PROJECT SELAMAT Building Resilience to Tsunami in Indian Ocean

Capacity Building of Coastal Communities on Disaster Risk Reduction

Shivayani Atoll, Maldives

SEEDS ASIA

PROGRESS REPORT

May 08 – July 08

EUROPEAN UNION

United Nations
International Strategy for Disaster Reduction

SEEDS ASIA

1. Description

Name of the beneficiary grants contact:

SEEDS ASIA

Name & title of the Contact person:

Yuko Nakagawa, Chief operating Officer

Name of partners in action:

Title of the action:

Capacity Building of Coastal Communities on Disaster Risk Reduction in Shaviyani Atoll

Start date & end date of reporting period:

1st May 2008 / 31st July 2008

Target countries:

Maldives, Shaviyani Atoll

Final beneficiaries or target groups[1] (if different) (including number of women & men):

Target groups: Communities living in the 5 islands selected, with a total population 7,984 (4,102 men, 3,882 women).

Final beneficiaries: Communities living in Shivayani atoll, population of 14, 218 (census 2003), National Disaster Management Center, related Govt. Departments, local NGOs and Agencies working on the area of Disaster Risk Reduction.

[1] "Target groups" are the groups/entities who will be directly positively affected by the project at the Project Purpose level and "final beneficiaries" are those who will benefit from the project in the long term at the level of the society or sector at large.

2. Assessment of Implementation of activities

Activities & results

Activity 1 Development of Coastal bioshield. Milandhoo Island

- Transecting for identification of the site for biosheild

A transect was conducted with the islander elders to identify the particular area on the east coast which is undergoing severe erosion (based on the already conducted transect during the base line survey) to plan for bioshield development. The team entered in to the coast slightly a little below to the midpoint in the southern side and walked up to two Kms. The community members told from the mid 1960s to till now for roughly about 40 years the beach has come 30 to 40 feet inside the island especially in the middle part of the coast. The difference between the high tide and the low tided both during the monsoon and the summer months are same around 20 feet. But the high tide reaches higher level 5 to 7 feet more during the summer months than the monsoon months. During the full and nil moon days the high tide level goes up to 3 to 4 feet more than the remaining days of the month. At present the maximum high tide level is reached during the noon time and the low tide at midnight. Hence it was suggested to plant the sapling in the morning.

There are not big trees found all along the coast and some points there are single trees which are partly or completely uprooted by the waves. The beach is covered with shrubs and bushes (dominated by shrub like Mirihi wines like Thanburaveyo and Parpa), and with limited numbers of big trees (Magoo, Kani, Uni, Dhigga, Kandhoo, Ruvaa, Bockyo). Both Kuredhi and Nikka are very rarely found along the coast. It was noticed by the team only three Kuredhi trees are witnessed at three different points with firm rooting even the entire surrounding area got washed out the vegetation is gone.

It is observed there are hardly any coconut trees on the eastern coast the team witnessed a cluster of trees at only one point. It was decided to plant single layer to five layers according to the space availability of space in the identified area for bioshield development in 500 mts area.

- Training on coastal Bioshield

After previous discussion with Island officials, it was decided hold a training programme on the Coastal bioshield in the high school for the Island chiefs, Island council members and the youth association leaders and the staff responsible of the school eco club and the some of the senior members in the club.

20 slides were presented explaining the problems and issues in the coastal areas, the consequences foreseen, the need to develop a feasible, cost effective and environment friendly solution like bioshiled to protect the beach from erosion and the method to develop, the importance of community participation in planning, implementation and to manage in simple Divehi language. Apart from the target groups mentioned above science teachers from the high school also attended the prograemme.

The hard copies of the training material printed in Dhivehi were also circulated to the participants who attended the training programme.

- Collection and planting of seedlings from the wild environment

During the previous trip a five layered bioshield was planned, cuttings were raised in nursery for three species (Nikka, Digga and Hirund) for the other two species (coconut and Kuredhi) the idea is to collect the seedlings from the wild environment. With the permission and support of the Island office, 52 good quality coconut seedlings which are suitable to the soil on the east coast (as suggeste by the local experts) were collected from the wild environment in the northern part of the island and collected around 25 Kuredhi saplings from the wild environment both at the northern and southern ends of the island on the western side where Kuredhi colonies are found.

The cuttings and saplings were planted in a pit for each with a size of 1.5 feet x1.5 feet and 1.5 feet. An in the microplan prepared during the previous visit in collaboration with the community Kuredhi saplings were planted in the fore front followed by Nikka next is Digga, and Hirund before Coconut which formed the last layer. Representative from the NDMC and youth association leader initiated the planting activity.

The first layer of the plantation was decided after the consultation with the local experts keeping in mind the higher level of the high tide during summer, which reaches the maximum in the island. The first layer of the plantation starts five feet beyond the high tide during summer months and the full moon and nil moon days.

Activity 2 Community Resource Center – follow up. Milandhoo

CRC management committee meeting was held on 9th June, four women members and two men members were present among the total nine member committee. The representative from the island office and also the President of the CRC management committee was away from the island hence unable to participate in the meeting. The following points were discussed.

