

**The Project for Promotion of Grace of the Sea
in Coastal Villages**

**Report on
Giant Clam
Grow-Out Farm Trial
2007-2013**

Target Species: True giant clam *Tridacna gigas*



Fossil shells of Gigas clam at Sunae landing in the North Efate.



Fossil shells of Gigas clam on the reef flat of Uripiv island.



**What's a Giant Clam
Grow-Out Farm?**

**It's the place let young
giant clams be grown until
they become adults**

Tridacna gigas
Re-Introduction

March 2007

500 live clams arrived from Tonga

March 2007 - June 2007

92 clams died in a quarantine period

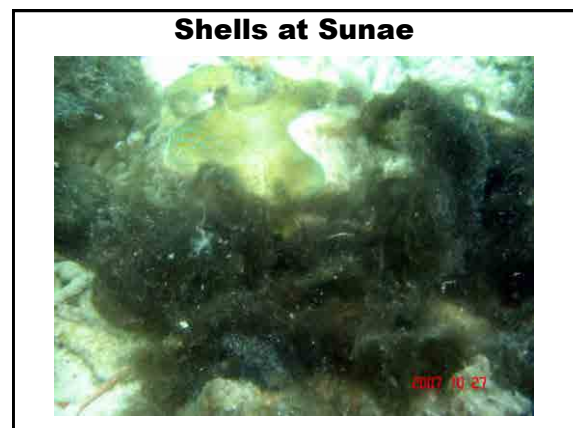
408 clams successfully survived

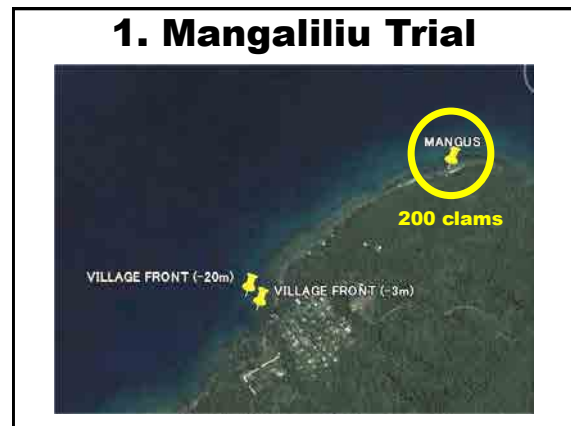


First 4 Months Survival

June 2007 - October 2007

Mangus:	135/200	67.5%
Tassiriki:	94/97	96.9%
Sunae:	97/98	98.9%
Average:	326/395	82.5%





Summary of Mangaliliu Trial Phase-1 (Mangus)

Date Gigas In: 21 JUN 2007
No.of Gigas In: 200 clams
No.of Gigas Lost: 65 clams
No.of Gigas Rescued:
135 clams (on 14 NOV 2007)



Summary of Mangaliliu Trial Phase-2 (Village Front Deep)

Date Gigas In: 14 NOV 2007
No.of Gigas In: 135 clams
(No mortality for First 9 months)
No.of Gigas Lost: 26 clams
No.of Gigas Rescued:
119 clams (on 09 FEB 2009)



Summary of Mangaliliu Trial Phase-3 (Village Front Shallow)

Date Gigas 1st In: NOV 2008

No.of Gigas In: 11 clams
(From Port Vila Hatchery)

To be continued.

Summary of Mangaliliu Trial Phase-3 (Village Front Shallow)

Date Gigas 2nd In: 09 FEB 2009

No.of Gigas In: 22 clams
(From Village Front Deep)

To be continued.

1. Summary of Mangaliliu Trial Phase-3 (Village Front Shallow)

Total No.of Gigas In: 33 clams

No.of Gigas Lost: 7 clams

No.of Gigas Living: 26 clams
(As of JUN 2013)



Summary of Lelepa Trial

Date Gigas In: 09 FEB 2009

No.of Gigas In: 97 clams

No.of Gigas Lost: 9 clams

No.of Gigas Living: 88 clams
(As of JUN 2013)





Summary of Tassiriki Trial

Date Gigas In: 29 JUN 2007

No.of Gigas In: 97 clams

No.of Gigas Lost: 15 clams

No.of Gigas Living: 82 clams
(As of JUN 2013)



Summary of Sunae Trial

Date Gigas In: 7 AUG 2007

No.of Gigas In: 98 clams

No.of Gigas Lost: 12 clams

No.of Gigas Living: 86 clams
(As of JUN 2013)

Overall Summary 1
Clam Counts in June 2013 (at 6 Years)

Tassiriki:	82 /97	84.5%
Sunae:	86 /98	87.8%
Mangaliliu:	26 /33	78.8%
Lelepa:	88 /97	90.7%

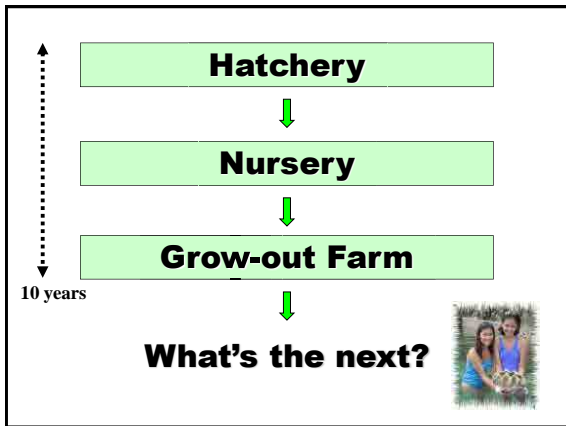
Overall Summary 1
Clam Counts in June 2013 (at 6 Years)

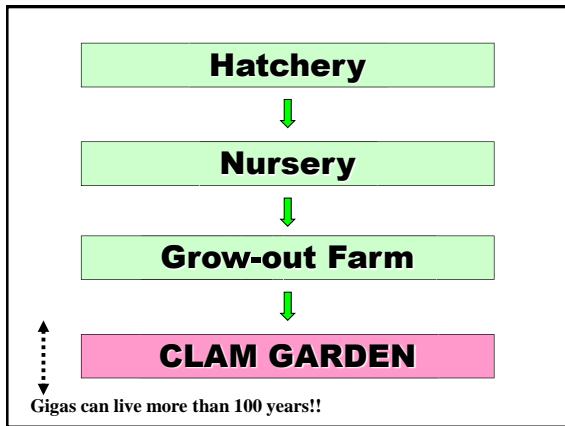
Average: 282/325 86.8%

Results seem very good.
But, excepting Mangaliliu,
most of the loss might be
caused by human removal.

Overall Summary 2
Average Lengths in June 2013

Tassiriki:	54.3 cm
Sunae:	57.8 cm
Mangaliliu:	50.3 cm
Lelepa:	51.8 cm





Giant clam garden will function as;

- 1) Spawners group for the natural breeding**
- 2) Broodstock for the artificial breeding**
- 3) Tourist attractions**



The Project for Promotion of Grace of the Sea in Coastal Villages

**Please keep
Giant Clam Garden
Good condition!
Tankyu tumas.**

Short Report on Relocation of Green Snails from Aneityum to the North Efate



December 2013

Photos from the Project Phase 1



From March 2007 to Decemabr 2008, more than 1,000 green snails were transferred from Aneityum to Efate.



November 2007



February 2008



Recent condition of green snail releasing points

PLACE	TAGGED ADULTS	NO TAG	VERY YOUNG
MOSO (Sunae)	○	?	?
KATOA (Mangaliliu)	○	○	○
LAKANTAMAS (Lelepa)	○ 13 pcs /25 pcs	○ 12 pcs /25 pcs	○ 5 pcs /12 pcs
VILLAGE (Mangaliliu)	○	○	○
ERETOKA (Hat Is)	×	○	○

³Data given for Lelepa was collected from the June 2012 survey.

Recruitments



Lakantamas in Lelepa Island

Recruitments



An adult green snail living at Lakantamas

Recruitments



Number can be seen on lid.

Recruitments



Many young snails also appeared.

Recruitments



A very young snail found at Lakantamas

Future Directions

Vanuatu Fisheries Department

- **Monitoring on the first generation**
- **Assessment for the recruitment**
- **Evaluation of the project**
- **Further (secondary) relocation**
- **Removal of the ban (2020)**

Future Directions

Communities

- **Watch out for poachers (Poaching may be the main cause of loss)**
- **Never disturb live snails.**
- **Remove dead shells (First generation will die in natural death in the near future) These shells are gifts for you.**

Future Directions

Communities

- **Relocate young green snails from west coast to Lelepa village or somewhere in ROAWIA community.**
- **Above may be a good project.**



**Overall,
this trial has been
successfully going.**

TANKYU TUMAS

REPORT ON TROCHUS AND GREEN SNAIL RESEEDING EXPERIMENT IN URIPIV ISLAND

Andrew William and Shigeaki Sone

31 OCTOBER 2013

Introduction

Trochus, *Trochus niloticus* and green snail, *Turbo marmoratus* have been heavily exploited all over Vanuatu because these shell species used to be good income sources for the people who live in coastal villages. Generally, resource of trochus is steadily decreasing and that of green snail is already scarce or locally extinct in some islands. Therefore Vanuatu Fisheries Department (VFD) took up a challenge to restock these depleted resources with various approaches (Amos,1991).

The present project made an approach to establish spawners group to improve natural reproduction in the wild. There are three methods applied in order to create a spawners group. 1) Release of hatchery produced population, mainly young ones = seeds. 2) Release of adult population collected from the wild = relocation. 3) Combination of 1) and 2). The animals were put together in a well managed area such as customary TABU area or Marine Protected Area (MPA).

There are many biological issues relating to the release of animals but we do not discuss much about these here. Results of releasing experiment conducted in a TABU area at Uripiv Island in Malampa province of Vanuatu recently are just presented in this report. Uripiv Island is a small off-shore island belonging to the main island of Malakula, which is one of the project extension sites for awareness of fisheries resources management.

Site selection survey

Two surveys were conducted on 16 June 2012 and 07 July 2012 to investigate conditions of 3 reef areas which were part of every TABU area (Picture 1). Although Uripiv people clearly remembered that the island used to be abundant of trochus and green snails, the survey team could not find any live specimens of these shellfish species. It was assumed that over-harvest had obviously occurred there for the last several decades.



Picture 1. Surveyed areas which were all a part of every TABU area in Uripiv Island.

Surveyed area #2 was finally selected as the most suitable releasing site for trochus and green snail. That site had three advantages, namely, 1) inside of the TABU area (good management), 2) the former major fishing ground for green snail (qualified environmentally) and 3) mostly windward of the island (good opportunity for larval dispersion). Considering these aspects, the project started formalities for the reseeded program of trochus and green snail in Uripiv Island.

1. Seed releasing at TABU area in Uripiv Island

1.1 Preparation of seeds

Trochus prepared were born naturally in rearing tanks at the Port Vila hatchery therefore they were in a mixed batch consisting of several different age groups. It is assumed that the majority were around 2 years old (Bour et Grandperrin, 1985). Prior to releasing, individuals which had a shell of more than 2 inch (about 5 cm) in maximum shell diameter were selected as seeds then tagged with a 7 mm drill-hole (Picture 2). The specimens were expected to function as active spawners in a few years.

Green snails were produced artificially in 2007, therefore all of them were belonging to one batch (GS07). They were left over from the former releasing events done in Efate in 2009 and being kept on land at the fisheries department hatchery for several years. The snails showed the limited growth (they might have physical problems). Although some seemed too weak to survive in the wild, the release was thought to be better than the mortality in the tank. Their operculum were tagged with pencil mark (=Tattoo) (Picture 3).



Picture 2. Hole-tagged trochus juvenile. The hole will be repaired soon by trochus itself but the mark is traceable for several years.



Picture 3. Pencil-tagged green snails. As same as tattoo, the number will be permanently inlaid.



Picture 4. Greensnail seeds packed with old newspaper and sea algae in a Styrofoam box for transportation.

1.2 Transport

On 15 August 2012, 348 trochus and 299 green snails were transferred to Uripiv Island. Dry (=without water) packing method was used for throughout the transportation. The shells were placed in a waterproof container together with moisturizing/packing materials such as some wet newspaper and/or a bunch of fresh sea algae (see Picture 4). Packing started 2 hours prior to check-in time of air carrier in Port Vila. The shells were received at Norsup airport of Malakula Island then taken to Uripiv Island by truck and speedboat without delay.

1.3 Seed releasing point

Seed releasing of trochus and green snail were carried out on 15 August 2012 at the point of 16° 4' 25.71" S, 167° 27' 37.77" E (Picture 5-7) in one of the three TABU areas of Uripiv Island. The shells both trochus and green snails were put together in one place at 4 m deep, hereafter, the place is called as the releasing point.



Picture 5. Releasing point of trochus and green snails in Malampa province.



Picture 6. Releasing point of trochus and green snails at Malakula Island.



Picture 7. Releasing point of trochus and green snails at Uripiv Island.

1.4 Number of seeds released

Trochus (TRM): 348 pcs

Mean Shell Diameter (SD): 51.7 mm

Mean Body Weight: 51.1 g

Hole-tagged on Shell Lip

Green Snail (GS07): 299 pcs

Mean Shell Width (SW): 56.3 mm

Mean Body Weight: 55.5 g

Pencil-marked on Lid

(Serial number started from 1, ended to 300, #49 died in tank before transfer)



Picture 8. Released trochus and green snails at the releasing point on the following day of the release.

2. Monitoring on the released seeds

2.1 Monitoring schedule

According to the standard protocols, monitoring surveys were conducted periodically by a staff of the VFD Research section and Uripiv villagers as follows.

