

10.4 Alternative livelihood options leading to poverty reduction

From the one-on-one interviews done with a total 25 fisherman – a number of alternative livelihoods were stated. These are listed below:

1. Boat trips with tourists in the sea
2. Sport fishing in the lagoon
3. Snorkelling
4. Growing vegetables
5. Animal husbandry
6. Cultivation of other plants

Other fishermen felt that they had been fishing for a long time and would not want to change and do something else when they are old.

From the Local Economic Development (LED) Plan being done for Le Morne, there were a number of identified skills in the community that can boost the development of the community. Examples of skills identified were;

- i. Technically related (plumber, electrician, secretary, painter);
- ii. Artistic (musician, handicraft, artist/painter, dancer, poetry etc);
- iii. Sports related (swimmer, football, cycling etc);
- iv. Professional (driver, cook, cleaner, tailor, secretary, gardener etc);

These listed options and more ideas are found in the draft LED plan in Addendum 5.

10.5 Weaknesses and opportunities for sustainable community development

The list of weaknesses and opportunities identified in Le Morne come from the LED planning exercise and are given in the Table 3 below (also found in Addendum 5, the draft LED plan):

Table 3: Identifies weaknesses and opportunities for development in Le Morne

Issues	Weaknesses	Opportunities	Remarks/Suggestions
Sewerage and grey water	The sewerage and drainage system is out of date and needs to be resolved as a matter of great urgency	Community can be engaged as part of public works teams to put in a proper system; grey water to be treated and re-used	The issue of the sewage disposal poses a serious threat to the health and livelihood of the communities ⁵
Environmental custodianship	There is a need for a clean-up campaign behind the village hall up to the round-about, and other areas	Community can be involved in clean-up campaign; this is also an opportunity for environmental education	This issue can be presented by the Ministry of Environment and Sustainable Development

⁵ This issue can be presented to the Ministry of Energy and Public Utilities and the Ministry of Environment and Sustainable Development. It should be noted that the new high tension power cable will be buried in the village, and it may be possible that the sewerage system can be addressed at the same time.

Land accessibility, lack of land for development, and land ownership	Lack of land to grow crops for food security and create new livelihoods is an overriding and cross-cutting obstacle, affecting the local economy	Many people want access to agricultural land previously used by the village so they can grow their own crops and rear animals, both for household consumption and to sell	People must grow their own food to ensure long term self-sufficiency. It was stressed that access to land, even a small piece, can be a major boost to household income
	Village is squashed into a thin strip of land. Land needed for village to expand, and facilities to be created	A multi-purpose centre and other facilities can be constructed and football field can be closer to town	The Ministry of Housing and Lands should be requested to facilitate access to the land behind the village
Business environment	Lack of access to finance hampers all types of business development	Many people in the Le Morne Cultural Landscape (LMCL) has the capacity and potential to develop business	National Empowerment Fund (NEF) to be approached, and micro-finance schemes created
	There is a need for a fruit & vegetable market, fish market for fishermen, as well as a market for craft makers from the village	Spatial Development Plan (SDF) can propose town planning to improve town grounds without damaging essential character and heritage, diversifying attractions	This will be a platform and opportunity for people to showcase and sell their products, clearly there is a need for those markets as fish is sold elsewhere, and vegetables are imported
Facilities and Infrastructure	Access to the public beach on the west side if hampered by a road that has been closed	Develop a public beach in the village with toilet facilities and lights	Open the road which goes around LMCL and passes by Trou Chenille through to the slave route monument
	The village needs childcare facilities to help the women while they search for work	With their children safe and taken care of, the labour market can be developed better	The potential of women is curtailed because there is no childcare facilities
	There is a need for a pass around the bay because at low tide there are problems ⁶		
			A hotel should be developed in the village
			Develop bungalows on the land behind the village for kite surfers to create more work ⁷
	Lack of public health facilities, e.g. medical	Money and even lives will be saved if people have medical	The clinic that was inaugurated seldom if ever

⁶ It is proposed that issues of using the lagoon be addressed in a lagoon management plan (initiative of the fishers) as well as the “Le Morne Pressure Zone” initiative of the Ministry of Environment and Sustainable Development.