- It was decided to keep the CRC open from 15.6.2008 on wards. From 9.00 am to 1.00 pm the centre will function on week days except on Fridays. It was decided to take print outs of the information and past at all corners to disseminate the message about the functioning of the centre. Again in the evening the centre will be open for an hour for browsing the internet and get information from different sources.
- Responding to the request it was told that SEEDS Asia would buy a book binder to take up photocopying and binding jobs.
- The women are interested to have a link with the Gender ministry and women welfare to know more about the women welfare programmes and related activities of the ministry.
- The center has got the Wifi connectivity and would get the land line support soon.
- The programme for basic computer literacy was discussed; the women are keen on to join and were decided to select the first ten members to join the course (the course fee will be collected from the members) and plan for the course. This activity could help the centre to make revenue out of it and also the computers available in the centre could be optimally utilized.
- It was also insisted that CRC manager should facilitated the information flow from different sources to the community without any delay. Similarly feedback from the community should reach back the intended sources. SEEDS Asia would provide the possible linkages with the different information sources.
- The centre will have the visitors register and the library for public access.
- The decisions minutes of the meetings were recorded in the monthly meetings minutes register.
- SEEDS Asia agreed to provide the support to keep a sign board which would make the centre visible.

Activity 3 Solid Waste Management – hands on training . Milandhoo Island

- Island Clean up activities

Separate Island clean-up activity was announced by the Island Chief after the Friday morning prayers among adult population. For the plastics to be separated for future shipment, it was necessary to collect them before the Island clean-ups. And thus school SMT decided to have school waste collection competition and Island clean-up at the same time. We observed organized garbage disposal points cleaning at a few locations, where children and adults worked together. It was shared by the local men at the cleaning that involving children into environment activities are highly recommended and it was the very first time for the children to conduct such activity. They also shared their interests in getting rid of the waste out of the Islands. While working with children for 2 days, SEEDS Asia talked about the proper waste management and how the separated wastes can be turned into new material (= recycled). The children also leant about the differences of the waste materials and possible negative effects on the marine and human health. At 17h00, the counting started. Piles of bags were collected first by students, then by trucks. Full loaded trucks with cans and plastics arrived one by one. Soon after the guesthouse garden was filled with mountains of cans and plastics. It was beautiful yet overwhelming. Students, teachers, CBOs and many local populations all witnessed the gigantic amount of waste they compiled for the past years. It was a significant moment to all of us. The competition finished without deciding winners. The amount of the waste was too overwhelming and the teachers could not finish the scaling. We made all the participating groups to be winners.

The follow up – recycling

After discussion with a several stakeholders and Island Chief on how to deal with the collected cans and plastic bottles, we agreed to call for support from parents. While SEEDS Asia proposed to send some materials to Male and Youth Leader still showed his interest, the decision was left on the parents, i.e. the local community. Around 200 parents and 50 Environmental Club students participated the discussion meeting. It was decided that the parents to clean the collected wastes into separated area. While we showed the options to take the waste away from the Island, only a few showed their interest to be involved. We could not reach a decision to send them to Male although some community members showed their interests during the discussion. Planned awareness training session was not hold this time as advised by the Island Chief and NDMC for the parents to be more focused on the current task. More than 50 parents and community members gathered at the guest house on the following day and take the separated waste to one of the disposal area. All the participants kept the wastes separated. SEEDS Asia introduced a glass crusher machine as well as can crushers. It was a first glass crusher machine to be used in local islands. We explained how the separated wastes can be beneficial. Unfortunately, however, the collected plastic bottles were burned. Some said that they can start the shipment with cleaner bottles. Part of the planned hands-on training was conducted during these days and people are more aware of their own wastes.

- Distribution of suggested waste separation guide to entire households

A waste separation guide adapted to the local scenario has been developed, following the waste collection competition, students from the Environment Club organized an awareness rally on the environmental issues. SEEDS Asia participated in the planning and shared some materials obtained from ERC with the students to prepare placards. The teachers suggested that the students to distribute the Waste Separation Guide. During the rally, many people came out to observe the march and the guides were distributed to most of the households in Milandhoo.

- Poster Competition

About 100 students and 20 parents signed up for participation in a poster competition “My beautiful Island” jointly held with Milandhoo School and SEEDS Asia. Many drew beautiful beach with coconuts trees, community facilities with flowers, and people sweeping the streets. These were the images of the

community towards a beautiful island. All the participants will receive certificates other than announcement of first to third prize from each grade. The cost of preparing the certificates were covered by both of the organizer for SEEDS to spend 2Rf and the school to spend 1Rf and color printing cost as well as logistical arrangements. As per "poster competition evaluation committee" decision on winners on each grades, we selected 24 winners. Certificates were prepared for all the participants on the following day.