Month-0 (the following day of release=16 August 2012)

Month-1 (one month after release: actually done on 13 September 2012)

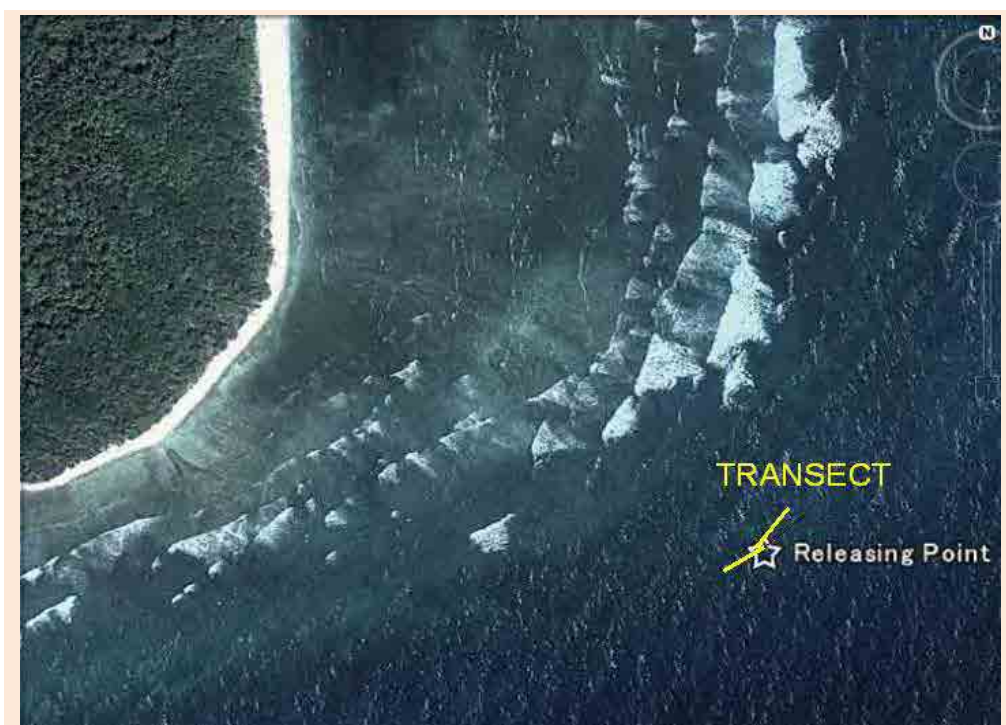
Month-3 (three months after release: actually done on 12 November 2012)

Month-6 (six months after release: actually done on 05 February 2013)

Month-12 (twelve months after release: actually done on 26-28 September 2013)

2.2 Location of the monitoring station

Location of the releasing point with a permanent transect line is shown in Picture 9. Monitoring site was located near the end of the marginal area for the eastern reef system of the island.



Picture 9 Location of the releasing point and the permanent transect line.

2.3 Monitoring method

A 50m transect line was set across the releasing point and parallel with the coast line (see Picture 9). Five 10m x 10m (=100 square meters) quadrats were made on both sides of the line. Hence, the monitoring station covered for the area of 1,000 square

meters around the releasing point. It consists of 10 sections (Fig.1). On 4 February 2013, permanent point markers made of iron rod were set up (Picture 10). Free divers thoroughly searched for the released individuals at every quadrat (inside) and its surrounding area (outside). The word “outside” covered the adjoining 5 m banded area of the station. Only on the Month-12 monitoring (in September 2013), scuba was used for the detailed assessment. During the Month-12 survey, “outside” was extended by scuba diving so that wider and deeper area could be covered. All live animals were returned into the same place where they were caught. Meanwhile, all dead shells were removed from the station during the monitoring.

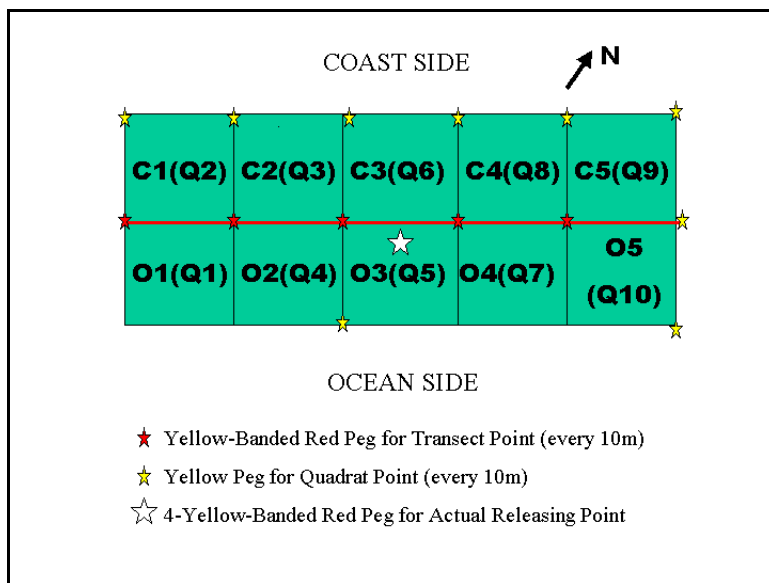


Fig.1 Layout of quadrats at the monitoring station.



Picture 10. Settled transect line along the permanent markers.

3. Monitoring results

3.1 Summary of trochus monitoring

3.1.1 Live trochus recapture

Table 1 and Fig.2 summarize the number of recaptured live trochus (tagged) during the monitoring surveys. The number of live ones was decreasing, finally to zero. Within a year, almost all trochus seemed to be moving away from the monitoring station. Numbers in brackets in table 1 show the number of wild trochus appeared during the surveys.

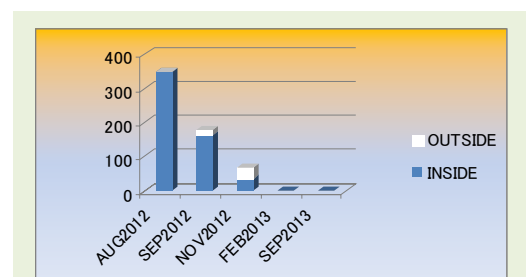


Fig. 2 Number of trochus found alive inside and outside the monitoring area.

Table 1 Number of trochus found alive

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
Inside area	348	162	34	1 (3)	0 (1)
Outside area	0	17	32	No data	0
Total	348	179	66	1 (3)	0 (1)

3.1.2 Dead trochus recapture

Table 2 and Fig.3 summarize the number of dead trochus (empty or broken shells) appeared during monitoring surveys. Most of the dead ones were thought to be removed from inside the station by November 2012 but they were still seen outside. The total of 55 dead shells, which was equivalent to 16.6% of mortality, was collected during one year survey period. On 26 September 2013, one wild trochus (SD: 13cm) was also found dead inside the station (shown in brackets in table 2).

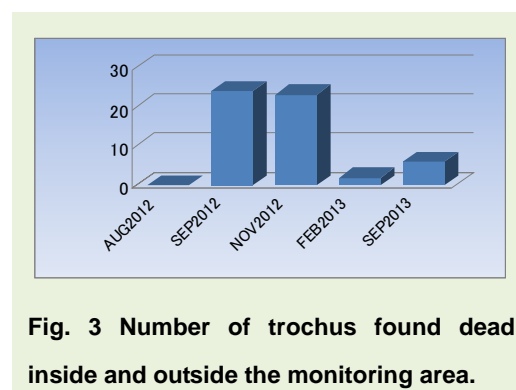


Fig. 3 Number of trochus found dead inside and outside the monitoring area.

Table 2 Number of trochus found dead inside & outside the station

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
# dead shells	0	24	23	2	6 (1)
# dead shells accumulated	0	24	47	49	55 (1)

3.1.3 Missing trochus

Table 3 compiles the number of live and dead trochus recaptured at the monitoring station and its surrounding area. Those were chronologically decreasing (Fig.4). Number of the missing shells was estimated by the expression {(no. of the released shells) – (no. of the live shells + no. of the dead shells accumulated)} and given in table 3 and Fig.5. Missing shells had to consist of live ones and dead ones. On Month-12 monitoring, no live specimen was found from outside but 6 dead ones were collected. As a result, it seemed definite that 84.2% of the released trochus were still missing.

Table 3 Number of trochus found missing

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
Total # live shells	348	179	66	1	0
Total # dead shells accumulated	0	24	47	49	55
Total # missing shells	0	145	235	298	293

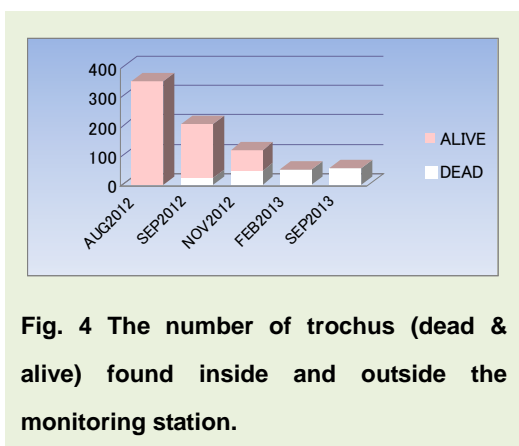


Fig. 4 The number of trochus (dead & alive) found inside and outside the monitoring station.

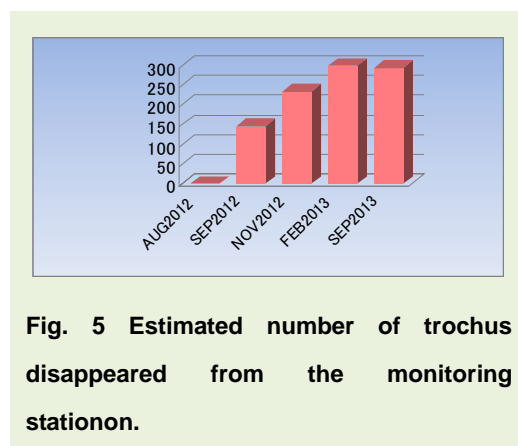


Fig. 5 Estimated number of trochus disappeared from the monitoring station.

3.1.4 Trochus distribution in the monitoring station

Chronological changes in the distribution of trochus “inside” the monitoring station are shown in Fig.6-10.

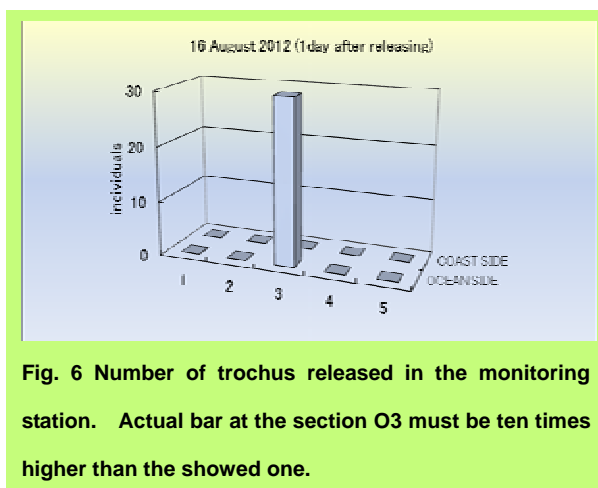


Fig. 6 Number of trochus released in the monitoring station. Actual bar at the section O3 must be ten times higher than the showed one.

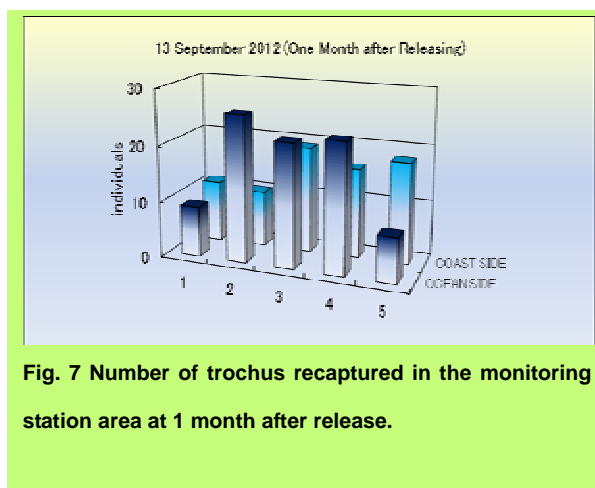


Fig. 7 Number of trochus recaptured in the monitoring station area at 1 month after release.

On Month-0, all shells were getting together around the releasing point in the section O3 (Fig.6). At one month after the release, trochus started migrating, however, many of them were still staying around the releasing point (Fig.7).

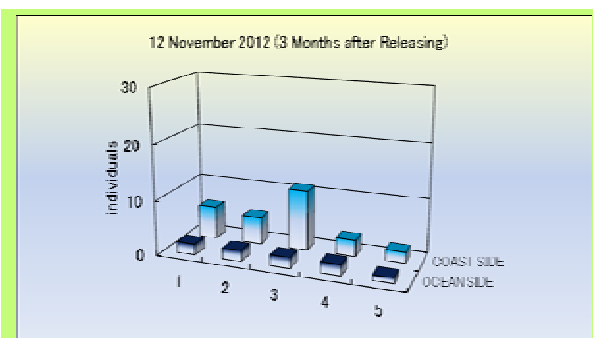


Fig. 8 Number of trochus recaptured in the monitoring station at 3 months after release.

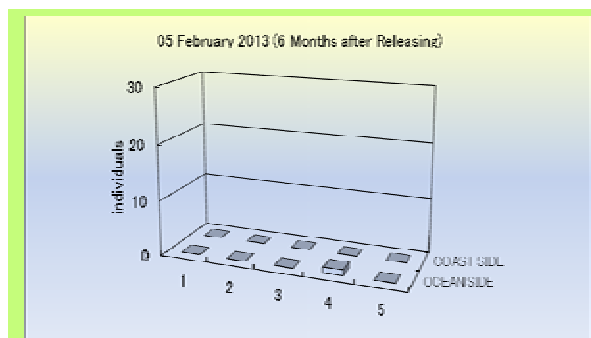


Fig. 9 Number of trochus recaptured in the monitoring station at 6 months after release.

At 3 months, the number of recaptured shells decreased in most of the quadrats, except for the section C3 (Fig.8). At 6 months, only one tagged specimen was recovered in the section O4 (Fig.9).

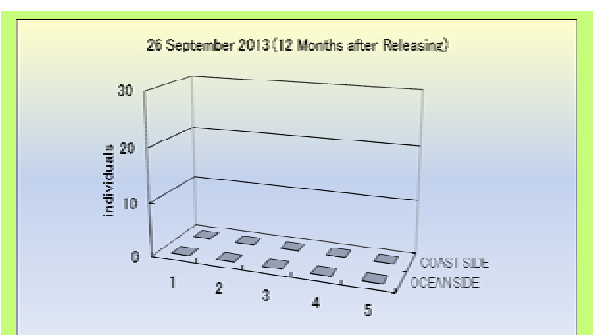


Fig. 10 Number of trochus recaptured in the monitoring station at 12 months (=one year) after release.