⁷ This proposal came from the owner of the land behind the village.

	centres	facilities in, or closer to town	came again to the town
	There are problems with the kite and wind surfers ⁸		
	There is a need for more bus stops in the village	Better public transport will save time	Transport problems must be investigated
			Fourneau Island should be developed ⁹
	There is a need for a police station	Possibility of putting community policing system in place	There are social problems, including drugs
Leisure facilities	The villages lack opportunities, facilities and activities for the young people	Proper facilities will greatly improve the interest of youth in developing themselves	The football ground has been damaged, and there is a need for infrastructure for leisure, children and sport activities
	The Le Morne Heritage Trust Fund (LMHTF) site office closes too early	The LMHTF site office can be a focal point for information sharing, training in heritage, etc.	It is the only place where people can get the internet
Security and safety	Lack of security measures near the school	Better safety measures will lead to an improved environment for residents as well as visitors	There is a need for a separation between the pedestrian roadside and the road near the school as well as a speed hump
Education and capacity building	There are poor school results in the government schools, many people are not literate	Human potential can be much better developed for short-, medium and long-term benefits	There is a need to hold educational meetings with parents, and do alphabetisation for all inhabitants
	There is lack of capacity building opportunities for youngsters and women	Capacity building will very quickly improve the human resources, which will have many positive spin-offs	A multi-purpose centre can be created where skills can be learned and all ages can get together to share information and ideas
Other needs:	People operate without licenses or permits which means they cannot market openly	Legal businesses can more easily and openly advertise, for instance guesthouses on the internet	LMHTF can assist people who want to begin businesses to get permit and operate legally
	Hindu people wanted a plot of land to construct a place where they can pray, but up to now there is no	Cultural diversity will add to the attraction of the village	They have made many queries, but no response yet

⁸ Many fishers, men and women cited problems with the kite surfers and the issue must be addressed in a lagoon management plan, or by the ICZM initiative of the Ministry of Environment and Sustainable Development.

⁹ One person only proposed this idea; most people are very much in favour of the island remaining in its natural state.

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Level of schooling/educational background

The level of formal education in Le Morne village is very low; over 50% of the interviewed inhabitants had only completed primary education. In spite of the low level of education in Le Morne, inhabitants have a range of artistic, technical, sportive and professional skills to offer. Additionally, 16 participants indicated that they required training in their field of interest. There was a strong sentiment that “prior knowledge learning”, that is skills without certification, should be acknowledged and that people may be assisted in acquiring certification.

Quality of life and safety

Quality of life is defined as the personal contentment (or discontent) with the cultural or intellectual circumstances under which a person lives¹⁰, and it is different from material contentment.

Over 70% of the inhabitants interviewed indicated that their quality of life was fair, while 14% rated their quality of life as being poor. It is not surprising that only 6% of the people interviewed considered their life as good.

10.6 Bottom-up and top-down communication

Communication in Le Morne is through the announcements made by villagers either through word of mouth or notices sent door to door. Notices are also put up in the village hall where people sometimes have meetings. The villagers communicate largely through cell phones. There is a small area in the Le Morne Heritage Trust Fund office where the local community can get access to the internet. This is widely used by the youth and they communicate to each other through various social networks.

Through the work with the demonstration site and the Le Morne Local Economic Development Plan, the communication channels between for example the Ministry of Fisheries and the fishing associations have been improved. It is anticipated that this will be further enhanced through the continued work with this site. It is also significant that the Ministry of Fisheries have already adopted the approach in three other fishing villages where the demonstration sites can be replicated during the ASCLME Project implementation phase.

¹⁰ Princeton University, <http://wordnetweb.princeton.edu/perl/webwn?s=quality%20of%20life>