- Establishment of Island Waste management Committee

The Island Chief appointed total 11 members from the Island for the initial Waste Management committee (Youth/School/Women/Health/Island Office and a few community members). All A focal point (Mr. Mohammed Rasheed) was appointed by the Committee. The Committee agreed to take initiatives for future activities and agreed to be care taker of the glass crusher machine as well as can crushers. The Committee suggested the distribution of reusable bag to the entire households. They mentioned there are a few community groups who already started separation activities: the community had submitted a written request to the Youth group for build placards to identify different waste disposal areas as well as start collecting money from the households who cannot attend the cleaning activity. The committee decided to give ERC promoted reusable bags to the leading community group as their incentives. They suggested that other community groups shall follow once "someone" starts such activities. It was agreed between the committee and SEEDS Asia that monthly report along with pictures to be submitted. The focal point also spoke to MIFCO directly regarding can collection. The next step is to identify roles of the committee and prepare for the August activity together. After the committee meeting, women of the leading community group came to share their appreciation of the activities and the reusable bags. We also met during the February visit regarding their proposed waste separation house and had several productive meetings. They proactively participated in the activities during the last several days. Community-based activities need local leaders like them.

Activity 4 Training material

Presentation materials on Home Kitchen Gardens (importance of home garden, pest control practices in chillies and brinjal) have been prepared in Dhivehi (local language) and are available in the resource center for the ready reference of other members.

Training materials (Power Point Presentations) on Coastal Bioshields and Solid Waste Management have been prepared in English and were given to the focal point of the NDMC for Project Selamat for translation.

Training materials

- *Coastal bioshield as a mechanism to build community resilience*
- *Waste separation guide*

Result: Public awareness on environmental management integrated with disaster risk increased through awareness raising and public information material tailored in local language.

Activity 5 Liasoning with Government Stakeholders

Project Selamat is being implemented in close collaboration with the National Disaster Management Center, who is involved in all decision making and is facilitating the implementation of the activities. Throughout the field visits and activities implementation, consultation meetings have been held at National (NDMC, Ministry of Fisheries, agriculture and Marine resources), Atoll and Island level.

Activity 6 Coordination with ADRRN International Project Team - Training workshop on Disaster Risk Reduction: exposure visit of delegates from Maldives to Tamil Nadu, India.

Learning through sharing is the most appropriate pedagogic method to promote horizontal and vertical transfer of knowledge. Exposure visit helps to learn from a real time situation and witness the working model. This will help to have a firsthand experience to the visiting participants. This will provide an opportunity to witness the best practices, show case the successful stories and comprehend the benefits Exposure visit helps to learn from a real time situation and witness the working model. This would help to have a firsthand experience to the visiting participants. This will also provide an opportunity to witness the best practices, show case the successful stories and comprehend the benefits of collaboration/partnership/ coordination of activities etc. It also creates a chance to the delegates to know, how a scientific know how could be transformed in to a practical cost effective solution in the field.

The idea was shared with the ADRRN IPT, who decided to organize and host the event, were delegates from ADRRN partners will also get involved. In the case of Maldives, it is intended to give focus to the island chiefs, the main stakeholder collaborating to carry out the project activities in Maldives. Hence, the composition of the team would consist six members; one island chief from each of the five project islands in Shaviyani atoll and one representative from National Disaster Management Centre (NDMC), Male, who could coordinate the team. It is expected that the participant should be a proactive island leader, who has willingness and enthusiasm to share the situation in their local conditions and experiences at home and carry back new learning, to promote and commit the activities related to building community based resilience in their respective islands, and a person who would share the knowledge with his own and other neighboring islanders.

SEEDS Asia has coordinated with the ADRRN IPT, for all the required logistics. A team member from SEEDS Asia and a representative from the ADRRN IPT will guide the participants through out the visit and will ensure productive discussion and learning. The visit has been scheduled from 28th July to 2nd August.

Activity 7 Monitoring of implemented activities with the National Disaster Management Center, Maldives and Milandhoo Officials.

Continuous monitoring of the activities is being undertaken in coordination with the NDMC.

Updated Action Plan

	Actual implementation
	Preparation
	Monitoring - online base

	ACTIVITIES	Apr., 08	May., 08	Jun, 08	Jul, 08	Aug., 08	Sep., 08	Oct. 08	Nov. 08	Dec. 08
		7	8	9	10	11	12	13	14	15
I	**Preparatory Phase**	Completed (Oct – November 2007)								
II	**Base Line Studies**	Completed (Nov- February 2008)								
III.	**BIO SHIELDS & MODEL HOME KITCHEN GARDEN -ISLAND LEVEL**									
	Planting for bioshield and hands on training	First phase completed (February 08)								
	Demonstration and training of the home garden	Completed (April 08)		√						
	Hydrophonics demonstration for vegetable cultivation and training									
	Participatory evaluation									
IV	**COMMUNITY RESOURCE CENTER – ISLAND LEVEL**									
	Planning workshop and orientation/training with local NGOs/CBOs	Completed. Inauguration of CRC April 08								
	Supply of contents and training and capacity building on content development	Completed								
	Participatory evaluation (on-line basis)									
V	**COMMUNITY BASED SOLID WASTE MANAGEMENT - ISLAND LEVEL**									
	Planning workshop and base line survey for current local solid waste management	Completed (February 2008)								
	Preparation of education materials and other soft materials	Completed (currently being translated into local language)								
	Training workshop on community based solid waste management			√						
	Monitoring and corrective action									
VI	**DISASTER MANAGEMENT PLANS - ISLAND & ATOLL LEVEL**									
	Workshop design and planning			Completed (ADRRN IPT)						
	DM workshop for community members, island officials and atoll official									
VII	**NATIONAL WORKSHOP**									
	Preparation of the workshop									
	Workshop in Male									
IX	**Reporting and Documentation of all the activities**									

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Overall Difficulties

Capacity of local nodal point (National Disaster Management Center – NDMC) is relatively low. They are facing lack of capable & expertise staff on DRR to implement their activities.