At 12 months, released trochus seemed to have completely moved away from the monitoring station (Fig.10). Only one wild trochus might be stay alive inside the monitoring station at that moment.

3.2. Summary of green snail monitoring

3.2.1 Live green snail recapture

Table 4 and Fig.11 summarize the number of recaptured live green snails during the surveys. Similar to the trochus, most of the green snails seemed to have moved out from the monitoring station by February 2013. Some green snails shown in brackets in table 4 appeared during the recapture surveys. All of them were identified as wild. One specimen was young with a small shell (SW: 12cm).

Table 4 Number of green snails found alive

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
Inside area	299	143	17	0 (1)	0
Outside area	0	12	28	No data (2)	0 (2)
Total	299	155	45	0 (3)	0 (2)

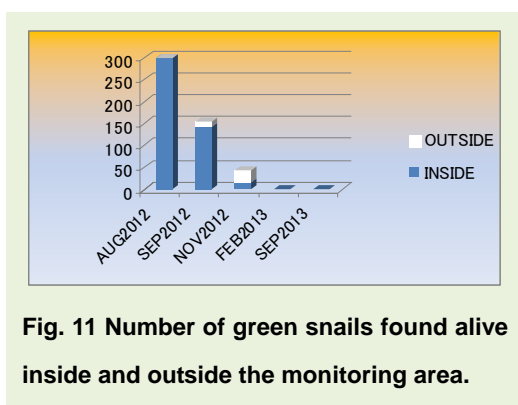


Fig. 11 Number of green snails found alive inside and outside the monitoring area.

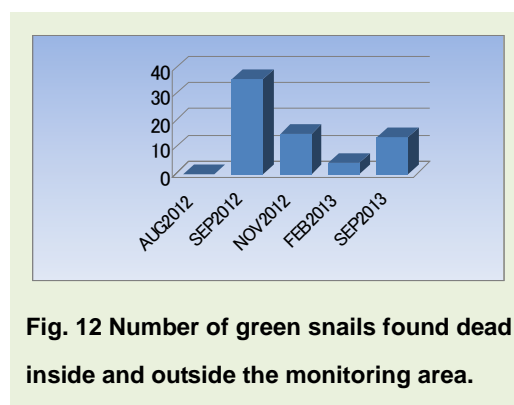


Fig. 12 Number of green snails found dead inside and outside the monitoring area.

3.2.2 Dead green snails recapture

Table 5 and Fig.12 summarize the number of dead green snails (empty or broken shells) found during monitoring surveys. At 1 month after the release, 36 dead shells were collected but the number decreased gradually in the following surveys. In the Month-12 monitoring, the total of 14 dead (smashed) shells was retrieved from deeper area of outside the station. The total of 69 dead shells was collected for the one year monitoring, which was equivalent to 23.0% of mortality. One dead shell of adult green snail (SW: 21cm) was also collected in the section O2 on 26 September 2013 (see brackets in table 5). It seemed to be wild but overlooked in the previous surveys.

Table 5 Number of green snails found dead (inside & outside the station)

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
# dead shells	0	36	15	4	14 (1)
# dead shells accumulated	0	36	51	55	69 (1)

3.2.3 Missing green snails

Table 6 compiles the number of live and dead green snails obtained from the monitoring surveys. Those retrieved shells were chronologically decreasing (Fig.13), otherwise, estimated number of the missing was increasing until 6-months after the release (Fig.14), The number declined a little in the Month-12 monitoring as same as trochus because some dead ones were collected during the detailed survey. As a result, 76.9% of the released green snails were still missing.

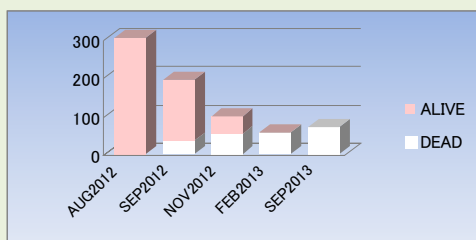


Fig. 13 Number of green snails (dead & alive) found inside and outside the monitoring station.

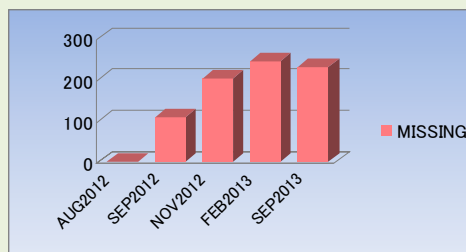


Fig. 14 Estimated number of green snails disappeared from the monitoring station.

Table 6 Number of green snails found missing

Time after release/ Survey date	0 month 15-Aug-2012	1 month 13-Sep-2012	3 months 12-Nov-2012	6 months 5-Feb-2013	12 months 26:28-Sep-2013
Total # live	299	155	45	0	0
Total # dead accumulated	0	36	51	55	69
Total # missing	0	108	203	244	230

3.2.4 Green snail distribution in the monitoring station

Chronological changes in distribution of the released green snails “inside” the monitoring station are shown in Fig.15-19.

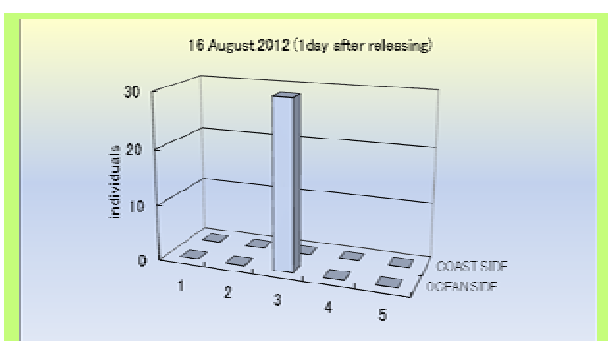


Fig. 15 Number of green snails released in the monitoring station. Actual bar at the section O3 must be ten times higher than the showed one.

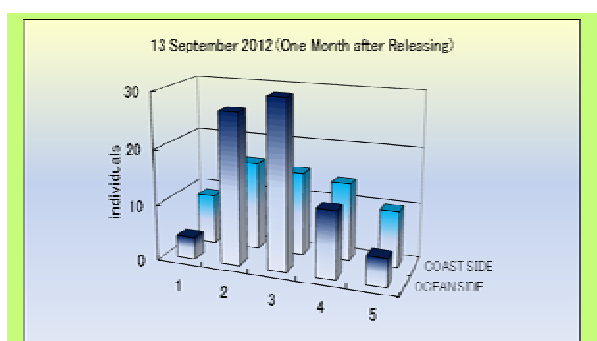


Fig. 16 Number of green snails recaptured in the monitoring station at 1 month after release.

On Month-0, all individuals were staying around the releasing point in the section O3 together with trochus (Fig.15). At one month after the release, green snails started migrating, however, many of them were residing around the releasing point (Fig.16).

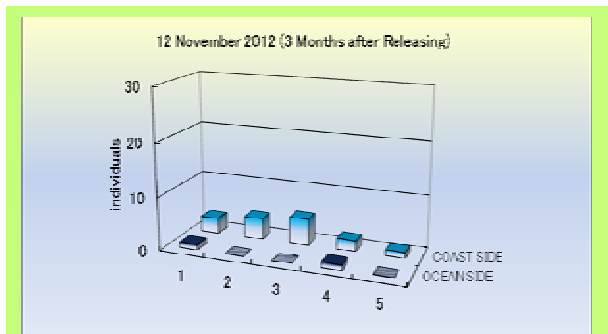


Fig. 17 Number of green snails recaptured in the monitoring station at 3 months after release.

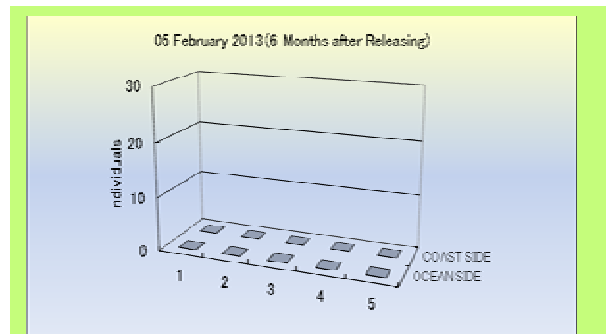


Fig. 18 Number of green snails recaptured in the monitoring station at 6 months after release.

At 3 month after the release, number of recaptured shells declined at most of the quadrats, especially those of ocean side (Fig.17). At 6 months, no more live shell was recovered inside the station (Fig.18).

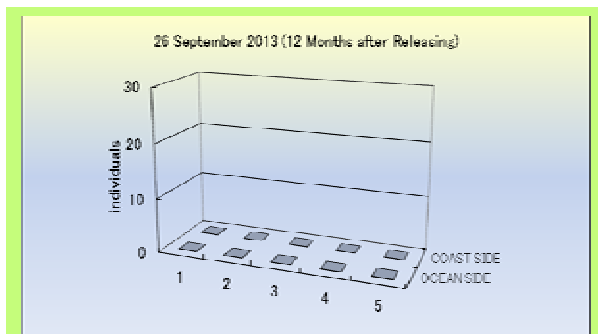


Fig. 19 Number of green snails recaptured in the monitoring station at 12 months after release.

At 12 months (1 year) after the release, live specimens were not able to find out inside the monitoring station even by the precious survey. During that survey, two wild green snails were relocated from outside to inside the station. Therefore, only two green snails might stay alive inside the monitoring station at that moment.

4. Additional (experimental) releasing

Judging by the results of the Month-6 monitoring survey, it seemed definite that almost all released individuals, both trochus and green snails migrated from their releasing site to somewhere outside the station. Accordingly an additional releasing experiment was carried out on 26 September 2013.

4.1 Materials and methods

Live 10 trochus and 28 green snails were transported and released at the same point that the first release was conducted in the previous year. At the same time of the monitoring survey, behavior of additionally released animals was also examined.

Trochus (TRM): 10 pcs

Mean Shell Diameter (SD): over 80 mm/ No tag

Green Snail (GS07): 28 pcs

Mean Shell Width (SW): Group B (n=20): 78.8 mm, Group S (n=8): 60.1 mm

Mean Body Weight: Group B: 153g, Group S: 66g/ Pencil-marked on Lid

4.2 Results

4.2.1 Behavior of trochus

Number of trochus found dead is given in table 7. Most of the released individuals disappeared from the releasing point in a short period. They might be well hiding somewhere around. Preyed shells were not so many, found only one shell per day. One trochus was found crushed and the other was just being eaten by a hermit crab. Mortality of the released trochus was 20% for 2 days observation.

Table7 Number of trochus found dead

Time after release/ Survey date	0 day 26 Sep 2013	1 day 27-Sep-2013	2 days 28-Sep-2013
Total # found dead	0	1	1
Total # found dead accumulated	0	1	2
Total # live (est.)	10	9	8

Table 8 Number of green snails found dead

Time after release/ Survey date	0 day 26 Sep 2013	1 day 27-Sep-2013	2 days 28-Sep-2013
Total # found dead	0	7	6
Total # found dead accumulated	0	7	13
Total # live (est.)	28	21	15

4.2.2. Behavior of green snails

Number of green snails found dead is shown in table 8. Green snails seemed to be staying longer near by the releasing point than trochus. Live ones were staying in a small area. Some preyed shells were seen on the exposed limestone flat. It was

assumed that someone took them to that place and killed, maybe an octopus. Actually one octopus was caught near the releasing point during the survey. Mortality of the released green snails was 46% for 2 days observation. All dead shells showed the similar patterns of shell-break at their shoulders..

5. Discussions

5.1 Movement of the released seeds

Trochus and green snails entirely disappeared from the releasing point within half a year after the release (Fig.2 &11). During the first one month, about half of the released individuals, both trochus and green snails were moving away from the monitoring area. By the Month-3 monitoring, less than 20% of the starting stocks stayed around the station. Breakdown shows that numbers of individuals found inside degraded but those found outside gradually increased (Table 1&4). It could be explained that the released population had been just moving out from the monitoring area. Although some dead shells were retrieved from outside the station during the Month-12 detailed survey, it was not sure that the individuals who had traveled out far from the station were still surviving or not. If further mortalities occur among the moved out population, it will be very difficult to encounter the dead shells in the vast reef area.



Picture 11. Area of possible distribution for the released trochus and green snails.

Dispersion observed in the monitoring survey suggested that green snails moved slowly and they were killed by predators more if compared to trochus (Fig.7&16, Fig.3&12). Similar tendencies also appeared in the additional releasing experiment (Table 7&8). At one year after the release, 293 trochus and 230 green snails were still missing (Table 3&6). Since those numbers were not small, it might be realistic to presume that some of them successfully discovered suitable habitats by themselves and dwelled in new places. Some are also expected to be staying at the shallow reef of the north-east of Uripiv Island. Since these areas are exposed to the prevailing easterly winds (=Trade Winds), detailed survey could not be done because of breaking waves. These shallow areas must be checked up in good seasons when the sea is calm (Picture 11).

5.2 Predation

Predation on trochus was classified into 3 types by the remarkable break-signs. Chopped shell (Picture 12), cut shell (Picture 13) and smashed shell (Picture 14). It is also known that some carnivorous snails kill trochus without breaking shell. Only hermit crab attacks were actually observed during the survey.



Picture 12. Top-chopped trochus shell.

Possible predators: Crabs



Picture 13. Cut top shell (photo: *Tectus pyramis*).

Possible predators: Crabs, Hermit crabs (if lip damaged)



Picture 14. Smashed top shell (photo: *Tectus pyramis*).

Possible predators: Larger crabs, Mantis crabs, Puffer fish (Balloon fish) & Wrasses

Predation upon green snail juveniles seemed worse. Hatchery bred juveniles had never experienced such attacks from predators and also their shells might be not so thick enough to protect themselves. Quality of the seeds should be the most concern if reseeding program with artificially bred juveniles would be continued. Dead green snails at the releasing point always showed the same kinds of break-sign at their shoulders (Picture 15-17). Although octopi and rock crabs were most suspicious, true predators were not yet determined. Many potential predators, such as crabs, hermit crabs, mantis crabs, spiny lobsters, octopi, turtles and some fish species, such as wrasses, puffer fishes, rays and sharks, could occur at the releasing area (Yamaguchi,

1993). Predators must be identified before the full-scale releasing. Cage trap will be ideal to examine potential predators at the proposed releasing site. Test release with small number of the target species must be essential before the full scale releasing. This will include study on relationship between predators and escape sizes at the site where spawners group would be set up.