However, Ms. Zaha Waheed NDMC's nodal person, ensured to put one person for supporting this project without any personnel cost.

Changes in implementation

Implementing partner

In the initial project proposal it was thought that a local implementing partner would be identified in order to ensure a smooth implementation on the ground. However, due to the limited capacity on DRR of local NGO's and institutions it was decided that SEEDS ASIA along with a team of experts will be in charge of the project implementation. Focal points in the National Disaster Management Center and Shivayani atoll were identified and have supported and collaborated the project activities through out the implementation process

Disaster Management Planning – Experts

Given the limited financial resources allocated to SEEDS Asia, it was decided that in order to develop the Disaster Management Plans at Atoll and Island level, the ADRRN International Project Team will facilitate the process by providing experts on the topic. The agenda of the trainings on Community Based Disaster Preparedness is currently being discussed with the National Disaster Management Center of Maldives, who will provide resource persons for the task forces training. Training and IEC material has already being identified and it's underway. Training and development on CBDM and Disaster Management Plans have been schedule in the month of August.

3. Partners & Cooperation

3.1 How do you assess the relationship between the formal partners of this action (i.e. those partners which have signed a partnership statement)? Please specify for each partner organizations.

The National Disaster Management Center of Maldives will be the focal point for consultation and guidance though out the project implementation. However, SEEDS ASIA will be the sole implanting agency in Maldives; no local partners will be involved.

3.2 How would you assess the relationship between your organization & State authorities in the targeted countries? How has this relationship affected the Action?

Due to the geographical situation of Maldives, Government authorities are dived into Island, Atoll and National level.
Meeting have taken place with main stakeholder at the three levels: National Disaster Management Center, Shivayani Atoll Officials and Island Chiefs/Officials.

The project was well received by all, which will ensure a smooth implementation of the project on the ground and its sustainability.

3.3 Where applicable describe your relationship with any other organizations involved in implementing Action:

- Associates
- Sub-contractors
- Final beneficiaries & target group

Islands' assessment and trainings were done in a collaborative approach with community representatives. In order to ensure transparency and clarity, the overall aim of the project was shared with the beneficiaries. Project design has taken into consideration communities concerns.

Overall, the project has been well received and CBOs & NGOs shown keen interest on building up their own skills and capabilities on DRR activities.

- Other third parties involved

3.4 Where applicable, outline any links you have developed with other actions.

Name of the contact person for the Action:

Yuko Nakagawa, Chief operating Officer

Signature:

Location:

Kobe, Japan

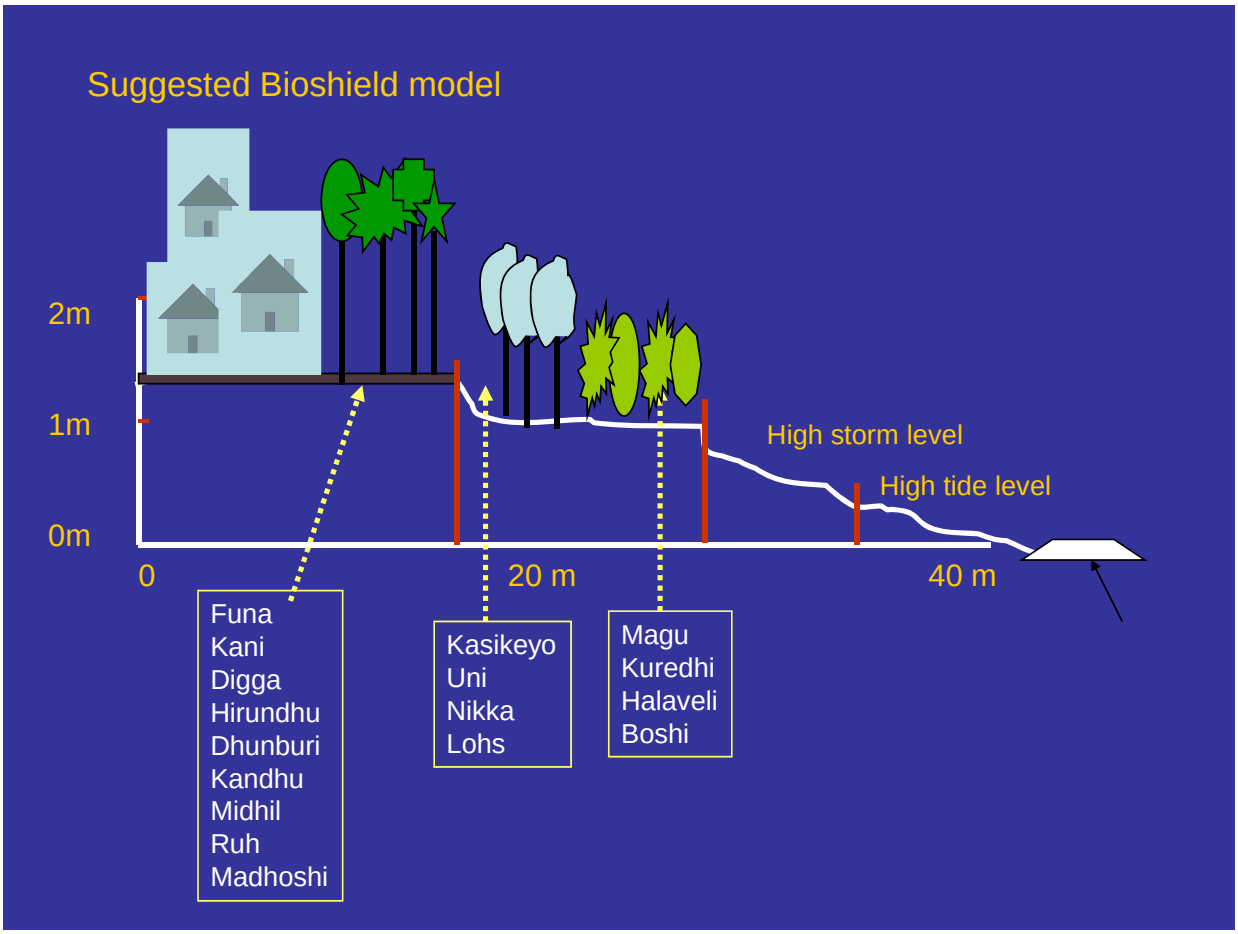
Date report due:

31st July 2008

Date report sent:

18th August 2008

ANNEXURE A


Suggested Bioshield model
2m
1m
0m
0
20 m
40 m
High storm level
High tide level
Funa
Kani
Digga
Hirundhu
Dhunburi
Kandhu
Midhil
Ruh
Madhoshi
Kasikeyo
Uni
Nikka
Lohs
Magu
Kuredhi
Halaveli
Boshi

ANNEXURE B
Baseline survey results on home gardens

The interaction and discussion shows that home gardens has the potential to provide upto 30 % of inland households food need, but currently in this island it supports 10-15 % only. This means that the present utilization pattern is highly extensive and there is a good scope to further intensify the production. All the surveyed households indicated that the produces are entirely utilized for household purposes and in times when it is excess it is being shared with neighbors and relatives.

Area under home garden: The management of home gardens suits the labour conditions of island women. The space available varies across households, but it ranges between 20 m^2 to 60 m^2. The baseline survey indicates that 64 % of the surveyed houses have more than 40 m^2, 30 % has 20-30 m^2 area and only 6 % of the households has a limited space of around less than 20 m^2. On an average each household has around 6- 8 members.

Suitable season: The cultivation of crop species is a year round practice, though around 70 % of the households mentioned that southwest monsoon during April- May is the good season for planting tree species. Otherwise seasonal vegetables could be raised throughout the year.

Responsibility: The design and management of the home garden is the sole responsibility of women, in few households where elderly men are supporting women in managing the garden in terms of new species introduction and advice. But all the physical activities related to cultivation aspects are being done by women. In some households it often constitutes a small farm area where intense crop production occurs with annual crops sown continuously, and perennial crops perpetuate themselves without needing frequent seeding. The agronomic practices like irrigation, weeding and harvesting do not require strict timing and carried out as on when they get time and notice it.

Experience in home garden: Since the settlement is relatively recent, the houses on the northern part started the practice of garden around six years earlier, whereas in the southern part around 25 % percent of the houses are still under the process of construction in which the practice is very recent. But women have the experience on cultivation and they had been involved in such tasks in their earlier settlement of other island.

Diversity and species composition: The home gardens are strategic to improve their household supplementary food and nutritional aspects in the island. On an average ten different species are being cultivated but the total number of species cultivated in the home garden is around 35 covering fruits, vegetables, nuts, spices etc. Each of the species has diverse nutritional profiles and varies in bearing seasons. From the field visit and interaction it is clear that the following are the species found in home gardens of Milandoo island.

Details of species grown in the gardens and distribution

No	Name of the Species	Local common	Scientific name	Degree of distribution		
				Frequent	Moderate	Rare
I. Vegetables						
1.	Chillies			✓		
2.	Leaf cabbage (seen					✓
3.	Curry leaf			✓		
4.	Moringa			✓		
5.	Ramba – leafy			✓		
6.	Green cabbage			✓		
7.	Brinjal			✓		
8.	Cucumber	kyocumba		✓		

9.	Tomato			✓		
10.	Pudhina					✓
11.	Pumpkin				✓	
12.	Cowpea				✓	
II. Fruits						
13.	Banana			✓		
14.	Guava	faru		✓		
15	Custard apple	Atha		✓		
16	Bilimagu			✓		
17	Mango				✓	
18	Papaya	falo		✓		
19	Passion fruit			✓		
20	Breadfruit			✓		
21	Pomegranate			✓		
III. Tubers						
21	Taro					✓
22	Vetrilaivallikilangu	rigakakani			✓	
23	Sweet potato				✓	
24	Pumpkin					
25	Coconut			✓		
26	Citrus	Lumbo		✓		
27	Betel leaf			✓		✓
28	Areca nut					
29	Sorghum					✓
30	Sugarcane			✓		
31	Bottle guard			✓		
32	Snake guard					
33	Mulberry species					

With regard to species dynamics, around 80% of the households expressed that three years back species like banana, guava, coconut and perennial vegetable species like Ramba, curry leaf, leaf cabbage etc was cultivated. But women are keen in enriching the diverse species composition in their gardens.