Picture 15. Broken shoulder. Green snail shells typically broken by unknown predators. Possible predators: Larger crabs, Octopi



Picture 16. Green snail shell cut from shoulder. Possible predators: Puffer fish (Balloon fish), Mantis crabs



Picture 17. Green snail shells cut from lip. Possible predators: Larger crabs, larger hermit crabs

5.3. Local population

Several surveys revealed that local population of trochus and green snail still existed in the monitoring station at very low level. During one year assessment, the total of 5 (4 alive and 1 dead) native trochus and 6 (5 alive, 1 dead) native green snails were caught by chance. These local populations should be carefully conserved together with introduced ones.

6. Recommendation for the Uripiv program

6.1. Fishing ban

National ban on green snail fishery will be effective until October 2020. In principle, the community must obey the Vanuatu Fisheries Regulation. Apart from the present local Conservation Areas, a new ban should be put on fishing of trochus at the whole coastal area of Uripiv Island at least for 5 years. Thus local population and the released population will be protected. Just before the end of the ban, stock-assessment survey should be planned together with VFD. After the survey the villagers will decide themselves how to remove the ban and how to reopen trochus fisheries. If recovery of the stock is limited, the ban will be extended for a certain period of time. The VFD will be able to give advice to the Uripiv community on this matter.

6.2. Transplantation of adult trochus and green snails

Reseeding with hatchery reared juveniles was verified to be costly and less effective. It is better to give up further seed releases to Uripiv Island. The present project revealed in North Efate that reintroduction of a lot of mature individuals was the easiest and most effective way to establish a new spawners group. Nevertheless the latter will be also very costly, high survival can be expected, followed by quick recruitments.

The present reseeded program should be continued with the method of accumulating a large number of adults at the present releasing point. Relocation of local trochus and green snails from the whole coastal area of Uripiv Island to the releasing point should be conducted periodically, for example, once a year. Adult relocation from the other islands, for example, from the mainland of Malakula will be also considerable. If it can be realized, preliminary surveys must be carried out together with villagers again to seek more suitable releasing sites.

References

- Amos, M. 1991. History and present status of the trochus resource in Vanuatu- Country statement. *Workshop on Trochus Resource Assessment, Development and Management, Port Vila, Vanuatu. 13 May-2 June 1991.* FAO/SPADP. 11pp.
- Bour, W. and R. Grandperrin, 1985. Croissance des trochus à Vanuatu. [Growth of trochus in Vanuatu.] *Notes et Documents d'Océanographie 14:* 31 pp. ORSTOM, Port Vila, Vanuatu
- Yamaguchi, M. 1993. Green snail. *In Nearshore Marine Resources of the South Pacific.* USP/IPS, FFA, ICOD. p497-511.

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Activities	Period																				In charge of Activity		
	2014				2015				2016				2017				2018				VFD	JICA	Others
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Output 1: To strengthen coastal resource management measures																							
1.1: Establish MPA committee																							
1.1.1: Liaise Lelema Council of chiefs meetings																							Chief Mormor
1.1.2: Organize community meetings																							Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.1.3: Select MPA committee members 4 members (women, youth, Park Ranger, Turtle monitor) per community x 2 = 8 members include more members such as tourist agent?																							Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.1.4: Formulate MPA committee																							Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.2: MPA rules and regulations																							
1.2.1: Make draft of MPA rules and regulations																							Max in Lelepa, Harry in Mangaliliu
1.2.2: Present the draft to community and get feedback																							Max in Lelepa, Harry in Mangaliliu
1.2.3: Finalize the rules and regulations																			© (George)				MPA committee chairman
1.2.4: Print the rule and regulations																			©	©			
1.3: Awareness for MPA																							
1.3.1: Media Radio/ TV/ news papers																							MPA committee

1.3.2: Distribute MPA booklet to community	■								MPA committee
1.3.3: Put billboard in several places	■								Chief Mormor/NGO
1.4: Patrol and security									
1.4.1: Patrol the area by Park rangers	■	■	■	■	■	■	■		Max and Harry
1.4.2: Patrol the area by Turtle monitors (NGO)	■	■	■	■	■	■	■		William and Harry
1.5: Monitor and Evaluate									
1.5.1: Monitor Trochus, Green Snail & Giant Clam						Every 6month, 2014-2017	⊙		MPA committee
1.5.2: Monitor Land Crab & Coconut Crab						Every 2years, 2014-2017	⊙		MPA committee
Output 2: To create/strengthen alternative income generations as supporting measures									
2.1: FAD fishing diversification of target species									
2.1.1: Acquire deep sea FAD materials	■	■	■	■	■		⊙		FAD committee
2.1.2: Construct and deploy deep sea FADs	■	■	■	■	■		⊙		FAD committee
2.1.3: Monitoring and data collection							⊙		FAD committee
2.1.4: Maintenance and replacement							⊙		FAD committee
2.1.5: Newly introduced gear (DBS, drop line etc) test fishing	■	■	■	■	■		⊙		FAD committee
2.2: Fishermen's house as fish market									
2.2.1: Select a site in Lelepa	■								MPA committee (Lapusaru and Billy)
2.2.2: Select manager	■								MPA committee
2.2.3: Construct a house	■								Lelema community
2.2.4: Install solar deep freezer	■								Donor
2.2.5: Sales of fish	■								Fishermen house manager
2.2.6: Keep record of fish sales	■								Fishermen house manager
2.2.7: Monitor the operation						every 3 month, 2014 - 2017			MPA committee

2.2.8: Follow-up training (fish handling, record keeping/analysis etc)	once/ year or necessary										©		donor
2.3: Create/strengthen eco-tourism													
Idea 1: Giant clam garden for snorkeling tour													
Idea 2: Fish and agriculture Local road market for fresh fish and vegetable													
Idea 3: Shell polishing for local shell products													
Idea 4: Fish café for natural local food and drinks													
Idea 5: Traditional culture (dancing, string band) & introduction of Roimata domain													
Idea 6: Modified canoe (sail and OB engine) for economic fishing and tourist attraction													
2.3.1: Organize community meeting with Minister of Tourism, Officer in Shefa													Chief Mormor and council chiefs
2.3.2: Elect market committee members													Chief Mormor and council chiefs
2.3.3: Organize planning workshop													Market committee
2.3.4: Liaise fund for local road market													Market committee
2.3.5: Select a site for local road market													Chief Mormor
2.3.6: Construct a house for local road market													Lelema community
2.3.7: Install furniture, toilet, water tank & storage													Market committee
2.3.8: Promote Lelema Echo-tourism by media													Market committee
2.3.9: Operate Local road market													Manager of Market committee
2.3.10: Keep sales record													Manager of Market committee
2.3.11: Monitor & evaluate operations	Every 6month, 2014-2017										©		DOT/Market

				committee/Shefa tourism
2.3.12: Follow-up training Workshop	once/ year or necessary. 2014-2-17	©		DOT/Market committee/Shefa tourism

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Activities	Period																In charge of Activity						
	2014				2015				2016				2017				2018				VFD	JICA	Others
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Output 1: Strengthening the AKTE committee																							
1.1: organize continuous meeting with board members and stakeholders (3 times / year) to review and update the plan																							Chairman of AKTE
1.2 : MPA committee has to raise up some funds (through the sales of kava, rental of fishing net, contribution from community, fishermen's house, and shell polishing committee)																							AKTE secretary and chairman
1.3: Talk with JICA to make study group to Aneityum																							IC NET
Output 2: Improvement of Knowledge and skills of AKTE committee through training																							
2.1: Organize training on fish handling (use of ice)																					©	©	
2.2: Teach fisherman how to keep record																							FAD committee
2.3: training on how to make stock assessment and surveys																					© (Kevin and Sompert)		Chairman of AKTE
2.4: Construct and training on modified canoe																							AKTE and Malapma province
2.5: Provide training on fresh prawn farming and fish farming																					© (Kevin and Sompert)		TVET

2.6: Provide training on diving guide								hospitality, tourism & Leisure training centre + TVET
2.7: Provide training on tourist guide								hospitality, tourism & Leisure training centre + TVET
Output 3: Coastal fisheries resource management awareness and monitoring								
3.1: community makes announcement to church and nakamal about the activities of AKTE								AKTE member in each community
3.2: advertisement of AKTE management and activities (Video)							© (Kevin and Kazu JOCV)	
3.3: give out information on the importance of mangrove to nearby communities							©	AKTE (all members)
3.4: obtain information from DOF for the proper management of mud crab and land crab							©(Kevin and Sompert)	AKTE (Chairman)
3.5: set up proper management rule for mud crab and land crab							©(Kevin and Sompert)	AKTE (Chairman)
3.6: Review the system of limiting the selling amount of land crab by each area								AKTE
3.7: Introduce the ban on the sales of land crab with eggs								AKTE

3.8: Introduce TAC (Total Allowable Catch) and rotating harvest								⊙		AKTE
Output 4: Alternative										
4.1: further study on the yacht mooring								⊙	⊙	AKTE, Malampa Tourism Committee
4.2: modify yacht mooring										
4.3: Talk with Fisheries and P&O to arrange for cruise ship route to Crab Bay								⊙		AKTE
4.4: Obtain glass bottom boat, floating jetty, floating bungalow for the tourism development								⊙		AKTE
4.5: Obtain horse carte for the tourism development										AKTE, MAPEST plantation
4.6: Find market for the shell polishing products									⊙	AKTE
4.7: put display in the fish market										Malili (Manager of the fish market), IC NET
4.8: start sales in nearby bungalow in Lakatoro and in Port vila										Chair lady of the shell polishing committee
4.9: negotiate and sell the shell polishing products to the ladies in Wala (they in turn sell to the cruise ship)										Chair lady of the shell polishing committee
4.10: Introduce modified canoe (both for fishing and tourism purpose)										Chairman of the FAD committee
4.11: Set up new fishermen's house in Crab Bay area									⊙	AKTE, Chairman of the FAD committee

4.12: Create more advertisement for the Crab Bay as tourist destination										⊙		AKTE
4.13: Deploy 3 new deep sea FADs										⊙		FAD committee
4.14: Carry out FAD maintenance and activities like record keeping and teach other fishers how to keep record										⊙		FAD committee
Output 5: Environmental management												
5.1: Create new walking track (path) in AKTE area												AKTE
5.2: Beautification of Crab Bay point (planting, cleaning, and waste management)												AKTE, Vango, Forestry, Province, Agriculture, Environment, and Tourism
5.3: Construct toilet in Crab Bay												AKTE
5.4: Upgrade bungalow and install kitchen utensils												AKTE
5.5: Establish proper water system in Crab Bay												AKTE
5.6: Create signboard for tourist attraction activities											⊙	AKTE, Province
5.7: transplant giant clam											⊙	Lelepa MPA committee
5.8: Conduct stock assessment of trochus											⊙	

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Activities	Period																In charge of Activity		Remarks
	2014				2015				2016				2017				Gov.	Community	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Output 1: Promotion of Income Generation Activities																			
Output 1.1: Increase fish catch																			
1.1.1: Deploy more FADs																		FAD committee	Deployment Umeji 2014 Deployment Port Patrik 2014 Deployment Anelcahut 2015
1.1.2 : Test fishing by new fishing methods																		Fishers association and FAD committee	
1.1.3: Apply for duty exemption of Fuel for fishing																		Fishers association	
1.1.4: Establish the supply system of fishing gears																		Fishers association	
1.1.5: Hold training on engine maintenance and repair (once/year)																	DOF VMC	Fishers association	
1.1.6: Sail canoe project utilizing traditional canoe																		Fishers association	Zone 1: Canoe Project
1.1.7: Encourage canoe fishing																		Fishers association	
Output 1.2: Add-value of local fish																			
1.2.1: Establishment of fishermen center																			DOF supplies cable
1.2.2: Produce fish fillet																		Fishers association	
1.2.3: Sell fish to Tana and cruise ship																		Fishers association	
1.2.4: Operate more fish café for the sales of local fish																		Mystery Island MPA, Fish café manager, Tourism committee	
Output 1.3: Other Alternative of Income Source																			

1.3.1: Make and sell shell polishing products (sell craft tags)							Shell polishing committee	
Output 2: Strengthening of Local Government System								
2.1: More awareness to community in Analcauhat (e.g. Church, nakamal)							Aneityum Area secretary	3 times per year
2.2: Promote new CBCRM management plan (Awareness to Analcauhat communities 2014)							Reuben, Joseph, Joel	
2.3: Set up MPAs inside Umeji (management plan)						DOF	Environmental Unit	
2.4: Set up MPAs inside Port Patrick (management plan)						DOF	Environmental Unit	
2.5: Make sure all the local law and fisheries are strictly followed							Aneityum area secretary	
Output 3: Establishment and Management of Fishermen Association								
3.1: Establishment of fishermen association							Reuben, Joseph, Joel	
Output 4: Improvement of Resource Management Measures								
4.1: Carry out monitoring activities for lobsters and fish							Reuben and Joseph	
4.2: Manage lobster data by area							Reuben and Joseph	
4.3: Manage commercial fisheries resource by area							Reuben and Joseph	
4.4: Review Mystery Island Adoptive Management Plan							Analcauhat chief council, Tourism project, MPA committee	
4.5: Set up MPA inside Analcauhat							MPA committee, Chiefs council	
4.6: Reporting system inside MPA and Tourism board of management							MPA committee, Chiefs council	
4.7: Others: Analcauhat zone's area report to Chiefs council (Analcauhat MPA)							MPA committee, Chiefs council	

4.8: Gear restriction (hooks, line, net etc)3 times per year		Area secretary, Joseph, Reuben, Joel	Community restriction, based on each area
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Project for Promotion of Grace of Seas in Coastal Villages, Phase 2

Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited
Secretariat of the Pacific Community



Summary of National Seminar on Community-based Coastal Resource Management (CBCRM)

1. Objective:

- To share the experiences and learnings of the pilot project with the communities of other islands; and,
- To discuss the future programs for community-based coastal resource management in Vanuatu

2. Schedule (refer to Appendix 1 about details):

7 October (Tuesday) to 10 October (Friday), 2014

3. Venue:

- Presentation & Discussion (7, 8 and 10 Oct.): Conference room (Vanuatu Meteorology & Geohazards Department), Port Vila
- Field Visit (9 Oct.): Mangaliliu and Lelepa Island

4. Participants (refer to Appendix 2-1, 2)

- Core fishermen at target provinces
- Fisheries development officers in target provinces
- Officers in Vanuatu Fisheries Department
- Project experts

5. Seminar Contents

In this National Seminar on CBCRM, the participants shared knowledge and discussed the following main agenda.