Source of planting materials: Different sources supply the materials, around 92 % of the households indicated that they manage and preserve the seeds for next season, sometimes for example in chilles, they take seeds from chillies they purchase from shops for vegetable/table purpose. But around 6 % of the households expressed that they purchased seeds from shops in the local islands as well as from Male. Only 2 % of the households expressed that they share the planting materials with relatives and neighbors.

Awareness on soil health: Around 88% of the respondents expressed that they are aware of this and indicators they expressed is poor and stunted growth indicates the low soil fertility. The remaining 22 % of them expressed that they do not know the reason for poor growth and doesn't correlate with the soil fertility status. With regard to the restoration strategies, only 30 % of them practice application of compost (dried leaves/twigs/fish waste) and soil from dense forest area in the island. According to them colour and texture of the soil is the indicator of its fertility status. Black colour with good amount of humus and lightweight are good for plant growth.

Pest and diseases: With regard to awareness and knowledge on pest management nearly 100 percent of the respondents expressed that they do not know to differentiate between pest and disease, identification

of pest as well as its remedial measures. From the poor stunted growth and yellowing and curling of leafs around 90% of them indicated that due to the pest attach the productivity is very low. The local shop which sells pesticide is the only information provider to them, around 40 % of them point out that they have used the pesticide from the shop based on the guidelines given by the seller. The visit and interaction with the particular shop shows that only carbofuran is recommended which is retailed according the quantity requested. But further probing provided an information that the person selling the pesticide doesn't have any knowledge about it. Also, it is surprised to note that around 45 % of the households used aerosols which used to control mosquito's and according to them the result on control is good without knowing its consequences.

Common pest and diseases

Crops	***Pest and disease***
1. Chilies	Leaf curling, yellowing, sucking pests like aphids and white fly
2. Guava, custard apple	Sucking pests like mealy bugs
3. Curry leaf	Aphids and caterpillars, rust
4. Lemon	Caterpillar
5.	
6. Betel vine	Leaf curling, leaf rot
7. Banana	Corm rot
8. Leaf cabbage	diamond moth
9. Mango	Rust

Training and capacity building: Technological information and options available to the women and men on home garden species especially on pest and disease management is very limited. 96 % of them expressed that they learnt the skill from parents through observation and involved in the process, 6% of them indicated that they sometimes see the television in which improved practices are being shown. The interaction with the agricultural ministry indicated that though they have charted programmes and modules on home garden management, this island is not being listed in their list. Thus there is no formal means of institutional extension services imparted to them.
The mobility of women is highly restricted to their islands in contrast to men (going as a labour to other islands), which restricts their access to improved technologies and scientific inputs in management. In Maldives, Ministry of Fisheries, agriculture and Marine resources is the agency promotes agricultural development, but the Milandhoo island is not categorized as agricultural islands and hence their support is right now nothing. Otherwise the ministry is willing to facilitate need based training and capacity building programmes through demonstrations and other communication tools to provide awareness and information.

Composting method: No exclusive compost pit is maintained in the houses, but banana is grown in every household in a pit method, the domestic waste water is diverted to this pit and all the leaf litters, kitchen wastes and fallen, dried leaves are incorporated in the pit. Apart from that women are applying coconut coir and leaf frond wastes near the root surface wherever soil is harder and sandy. Few households exclusively used coconut husks both as a bunding material to hold soil in a raised bed position against water stagnation as well as organic waste. Two of the respondents expressed that they consciously apply leaf waste especially from breadfruit (bigger in size and more leaf fall) in front of their house front yard and apply it in banana pit for composting.

Major constraints: Nearly 98 % of the respondents expressed that pest and disease is the major constraint they are facing in the garden management. None has mentioned that soil health as a constraint,

only 2 % of the women expressed that both pest and disease and quality planting materials as a constraint.

Natural hazards: Heavy wind during June – July is the major hazard which uproots or dislodges the banana trees, apart from this temporary water stagnation during heavy rainfall season is the major difficulty they are facing in crop management.