- Concept of CBCRM and overview of the activities implemented under the Project for Promotion of Grace of Seas in Coastal Villages (GOS)
- Confirmation about fishing activities in participants fishing areas
- Challenges and constrains about CBCRM activities in each provinces. Solution for these issues

6. Summary of Discussion

Participants were divided to three groups according to province which they were belong to and discussed about challenges and constrain which affect negative impact to their CBCRM. After that they listed solutions for these issues. Challenges, constrains and solutions are analyzed by four perspectives such as “Economy and Production”, “Resource and Environment” “Socio-Culture” and “Institutional and Governance”.

Through the discussion, they shared ideas which were implemented in each project site and cooperate with each other continuously. Summaries of discussion are described below.

(1) Challenges and constrains

1) MALAMPA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institutional and Governance
<ul style="list-style-type: none"> - Fishing Aggregate devices was set up on some islands only and in some areas, it was installed for a short period before it was flowed out. - Poor fish market - No Ice Machine - Poor transport to the fish market - No proper fishing gears 	<ul style="list-style-type: none"> - Not enough understanding on ecological studies - Crown of Thorns starfish - Poor waste management - Pollution - Coastal Erosion - Climate change causing damaged reefs and dead shells - Deforestation of coastal vegetation e.g. Mangroves and other coastal trees 	<ul style="list-style-type: none"> - High population growth rate - No respect for tabu/conservation areas - Trespassing - Overfishing of reef resources 	<ul style="list-style-type: none"> - Lack of management for example finance - Chief system is not very effective - No establishment of a community's fisherman association - Weak management committees - No fisheries officer - No training on fish handling - Need capacity building on knowledge and understanding of conservation in the village or community

2) SHEFA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institution and Governance
<ul style="list-style-type: none"> - Scuba diving - Land lease to foreigners is affecting coastline because of disputes - Pressure of coastal resources due to development - Construction of wharf - High demand of fish - No proper financial support - Tourism activities - No proper fishing 	<ul style="list-style-type: none"> - Over harvesting of coastal/reef resources - Crown of thorns starfish - Coral bleaching - Sand and coral mining - Pollution - Climate change - Soil erosion - No proper waste control - Deforestation - Logging 	<ul style="list-style-type: none"> - No management plan - Human impact - Urban drift - Limited facilities 	<ul style="list-style-type: none"> - Chief title disputes - Land disputes - Population growth - Conflict of interest - Lack of awareness - Weak enforcement of community regulations - Lack of education - Poaching - Disrespect - Use of illegal gears for fishing - Transport

<p>technologies</p> <ul style="list-style-type: none"> - Lack of training to methods of coastal resource management 			<ul style="list-style-type: none"> - Lack of communication - Fisheries regulations not clear enough - Enforcement of fisheries regulation is weak - Zoning - Lack of proper training
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3) TAFEA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institutional and Governance
<ul style="list-style-type: none"> - Lack of livelihood options provided - Overfishing - Not enough fish marketing centers - Economic Influence - Lack of fish presentation methods 	<ul style="list-style-type: none"> - Crown of thorns starfish - Lack of understanding of ecological status - Lack of scientific Information's - Invasive Species - Coastal Erosion 	<ul style="list-style-type: none"> - Over-harvesting of coastal resources possibly due to high population growth rate leading to excess demand - Deforestation leading to soil erosion and causing destruction of reef resources - Kava drinking causing laziness and ignorance - Stealing - Sandalwood harvesting 	<ul style="list-style-type: none"> - Poor governance - Unresolved land disputes - Poor management of infrastructure - Weak law enforcement - Not complying to the fisheries regulations - No respect to tabu/conservation area - Lack of awareness - Poor coordination/management

(2) Solution for Issues

1) MALAMPA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institution and Governance
<ul style="list-style-type: none"> - Conduct stock assessments on fish - Establish management on fishing gears and methods used - Establish trainings for offshore fish species - Establish Ice Machines and fish storage facilities as well as scuba diving - Develop alternative 	<ul style="list-style-type: none"> - Establish management plan for coastal erosion - Conduct and increase awareness on coastal erosion - Location of sites for replanting - Conduct a committee on collection of Crown of Thorns starfish - Awareness on waste 	<ul style="list-style-type: none"> - Strengthen capacity building of communities - Tourism and resource management - Encourage traditional management practice in communities - Encourage traditional use of canoe for fishing - Reduce and resolve land disputes 	<ul style="list-style-type: none"> - Create plan to control reef and land resources - Establish network with tribes of each community through chiefly system - Regular community meeting - Strengthen VFD regulations and enforcement

<p>source of income</p> <ul style="list-style-type: none"> - Provide training on fish marketing and value-adding 	<p>management</p> <ul style="list-style-type: none"> - More awareness on Tabu Areas - Conduct awareness on MPA - Control fishing methods (management plan) - Develop a Crown of Thorns management plan 	<ul style="list-style-type: none"> - Encourage community participation in fisheries management - Strengthen NGO networks to function properly 	<ul style="list-style-type: none"> - Management plan should be registered by Vanuatu Fisheries Department (VFD) - Increase technical support by Government and Provincial Government
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2) SHEFA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institution and Governance
<ul style="list-style-type: none"> - Improve marketing for fish, solar freezer and fish café - Provide training and financial support on fresh water fish and prawn farming, fishing technology, fishing safety and shell polishing - Develop other alternative sources of incomes e.g. Eco-Tourism - Increase FAD fishing technology - Establish ice making facilities, fish storage and scuba diving - Increase training for offshore fish species - Provide training on fish marketing and value-adding 	<ul style="list-style-type: none"> - Establish more tabu areas and MPA's - Develop Aquaculture and livestock as alternative source of incomes - Department of Fisheries to help ban Trocha in Efate for 5 years - Control human activities and ban illegal fishing e.g. use of Gill nets - Conduct stock assessments for resources such as trocha's, green snail and clam shells - Establish management measures to control sand and coral mining - Establish small and big scale anchorage - Decrease coastal erosion by reforestation including mangroves - Conduct stock assessments on 	<ul style="list-style-type: none"> - Strengthening indigenous governance system - Resolve land disputes - Enforcement of CBCRM plan - Improvement of custom governance system - Reduce human activities affecting fisheries resources - Encourage traditional management practice in coastal communities - Encourage traditional use of canoes for fishing - Encourage community participation in fisheries management - Strengthen local NGO networks to function properly 	<ul style="list-style-type: none"> - Enforce fisheries and community regulations - Conduct awareness on population growth (family planning) - Recognition of NGO's and government departments - Make sure there are no conflict of interest, transparency should prevail - Roles of individuals in the community should be respected e.g. government, NGO's, Volunteers, Chiefs, etc. - Community management plan should be registered by the Vanuatu Fisheries Department (VFD) - Increase technical support by government and NGO's

	<p>invertebrates</p> <ul style="list-style-type: none"> - Establish management on fishing gears used (has to be environment friendly) 		
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3) TAFEA Province:

Economy and Production	Resource and Environment	Socio-Culture	Institution and Governance
<ul style="list-style-type: none"> - Establish mechanism for royalty payment for resource access - Identify livelihood options - Availability of fish marketing facilities - Improve knowledge and capacity on fish value-adding - Improve management infrastructure 	<ul style="list-style-type: none"> - Improve waste management - Improve information and understanding on ecological studies - Improve community participations on Crown of Thorns clean-up - Reduce coastal erosion by controlling deforestation - Improve access to protein source - Control fishing activities - Improve enforcement of traditional tabu areas 	<ul style="list-style-type: none"> - Improve knowledge on gear management - Improve knowledge through awareness on traditional boundaries - Improve cooperation between chiefs - Strengthen traditional fishing knowledge/methods - Strengthen respect on Tabu areas 	<ul style="list-style-type: none"> - Strengthen law enforcement on village level - Strengthen cooperation - Improve mainstreaming and cooperation between government and stakeholders - Develop ISD development plan

7. Photos of National Seminar



More than 50 participants gathered and learned concept of CBCRM and shared their experience.



Mr. Steward, Chairman of FAD Management Committee in Malakura, led discussion about challenges and constrains which affect negative impact to their CBCRM.



Demonstration and practice of Shell Polishing. Participants from project sites instructed other participants in how to make shell crafts like eye rings and necklaces.



Observation of project activities in Lelepa island. Giant clams transplanted from Tonga in GOS- Phase 1 are growing up in CBCRM area and expected to be sources of tourism attraction.

Annex 1 Schedule of National Seminar

Date	Time	Contents
7 October (tue)	08:30 – 09:00	Opening Session
	09:00 – 09:30	Presentation: Overall Outline of the Project
	09:30 – 11:00	Presentation: Management Plan & Pilot Project at Target Areas (North Efate, Malekula, Aneityum: 30 mins for each)
	11:00 – 12:30	Presentation: Fishing Activities at Other Sites (Aniwa, Futuna, Nguna, Pele, Ambrym, South West Bay: 15 mins for each)
	12:30 – 14:00	Lunch
	14:00 – 15:00	Presentation: FAD Fisheries Management at Pilot Project
	15:00 – 16:00	Presentation: Green Snail Propagation and Giant Clam Ocean Nursery at Lelepa – Mangaliliu
8 October (wed)	08:30 – 09:30	Presentation: Fishing Data Recording & Livelihood Activities at Pilot Project
	09:30 – 10:00	Explanation of Problem and Objective Analysis
	10:00 – 12:00	Problem Analysis on Coastal Resource Management at Each Province (Shefa, Malampa, Tafea)
	12:00 – 13:30	Lunch
	13:30 – 14:00	Move to Fisheries Department
	14:00 – 14:30	Observation: Hatchery Activity
	14:30 – 16:30	Demonstration & Practice: Shell Polishing
9 October (thu)	08:00 – 09:00	Move: Port Vila to Mangaliliu
	09:00 – 10:30	Observation of Activities at Mangaliliu <ul style="list-style-type: none"> - Giant Clam Ocean Culture - Modified Canoe Operation - Freshwater Prawn Culture - Shell Craft Making, and etc.
	10:30 – 12:30	Observation of FAD Fishing <ul style="list-style-type: none"> - Observation of FADs
	12:30 – 13:30	Lunch at Lelepa island
	13:30 – 15:30	Observation of Activities at Lelepa island <ul style="list-style-type: none"> - FAD Fishing Management - Giant Clam Cage Culture - Shell Craft Making - Lelepa Tourism Program, and etc.
	15:30 – 17:00	Move: Lelepa to Port Vila
10 October (fri)	08:30 – 12:00	Objective Analysis on Coastal Resource Management at Each Province (Shefa, Malampa, Tafea)
	12:00 – 14:00	Lunch

	14:00 – 16:00	Presentation & Discussion on Coastal Resource Management at Each Province (Shefa, Malampa, Tafea)
	16:00 – 16:30	Closing Session

Annex 2 Participants list of Core fishermen at target provinces

	Name	Community	Position
1	Joseph Abel	Emae	Chairman of MPA Committee
2	Willie Kalo	Emae	Secretary of MPA Committee
3	Frank Kalo	Emae	Chairman of Fisheries Association
4	Charlie Manuas	Pele	Chairman of MPA Committee
5	Willie Kenneth	Pele	Member of MPA Committee
6	Nicole Michael	Nguna	Chairman of MPA Committee
7	Tatu Whitely	Nguna	Member of MPA Committee
8	Bong Masing	Ambrym	Member of Fishermen Association
9	John Temar	Ambrym	Member of Fishermen Association
10	Kalros Blas	South West Bay	Member of Fishermen Association
11	Peter Isno	South West Bay	Chairman of Fishermen Association
12	Sumu Yapai	Futuna	Fisherfolk Association
13	Seimo Fony	Futuna	Fisherfolk Association
14	Seirangi Edwin	Aniwa	Fisherfolk Association
15	Sura Naparau	Aniwa	Fisherfolk Association
16	Kalotiti Mormor	Mangaliliu	Chief of Managaliliu
17	Harry Kalkoa	Mangaliliu	Youth Leader of Coastal Resource Management
18	Billy Wilson	Lelepa	Chairman of FAD Management Committee
19	Max Kalsong	Lelepa	Youth Leader of Coastal Resource Management
20	Lapsaru Felix	Lelepa	Youth Leader of Coastal Resource Management
21	Trudy Kalotiti	Lelepa	Leader of Shell Polishing Activity
22	Salome Kalsong	Lelepa	Member of Shell Polishing Committee
23	Kalen Abbie	Lingarak	Chairman of Crab Bay MPA Committee
24	Jack Joseph	Hatbol	Chairman of AKTE Tourism Department
25	Kalmasing Peter	Hatbol	Member of Crab Bay MPA Committee
26	Hamilton Ambi	Louni	Member of Crab Bay MPA Committee
27	Susan Kaun	Louni	Chair Lady of Crab Bay Committee
28	Steward Roy	Uripiv	Chairman of FAD Management Committee
29	Malili Malisa	Uripiv	Manager of Lakatoro Fish Market
30	Reubem Neriam	Aneityum	Member of Mystery Island MPA Committee
31	Joseph Yasifu	Aneityum	Chairman of FAD Management Committee
32	Rawai Joel	Aneityum	Anelcauhat Fisherfolk Association
33	Tony Nemtia	Aneityum	Member of Mystery Island MPA Committee

34	Louis Johnny	Aneityum	Leader of Shell Polishing Group
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Appendix 3 Participants list of Fisheries development officers in target provinces, officers in Vanuatu Fisheries Department (VFD) and related organizations

1	Jimmy Willie	Sola	Fisheries development officer in Torba Province
2	Tambe Malcom	Saratamata	Fisheries development officer in Penama Province
3	Obed Alsen	Luganville	Principal Fisheries development officer in Northern Province
4	William Moris	Isangel	Fisheries development officer in Tafea Province
5	Kevin Moris	Lakatoro	Fisheries development officer in Malampa Province
6	Graham Nimoho	VFD	Project Coordinator, Manager, Fisheries Development Division
7	Sompet Gereva	VFD	Project Coordinator, Manager, Resource Assessment and Aquaculture Division
8	George Amos	VFD	Fisheries Development Officer, Shefa Province
9	Andrew William	VFD	Aquaculture Officer, Resource Assessment and Aquaculture Division
10	Kalna Arthur	VFD	Officer, Management and Policy Division
11	Jayven Han	VFD	Officer, Manager, Resource Assessment and Aquaculture Division
12	Rolenas Baereleo	SPC	Fisheries Officer
13	Pita Neinapi	SPC	Fisheries Officer
14	Kalo Pakoa	SPC	Fisheries Officer

SUMMARY RESULT

Regional Seminar on Community-based Coastal Resource Management

The Project for Promotion of Grace of the Sea in Coastal Villages in Vanuatu- Phase 2

1. Summary of the Regional Seminar

The regional seminar will be held to discuss future relevant programs on community-based coastal resource management in respective countries and the South Pacific region, based on the outcome of the Project for Promotion of Grace of Seas in Coastal Villages Phase 2. The project will be implemented by Vanuatu Fisheries Department and Japan International Cooperation Agency (JICA). JICA assigned IC Net Limited, a Japan-based consulting firm, to conduct the project. The participants in the seminar will be fisheries officers and coordinators responsible for coastal resource management from five target countries in Melanesian region; Fiji, Samoa, Solomon Islands, Tonga and Vanuatu.

2. Schedule (referring to Appendix 1):

13 October (Monday) to 16 October (Thursday), 2014: 4 days

3. Venue:

- Presentation and Discussion (13, 14 and 16 Oct.): Melanesian Hotel, Port Vila
- Visit to Fisheries Department (14 Oct.): Fisheries Department, Port Vila
- Field Trip (15 Oct.): Tagabe Freshwater Hatchery, Mangaliliu and Lelepa Island

4. Participants (refer to Appendix 2-1, 2)

- Fisheries officers engaged in CB-CRM in target countries:
 - Fiji, Samoa, Solomon Islands, and Tonga (2 participants in each country)
- Professor of University of the South Pacific (USP),
- Officers of Secretariat of the Pacific Community (SPC),
- Community leaders at the target communities in the project,
- Officers in Vanuatu Fisheries Department, and,
- Project experts

5. Seminar Content

The seminar participants discussed the future regional cooperation on coastal resource management, based on the outcome of the Grace of Sea Project. The seminar comprised the following components.

- Presentation on the CB-CRM programs in respective target countries,
- Sharing of the experience and learning of the outcome of the Grace of Sea Project by the presentation and field visit, and,
- Discussion on the future regional cooperation on CB-CRM promotion.

6. Summary of Discussion

On the first day, the participants of the target countries presented the country report on CB-CRM programs in their countries, and shared their knowledge and experiences of the CB-CRM activities among participants. They also learned the practices and outcomes of the project in the presentation session, such as the diversification of fishing methods with fish aggregating devices, the propagation and cultivation of marine shellfish, the data collection and analysis of fishing activities, and the income generation activities for coastal communities. On the third day, they visited the pilot project sites of North Efate (Mangalilu and Lelepa island) to observe the outcome of field activities, which were implemented under the Grace of the Sea project.

On the last day, the participants discussed the future regional cooperation on CB-CRM promotion, based on their learning and finding in the seminar. They formed three discussion groups in accordance with the topics, “FAD fishing”, “Sea shellfish culture” and “Income generation activities”. They discussed about challenges and constrains which occurred in respective topics, and listed possible solutions for these issues. The results of group discussion were presented and shared among all participants. (Referring to Appendix 3-1,2 and 3)

Appendix 1: Schedule of Regional Seminar

Date	Time	Contents
13 October (mon)	09:00 – 09:30	Opening Session
	09:30 – 10:00	Presentation: Coastal Resource Management in Fiji
	10:00 – 10:30	Presentation: Coastal Resource Management in Solomon Island
	10:30 – 11:00	Coffee Break
	11:00 – 11:30	Presentation: Coastal Resource Management in Samoa
	11:30 – 12:00	Presentation: Coastal Resource Management in Tonga
	12:00 – 13:30	Lunch Break
	13:30 – 14:00	Presentation: Coastal Resource Management in Vanuatu
	14:00 – 14:30	Presentation: Overview of the Grace of Sea Project
	14:30 – 15:00	Presentation: Pilot Project at North Efate
	15:00 – 15:30	Coffee Break
	15:30 – 16:00	Presentation: Pilot Project at Malekula
	16:00 – 16:30	Presentation: Pilot Project at Aneityum
14 October (tue)	09:00 – 10:00	Presentation: Regional Program and Networking for Coastal Resource Management (SPC)
	10:00 - 10:45	Presentation: USP's involvement in coastal resource management in the region
	10:45 – 11:30	Presentation: FAD Fisheries Management in Pilot Project
	11:30 – 12:15	Presentation: Green Snail Propagation and Giant Clam Ocean Culture at Lelepa – Mangaliliu
	12:15 – 13:30	Lunch
	13:30 – 14:00	Move: Hotel to Fisheries Department
	14:00 – 14:30	Observation: Hatchery Activities
	14:30 – 16:00	Demonstration & Practice: Shell Craft Making
16:00 – 16:30	Back to Hotel	
15 October (wed)	07:30 – 08:00	Move: Port Vila to Tagabe
	08:00 – 08:30	Observation of Tagabe Freshwater Hatchery
	08:30 – 09:00	Move: Tagabe to Mangaliliu
	09:00 – 10:30	Observation of Activities at Mangaliliu - Giant Clam Ocean Culture - Modified Canoe Operation - Freshwater Prawn Culture Shell Craft Making, and etc.
	10:30 – 12:30	Observation of FAD Fishing - Observation of FADs
	12:30 – 13:30	- Lunch at Lelepa island
	13:30 – 15:00	Observation of Activities at Lelepa island - FAD Fishing Management - Giant Clam Cage Culture - Shell Craft Making Lelepa Tourism Program, and etc.
	15:00 – 16:30	- Visit to Chief Roi Mata Domain
16:30 – 18:00	Move: Lelepa to Port Vila	
16 October (thu)	9:00 – 12:00	Group Discussion on Regional Cooperation of CBCRM Activities
	12:00 – 13:00	Lunch
	13:00 – 14:30	Group Discussion on Regional Cooperation of CBCRM Activities
	14:30 – 16:00	Presentation & Discussion of Result of Group Discussion
	16:00 – 16:30	Closing Session

Appendix: 2-1: Participants List of Target Countries and Relevant Organizations

No.	Name	Country/ Organization	Position
1	Ms. Seiloni Inoke	Tonga	Acting Head of our Community Section, Fisheries Division, MAFFF
2	Mr. Tonga Latu Tuiano	Tonga	Officer, Aquaculture Unit, Fisheries Division, MAFFF
3	Mr. Aotalavou Tauaefa	Samoa	Principal Fisheries Officer, Advisory Services Section, Fisheries Division, MAF
4	Ms. Ulusapeti Tiitii	Samoa	Principal Fisheries Officer, Inshore and Aquaculture Sections, Fisheries Division, MAF
5	Ms. Rosalie MASU	Solomon Islands	Deputy Director, Inshore Fisheries Division, MFMR
6	Mr. Peter Fitz Husi 'Au' Ana KENILOREA	Solomon Islands	Senior Fisheries Officer, Provincial Fisheries Development and Extension Services, Fisheries Division, MFMR
7	Ms. Adi Mere Mua Siqila	Fiji	Senior Fisheries Officer, Fisheries Department, MFF
8	Ms. Neomai Wati Ravitu	Fiji	Acting Senior Fisheries Officer, Fisheries Department, MFF
9	Mr. Esaroma Ledua	USP	Former Fisheries Officer in Fiji Fisheries Department. Ph.D. course in University of the South Pacific
10	Mr. Moses John Amos	SPC	Director, Division of Division of Fisheries, Aquaculture and Marine Ecosystems (FAME)

Appendix 2-2: Participants List of Vanuatu

No.	Name	Organization / Community	Position
1	Mr. William Naviti	VFD	Acting Director
2	Mr. Graham Nimoho	VFD	Manager, Development and Capture Division
3	Mr. Sompert Gereva	VFD	Manager, Research and Aquaculture Division
4	Mr. Obed Alsen	VFD	Principal Fisheries Development Officer in Northern Province
5	George Amos	VFD	Fisheries Development Officer, Shefa Province
6	Mr. Kevin Moris	VFD	Fisheries Development Officer in Malampa Province
7	Mr. William Moris	VFD	Fisheries Development Officer in Tafea Province
8	Mr. Jimmy Willie	VFD	Fisheries Development Officer in Torba Province
9	Mr. Tambe Malcom	VFD	Fisheries Development Officer in Penama Province
10	Mr. Andrew William	VFD	Aquaculture Researcher, Research and Aquaculture Division
11	Mr. Kalna Arthur	VFD	Officer, Management and Policy Division
12	Mr. Kalotiti Murrur	Mangaliliu	Chief of Managaliliu
13	Mr. Billy Wilson	Lelepa	Chairman of FAD Management Committee
14	Mr. Max Kalsong	Lelepa	Youth Leader of Coastal Resource Management
15	Mr. Lapsaru Felix	Lelepa	Youth Leader of Coastal Resource Management
16	Mr. Malili Malisa	Uripiv	Manager of Lakatoro Fish Market
17	Mr. Steward Roy	Uripiv	Chairman of FAD Management Committee
18	Mr. Kalmasing Peter	Hatbol	Member of Crab Bay MPA Committee
19	Mr. Kalen Abbie	Lingararak	Chairman of Crab Bay MPA Committee
20	Mr. Reubem Neriam	Aneityum	Member of Mystery Island MPA Committee

21	Mr. Joseph Yasifu	Aneityum	Chairman of FAD Management Committee
22	Mr. Kalros Blas	South West Bay	Member of Fishermen Association
23	Mr. Joseph Abel	Emae	Chairman of MPA Committee
24	Mr. Willie Kalo	Emae	Secretary of MPA Committee
25	Mr. Frank Kalo	Emae	Chairman of Fisheries Association

Appendix 3-1: Result of Group Discussion in FAD Fishery Development

Important Issues on FAD Fishery			
1. Cost of FAD	2. Technique of FAD	3. FAD Monitoring	4. FAD Management
FAD cost is high	Lack of knowledge on FAD fishing	Lack of monitoring	Community awareness
High cost of materials	Lack of fishing technology	Need effective monitoring approach	Limited / lack of linkage to resource management
Insufficient funding	Lack of fishing skills around FAD	Lack of information on the FAD performance	Limited / lack of fishers association involvement
Safety cost is high	Limited national capacity on FAD construction and deployment	Lack of data base	Lack of sustainability of FAD program
Dependence on donor agency for FAD materials	Lack of understanding of species to be targeted at different depth	No standardized FAD data collection format	Sustainability of fishing activities around FAD
Unavailability of materials		Lack of impact studies of sustainability of coastal reef resources	Impact of aggregating fish around FAD on the population stock
			Distance of FAD vs safety of fishers
			Vandalism
5. Marketing	6. FAD Mechnology	7. Policy	
Acceptance of taste of FAD caught to community compared to reef fish	Difficult to get bottom condition by eco-sounding	Lack of support from government	
More training and capacity building	Lack of donor regional cooperation on FAD design	Gender balance	
Availability of local market for FAD caught fish	Lack of fishing ground around communities	Dispute and conflict between fishers	
	No fish around FAD	Lack / limited commitment from national government	
	Lack of standardized FAD design		

Countermeasures on Important Issues on FAD Fishery

1. Cost of FAD and 6. FAD Technology	2. Technique	3. FAD Monitoring	4. FAD Management
Community-based FAD design	Conduct training in FAD fishing technology at different layers	Promote data collection	Establish FAD management framework by community
Improve accessibility by community	Use of experienced fishermen / experts to conduct training	Cost benefit of the FAD	Establish FAD management committee
Make cost-effective FAD	Produce manual for FAD fishing technology	Productivity of FAD	Develop control measures for FAD users
Use locally or domestically available materials	Preparation of logistic for training	Show the benefit of the data collection	Rules& regulations by community based
Construction and deployment by community	Provide fishing handling equipment	Develop incentives to motivate fishermen to provide data	Enforcement / compliance
Management of FAD by community	Provide fishing gear material of training	Fisher's log book being utilized as income evidence for bank loan	Action plan 1-3 years
Sustainability of resource management	Involvement of community fishers for training	Provide technical support letter for fishing projects in communities where fishers keeping data records	Practice rules and regulations
	Conduct monitoring of fish activities	Give awards to best fishers who keep records	Conduct consultation with stakeholders
	Conduct 3 month follow-up training for fishing activity	Awareness activities to fishers	Review and modification
		Produce feedback to fishers	Fund generating by community
5. Marketing		7. Policy	Write project proposal seeking aid assistance to government
Identify market option		Strengthen partnership between communities and government	Fishers user's fee to utilize FAD
Value-adding of products		Review policy through FAD fishery experience	Sporting fishing by local sport fishing operators
Conduct training on food technology for pelagic species		Review management framework to accommodate new issues (gender)	FAD monitoring and maintenance
Training on cooking technique such as sashimi, smoking, salting		Recognition of community initiatives by government	Financial management
Processing of pelagic products			Fish catch collection data
Awareness of pelagic species products			Rise awareness through media, newspapers, leaf-lets, posters etc.
Seafood safety awareness			Conduct training and capacity building on fishing technology, data collection, and fish handling
Establish solar-freezer fishers house			
Creel survey by community			
Creel / port sampling			

Appendix 3-2: Result of Group Discussion in Marine Shellfish Propagation

List of Sea Shellfish (and Fish) Farmed in Fiji, Samoa, Solomon, Tonga, and Vanuatu					
Purpose of Culture	For Restocking	For Restocking / Commercial	For Commercial	For Commercial / Other	For Other Purposes (Food Security etc.)
Species	Trochus (Fiji, Vanuatu, Tonga, Samoa)	Black-lip Pearl Oyster (Fiji)	Wing Pearl Oyster (Tonga)	Sea Grape (Samoa)	Tilapia (Solomon, Samoa)
	Giant Clams (T. Gigas, Vanuatu)	T. Gigas (Tonga)	Seaweed Euchema (Solomon, Tonga, Fiji)	Tilapia, Prawn (Fiji)	Grouper, Milkfish (Tonga)
	Green Snail (Vanuatu)	Giant Clams (Samoa, Vanuatu)		Chinese Carp (Fiji)	
	Peanut Fish, Stichopus horrens (Solomon)				