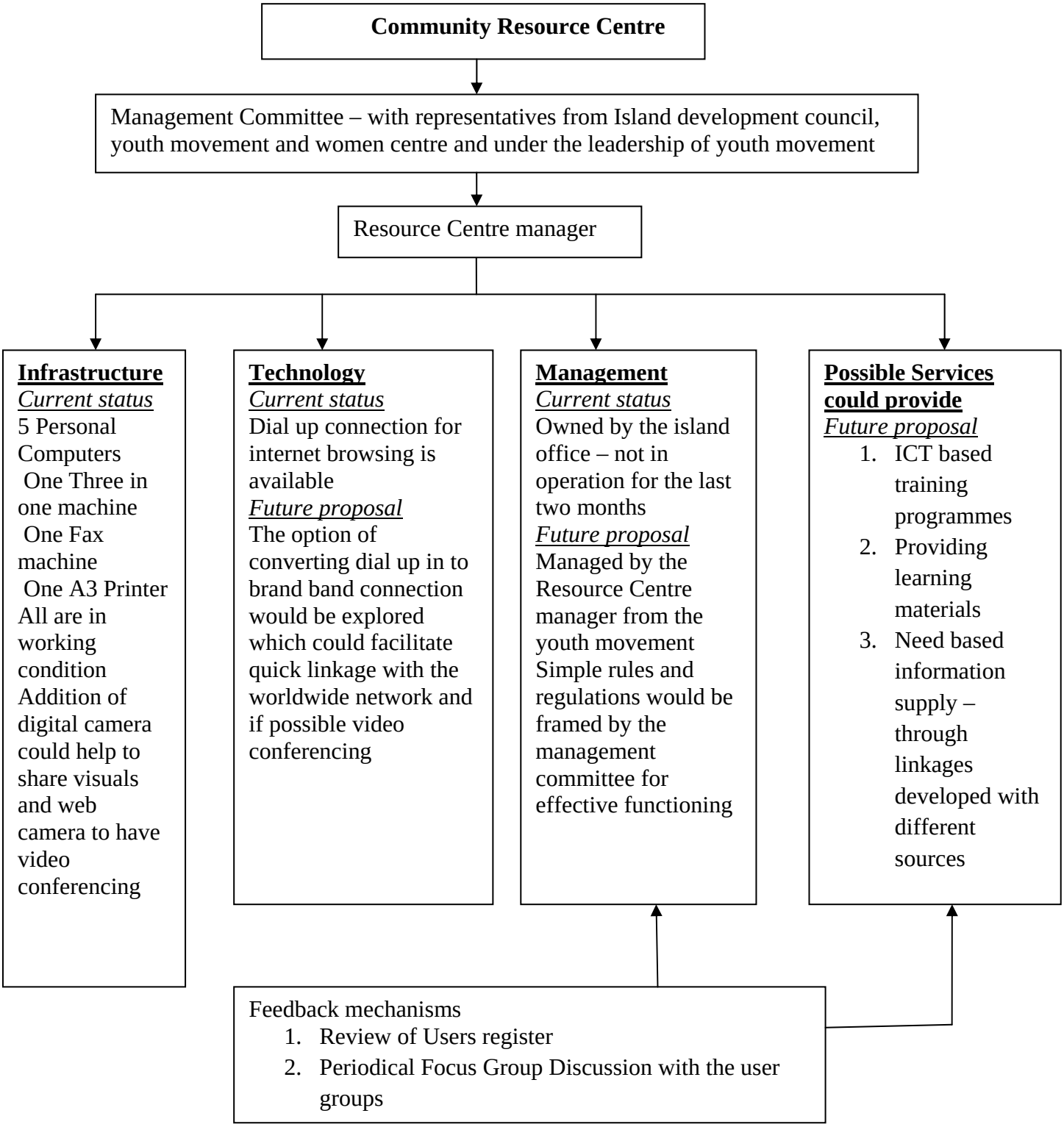
ANNEXURE C
Baseline survey on Information needs assessment

Information needs of different sections

Community/section	Nat. Disaster/Weather	Environment	Job/occupation	Education	Agriculture	Health
Youths/students	Rough sea, wind speed	Beach erosion and how to prevent	Employment opportunities in govt, private companies and resorts. Type of jobs available and salaries, locations There is a big company called job market access to the information provided by the company would be very useful. Fish movement and location	Subjects/courses to pursue their study , duration of the course, fee, accommodation admission procedure Vocational course like housekeeping, accounts, front door, management etc. higher studies in India, Srilanka etc.	-	-
Men/Construction workers	Weather especially about rough sea and wind speed Tsunami warning	-	Type of work and the price, accommodation, islands etc. Fish movement and location in the near shore area	Opportunities for higher studies after level 10of children	Pest and disease management in the home gardens and a few tree crops, reasons for low productivity and how to enhance the productivity	Nutritional literacy Remedies to dust and cement allergies-breathing problem
Men resort staff	Tsunami early warning	Beach erosion why and how to solve the problem	-	-	Pest and disease management of vegetable and improve productivity	Garbage management Information on better health facilities in Male and India
Government teacher	Tsunami warning	Environment related problems,	-	How to train the students to control/prevent	Diversity of crop cultivation, inputs such as seeds for vegetables	Information about better health

		beach erosion, solid waste managemen t, mosquito control		environmental problems, on beach erosion and how to control the problem.	and tree crops, saplings, Improved cultivation methods, pest and disease control methods, to improve the soil health	facilities available in Male and India
Women	Tsunami warning	Beach erosion Why and how to control	Opportunities available in the Island and available outside the island	Opportunities for higher studies after level 10 Teacher training for girls students About scholarships and other kind of financial supports	Disease and pest management- different methods Source for good quality seeds Soil management Healthy growth of the vegetable plants in the garden Information about Blood pressure and Diabetics	Nutritional food for children Garbage dumping and health problems Garbage manag.Health facilities in Male