Availability of Facility and Technique for Sea Shellfish Culture by Species and Country

Species	Country	Facility	Technique					Remark
			Bloodstock	Spawning	Nursery	Releasing	Monitoring	
Trochus	Fiji	○	△	○	○	○	○	No spawning trail so far. Giant clam has more focus for the research.
	Vanuatu	○	○	○	△	△	△	No ocean nursery. Not enough ecological information, need more supply of trochus shell for processing
	Tonga	○	○	○	○	○	○	
	Solomon	×	○	×	×	×	×	Future development is necessary
	Samoa	○	○	done long time ago	×	×	○ (stock assessment)	Spawning operation in the future
Green Snail	Vanuatu	○	○	△	△	△	△	Need value-adding for meat, not only for the shell, need assistance from experts
	Solomon	×	△	×	×	×	×	
	Tonga	△	△	△	△	△	△	
	Samoa	○	×	×	×	×	×	
Giant Clams	Fiji	○	△	△	△	△	△	Need technical assistance
	Vanuatu	○	○	○	○	○	○	Except T. Gigas
	Tonga	○	○	○	○	○	○	
	Solomon	△	○	×	×	×	×	Need a new hatchery for shellfish. (hatchery for sea cucumber already exists)
	Samoa	○	○	○	○	○	○	
○	Available		△	Partly Available		×	Not Available	

Actions Needed in Short, Medium, and Long Term for Development of Sea Shellfish Culture in the Region

	Activities	In Charge	Remark
Short Term (less than 1 year)	Need feasibility study for the good introduction of green snail (Samoa)	Samoa	
	Need regional training (in Palau), targeting on the common species like trochus, green snail, and giant clams (Fiji and Solomon)	SPC, JICA, OFCF, FAO	Last regional training was in 2001 in Tonga
	Provide on the job training for community	fisheries department in each country	
	Exchange program for fisheries officers		
	Information sharing for potential species for aquaculture by website, textbook etc.	SPC and each country	
	Management plan for species/ hatchery	Fisheries department with the help of SPC	
	Regular meeting for shellfish culture		
	Develop legal framework for mariculture species, including regulations and policies		
Medium Term (1-2 years)	Develop standardized data collection and storage for the management of all species in the region		
	Need dedicated program for community farming		
	Mapping out all the hatcheries in SPC countries (list up skills and experience accumulated in each hatchery)		
Long Term (3-5 years)	Market chain analysis for all the cultured species		
	Technical assistance on sea shellfish culture	SPC, JICA	
	Research on the adaptation to the climate change	SPC and Fisheries	
	Study for new species for aquaculture	SPC and Fisheries	
	Building facilities for hatchery	Search for donor	

Appendix 3-3: Result of Group Discussion in Income Generation Activities

List of Current Income Generation Activities by Community / Country				
Crab bay	Lelema	Aneityum	Fiji	Tonga
Shell polishing	Small scale aquaculture	Lobster fishing	Kava	Weaving
Sewing	Roimata Domain tour	Fish café	Traditional mat weaving	Fishing
Weaving	Tourism	Traditional canoe hiring	Taro	Tourism
Gardening	Shell polishing	Carnival soup providing & snorkeling tour	FAD fishing	Gardening, farming
Fishing	Charcoal firewood	Canoe fishing	Ornamental fish	Aquaculture
Tourism	Marketing of local product	Turtle tacking	Seaweed farming	FAD fishing
Kava grinding and sale		Turtle in cage	River tours	Diving (giant clams)
Bee culture		Gear rental for diving and snorkeling	Fishing	Whaling
FAD fishing		Historical site tour	Snorkeling	Fish feeding
Community fish market		Shell polishing	Home-stay prgram	Sea-cucumber (diving)
		Fish feeding	Feeding on fish, shark, and turtles	Surfing
			Aquaculture of prawn and tilapia	Traditional dancing
			MPA, diving, shark	
			Traditional "weke" dance	
			Surfing	
			Heritage sites (sand dunes, old capital)	
			Traditional marine animal calling (red prawn, turtle)	
			Dolphin / whale watch	
			Spat collection (baby oyster)	
			Handicraft	

Actions Needed for Income Generation (as Supporting Measures for CB-CRM)

	1. Financial / Income Management	2. Absence of Legal Framework	3. Fishing Data / Information	4. Traditional Management	5. Capacity Building and Skills	6. Institutional Strengthening	7. Conflict Resolution Management
Short Term (- 1 year)	Community participation among community level	Strengthen MPA committee representative of each area	Simplified common data sheet, ID data to be collected	Promote traditional management & values	Promote awareness among communities, community participation among community level	Government understand community issues	Promote dialog among chiefs and active community consultation and participation
	Socio-economic survey/ assessment		Set up place for collecting data, apart from fish market		Management training, technical training		Establishment of coordination committee
			Fisheries support to local fishermen to collect data		Community training on fishing activities and fishing gears		Strengthening MPA committee representative of each area
							Proper delegation of responsibility among tribe
Medium Term (2-5 years)	Socio-economic survey/ assessment	Resource management plan				Subsidy from government	
	Training on financial management and savings					Increase government incentives towards coastal management in each community	
	Enhance FM capacity of communities through capacity building- financial skills, accounting, and book-keeping						
	Micro-finance program for community activities						
Long term (more than 5 years)		Formulate an appropriate legal framework					
Common Issues in the Region	Financial management, Vanuatu	Poaching shell fish, Vanuatu	Lack of information, Vanuatu	Traditional heritage, Tonga	Lack of training, Vanuatu	Lack of consultation with leaders, Vanuatu	Land dispute, Vanuatu
	Mismanagement	Encourage illegal fishing poaching, Fiji	Difficulty in data collection, Vanuatu	Too much kava drinking, Vanuatu	Lack of skills, shell polishing, Vanuatu	Human resource in community, Vanuatu	Conflict between aquarium trader and community, Vanuatu
	Financial lending (loans) Fiji	Guidelines for activities, Fiji	Lack of data, false data, Tonga		Lack of skills and knowledge, Tonga	Lack of assistance from government and NGOs, Tonga	Lack of cooperation, Vanuatu
	Income sharing, Fiji	Lack of legal framework			Business skills and planning Fiji	Little initiative in community	Conflict among fishers and community, Tonga
	Realization of impacts on community from income earned, Fiji						Difficult coordination in community, Vanuatu

Result of the questionnaire on the achievement of the Project indicators

1. Purpose and method of the survey

The project has three quantitative indicators as follows.

Output 1. The abilities of the VFD which supports CB-CRM will be strengthened.

Indicator: At least 80% of VFD counterparts (C/Ps) will recognize the fact that their techniques and knowledge on CB-CRM have improved through self-evaluation.

Output 2. Communities in the project areas will obtain techniques and knowledge of coastal resource management approaches.

Indicator: At least 80% of C/Ps at the pilot sites will recognize the fact that their techniques and knowledge on CB-CRM have improved through self-evaluation.

Project purpose: CB-CRM will be put into practice effectively in the project areas including outlying islands, through appropriate technical support by the VFD.

Indicator: Scores will increase for at least six out of the eight evaluation items listed on the CB-CRM evaluation sheet, at all the pilot sites.

Regarding to the indicator for the outputs, the Project conducted the questionnaire survey during February and May 2014, after two years from the inception of the Project. The questionnaire was given to the VFD C/Ps for their self-evaluation. Other questionnaire was given to the local C/Ps in the target communities, for them to evaluate the level of skills and knowledge of the community members. The questionnaires are attached in Annex X-1-X3.

Regarding to the indicator for the Project purpose, CB-CRM evaluation sheet (attached as Annex X1-X3) was given to the members of MPA management committee.

2. Result for output 1: (indicator) At least 80% of VFD counterparts (C/Ps) will recognize the fact that their techniques and knowledge on CB-CRM have improved through self-evaluation

2-1. Method of evaluation

The Project made the six questions for the VFD C/Ps to evaluate their level of skills and knowledge on CB-CRM. Questionnaire was made to accommodate the six questions, and distributed to the VFD C/Ps.

2-2. Survey items

Q1. Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Q2. Capacity to manage the supporting measures or CB-CRM

Q3. Number of the effective supporting measures for CB-CRM

Q4. Number of the supporting measures for which the skill and knowledge

Q5. Number of the CB-CRM measures for which the skills and knowledge

Q6. Number of the supporting measures that can be disseminated to other region

2-3. Method and period

Method: interview based on the questionnaire

Period: May 2014

Number of interviewees: 4 C/Ps from Research section, and 4 C/Ps from extension section

2-4. Result

The result of Q1 and Q2 is summarized in the table below. On average, 81.25% answered that their capacity were improved. *The positive answers for Q3, Q4, Q5, and Q6 indicate their positive self-evaluation that their skills and knowledge is improved through the Project.*

Q1. Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Out of eight C/Ps, 6 (75%) answered that their capacity is improved. Especially the four C/Ps in the extension section who played main role in the Project, they all (100%) answered that their capacity is improved.

Table 2-1 Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Capacity	Research section		Extension section		Total	
	n	%	n	%	n	%
Increased	2	50.0	4	100.0	6	75.0
Stayed the same	2	50.0	0	0.0	2	25.0
Total	4	100.0	4	100.0	8	100.0

Q2. Capacity to manage the supporting measures or CB-CRM

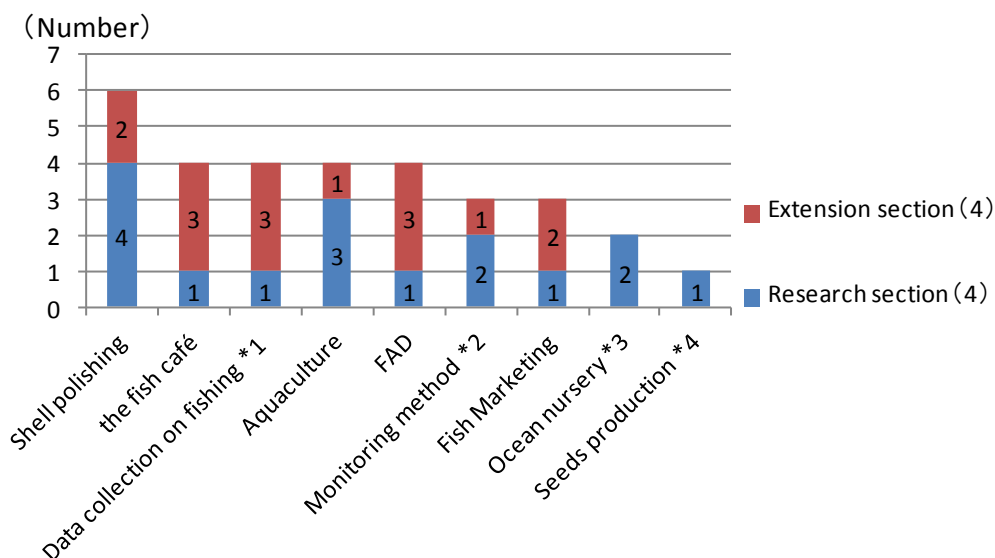
Out of eight C/Ps, 7 (87.5%) answered that their capacity is improved. Like Q1, the four C/Ps in extension section all (100%) answered positive.

Table 2-2 Capacity to manage the supporting measures or CB-CRM

Capacity	Research section		Extension section		Total	
	n	%	n	%	n	%
Increased	3	75.0	4	100.0	7	87.5
Stayed the same	1	25.0	0	0.0	1	12.5
Total	4	100.0	4	100.0	8	100.0

Q3. Number of the effective supporting measures for CB-CRM

Six C/Ps considers shell polishing to be effective, 4 C/Ps considers the fish café, data collection on fishing activity, aquaculture, and FAD are effective. Except aquaculture, all the activities are created or strengthened through the Project. Hence the Project considers that it improved capacity of VFD staff.

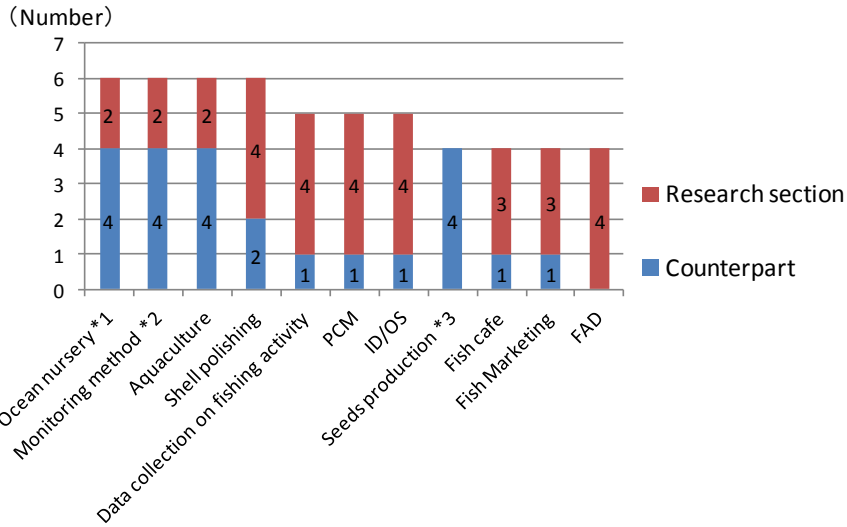


*1 means "Data collection on fishing activity".
 *2 means "Monitoring method on the released marine shellfish with community".
 *3 means "Management of clam shell Ocean nursery".
 *4 means "Management of clam shell seeds production".

Figure 2-1 Number of the effective supporting measures for CB-CRM

Q4. Number of the supporting measures for which the skill and knowledge

6 C/Ps answered that their skills and knowledge is improved through the Project for ocean nursery, monitoring on released marine shellfish, aquaculture, and shell polishing. 5 C/Ps answered that their skills and knowledge is improved for data collection on fishing activity, PCM, ID/OS. Except aquaculture, all the activities are created or strengthened through the Project. Thus, the Project considers that it strengthened the VFD capacity to support CB-CRM.