ANNEXURE D
Proposed Community Resource Centre Structure



ANNEXURE D

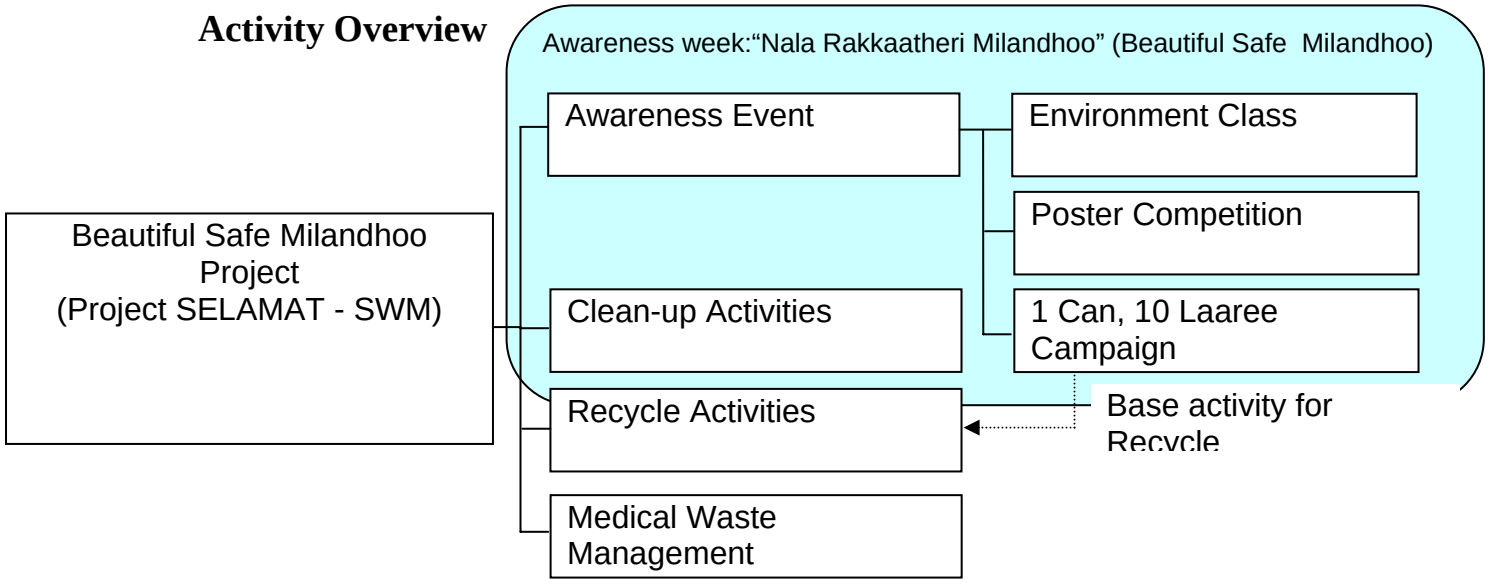
Baseline survey results summary on current Solid Waste Management

How the wastes are handled in Milandhoo and level of urgency for intervention

	Left at disposal sites	Thrown & burnt	Thrown into the sea	Compost	Banana tree compost	Reused at home
Organic (vegetable/fish/coconuts)	✓	✓	✓			
Organic (leaves/trunks)	✓	✓	✓		✓	
Plastic (drink bottles/sachets)	✓	✓	✓			✓
Metal/Can	✓	✓	✓			✓
Glass	✓	✓	✓			✓
Clothing/Shoes	✓	✓	✓			✓
Nappies	✓	✓	✓			

Red=Urgent/Yellow=Better intervene/show alternative methods

Activity Overview



ANNEXURE
Photo Gallery – Shivayani Atoll
COASTAL BIOSHIELDS

Severe beach erosion

Eco club members in action

Nursery for Bioshield

ANNEXURE
PHOTO GALLERY – Shivayani Atoll
SEEDS exhibition & home Gardens

ANNEXURE
PHOTO GALLERY – SWC PRACTICES

How the wastes are handled in Milandhoo and level of urgency for intervention

	Left at disposal sites	Thrown & burnt	Thrown into the sea	Compost	Banana tree compost	Reused at home
Organic (vegetable/fish/coconuts)	✓	✓	✓			
Organic (leaves/trunks)	✓	✓	✓		✓	
Plastic (drink bottles/sachets)	✓	✓	✓			✓
Metal/Can	✓	✓	✓			✓
Glass	✓	✓	✓			✓
Clothing/Shoes	✓	✓	✓			✓
Nappies	✓	✓	✓			

Red=Urgent/Yellow=Better intervene/show alternative methods

110 meter-long waste street towards the sea, Milandhoo

A tree standing on the coast surrounded by uncontrolled wastes,

Man throwing carton boxes with plastic cover into beautiful blue sea,

ANNEXURE
Photo Gallery – Shivayani Atoll, Field Visit November 2007

Komadhoo Island, Families who lost their houses during Tsunami wait for the construction of their new houses

Discussions taking place with Representatives of local NGOs, Island Development Committee, and CBOs.

Waste management was the main concern reported by local communities, as garbage disposals are just thrown in the beaches, leading to water/land contamination and increasing number/cases of diseases

Discussions taking place with the Women Committee of Kanditheem Island.

Lack of Coastal Protection and Beach Erosion were observed in all the Islands.

Home Kitchen Garden Initiative, taken by households in Fukaidhoo Island.