*1 means "Management of clam shell Ocean nursery".
 *2 means "Monitoring method on the released marine shellfish with community".
 *3 means "Management of clam shell seeds production".

Figure 2-2 Number of the supporting measures for which the skill and knowledge

Q5. Number of the CB-CRM measures for which the skills and knowledge

For CB-CRM measures, all the C/Ps in the extension section answered that their skills and knowledge is improved for all the activity. However, less than half of the C/Ps in research section answered that their skills and capacity is improved through the Project. There are two possible explanations. Firstly, the phase II of the Project involved extension section more than research section. Secondly, the research section worked more with IRD and SPC to conduct more scientific survey.

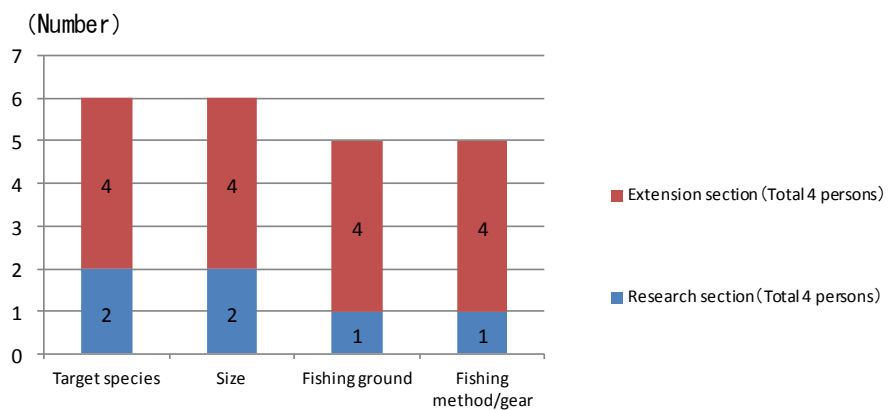
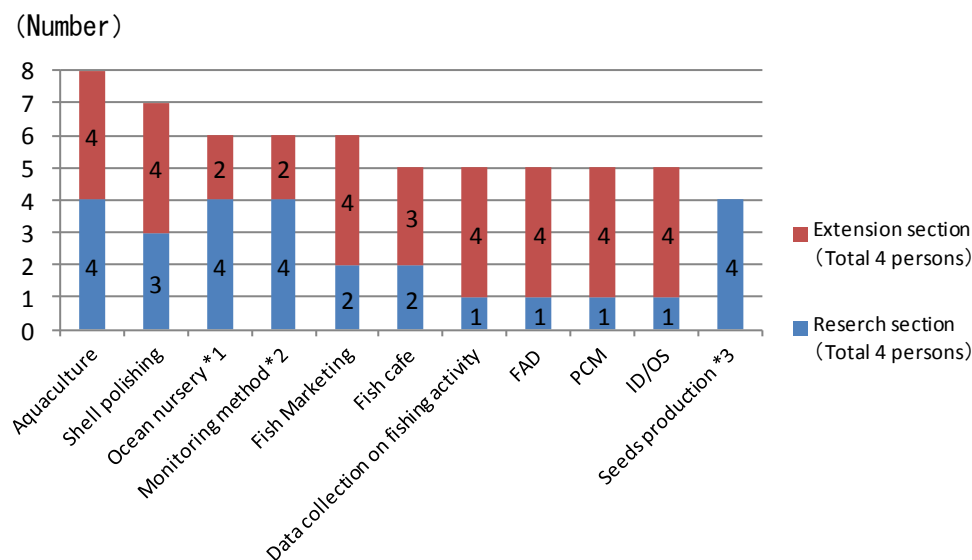


Figure 2-3 Number of the CB-CRM measures for which the skills and knowledge

Q6. Number of the supporting measures that can be disseminated to other region

Eight C/Ps answered aquaculture (can be disseminated), seven C/Ps answered shell polishing, six answered giant clam ocean nursery, monitoring of released marine shellfish, and collective fish marketing. The result show the good coherence with Question 4.



*1 means "Management of clam shell Ocean nursery".

*2 means "Monitoring method on the released marine shellfish with community".

*3 means "Management of clam shell seeds production".

Figure 2-4 Number of the supporting measures that can be disseminated to other region

3. Result for output 2: (indicator) At least 80% of C/Ps at the pilot sites will recognize the fact that their techniques and knowledge on CB-CRM have improved through self-evaluation

3-1. Method for evaluation

Together with the VFD, the Project developed questionnaire with six questions and guideline for the questionnaire survey (attached as Annex X-1). Later, the Project and the VFD trained the members of MPA committee for them to conduct the questionnaire survey for the MPA committee members and community members by interview.

3-2. Survey items

- Q1. Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM
- Q2. Capacity to manage the supporting measures or CB-CRM
- Q3. Number of the effective supporting measures for CB-CRM
- Q4. Number of the supporting measures for which the skill and knowledge

Q5. Number of the CB-CRM measures for which the skills and knowledge

Q6. Sustainability of the activity after the completion of the Project

3-3. Method and period

Method: Interview by the local C/Ps to the community members

Period: between March and May 2014

Number of interviewees: The number of interviewees is showed in Table 3-1

Table 3-1 The number of interviewees

Island	Community	Number of sample		Number of sample belong to group of pilot activities						
		Men	Women	MPA committee	FAD	Shell polishing	Fish cafe	Modified canoe	Chief	Others
Efete	Mangaliliu	20	10	1	6	13		6	1	11
	Lelepa	12	16	1	5	16	2			6
Malakura	Uripiv	17	9	2	12	9			1	3
	Crab Bay	24	5	10	5	4				15
Aneityum		21	12	8	8	4	1	1	1	15
	sub-total	94	52	22	36	46	3	7	3	50
	Total	146		167						

3-4. Result

Table 3-2 and 3-3 show that on 85.6% of the community members consider that their capacity is improved. The positive answers for Q3, Q4, Q5, and Q6 indicate their positive evaluation that their skills and knowledge is improved through the Project just like VFD C/Ps show by their self-evaluation.

Q1 Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Out of 146 interviewees, 125 (85.6%) answered that their capacity is improved. The percentage varies over the communities, where Mangaliliu 100% (of the interviewees answered that their capacity is improved), Uripiv 92.3%, and Lelepa island 71.4%, Aneityum 69.7%, respectively.

Table 3-2 Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM	Efate				Malakura				Aneityum		Total	
	Mangaliliu		Lelepa		Uripiv		Crab Bay		n	%	n	%
	n	%	n	%	n	%	n	%				
Increased	30	100.0	20	71.4	24	92.3	28	96.6	23	69.7	125	85.6
Stayed the same	0	0.0	8	28.6	2	7.7	1	3.4	10	30.3	21	14.4
Total	30	100.0	28	100.0	26	100.0	29	100.0	33	100.0	146	100.0

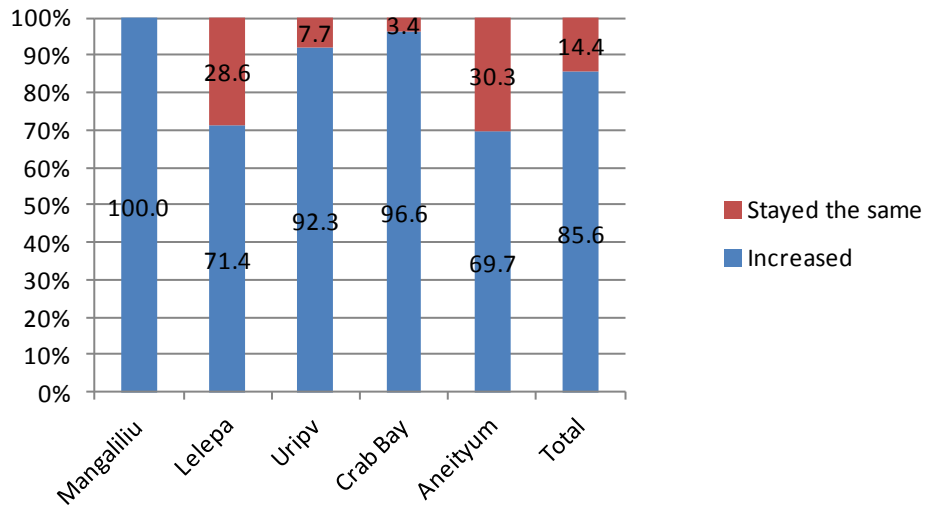


Figure 3-1 Capacity to understand the linkage between the CB-CRM and its supporting measures to promote CB-CRM

Q2 Capacity to manage the supporting measures or CB-CRM

Out of 146 interviewees, 125 (85.6%) answered that their capacity is improved. In Lelepa the percentage is as low as 50%.

Table 3-3 Capacity to manage the supporting measures or CB-CRM

Island Community	Mangaliliu		Lelepa		Uripv		Crab Bay		Aneityum		Total	
	Capacity	%	Capacity	%	Capacity	%	Capacity	%	Capacity	%	Capacity	%
Increased		93.3		50.0		92.3		100.0		81.8		85.6
Stayed the same		6.7		50.0		7.7		0.0		18.2		14.4
Total		100.0		100.0		100.0		100.0		100.0		100.0

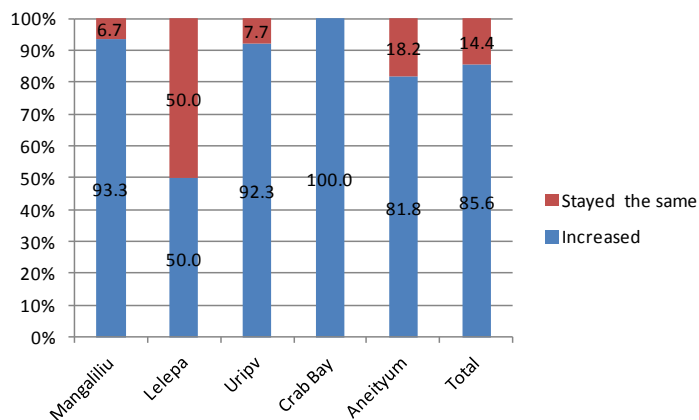


Figure 3-2 Capacity to manage the supporting measures or CB-CRM

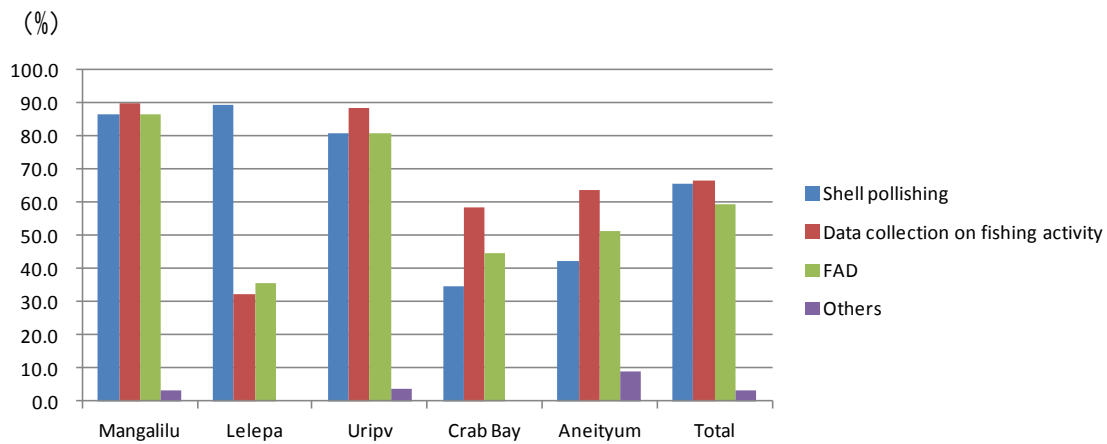


Figure 3-4 Number of the supporting measures for which the skill and knowledge

Q5 Number of the CB-CRM measures for which the skills and knowledge

On average, 83.6% answered that their skills and knowledge is improved on how to select the target species. 69.9% answered that their skills and knowledge is improved for fishing regulation.

Table 3-6 Number of the CB-CRM measures for which the skills and knowledge

The CB-CRM measures	Island Community	Efate		Malakura		Aneityum	Total
		Mangaliliu %	Lelepa %	Uripv %	Crab Bay %	%	%
Target species		100.0	57.1	88.5	79.3	90.9	83.6
Fishing ground		100.0	67.9	84.6	51.7	84.8	78.1
Size		100.0	42.9	84.6	86.2	72.7	77.4
Fishing method/gear		100.0	64.3	50.0	62.1	69.7	69.9
Regulation		100.0	57.1	23.1	89.7	63.6	67.8
Others		0.0	0.0	0.0	13.8	12.1	5.5
Number of sample		100.0	100.0	100.0	100.0	100.0	100.0

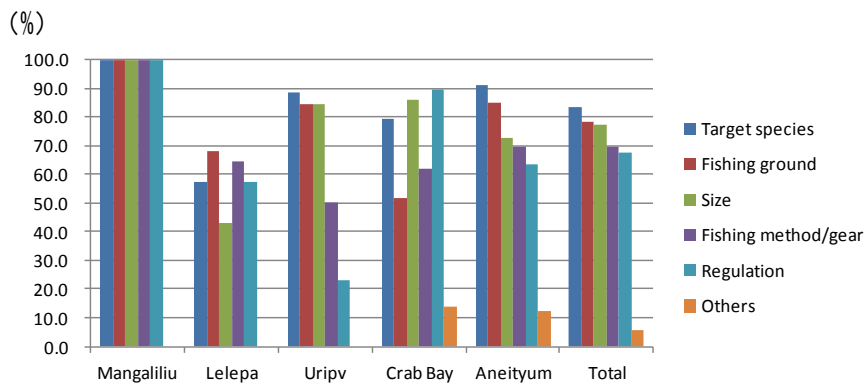


Figure 3-5 Number of the CB-CRM measures for which the skills and knowledge

Q6 Sustainability of the activity after the completion of the Project

97.3% answered that they can ensure the sustainability of the supporting measures for CB-CRM.

Table 3-7 Sustainability of the activity after the completion of the Project

Island Community	Efate		Malakura		Aneityum	Total
	Mangaliliu %	Lelepa %	Uripv %	Crab Bay %		
Yes	100.0	100.0	92.3	100.0	93.9	97.3
No	0.0	0.0	7.7	0.0	6.1	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

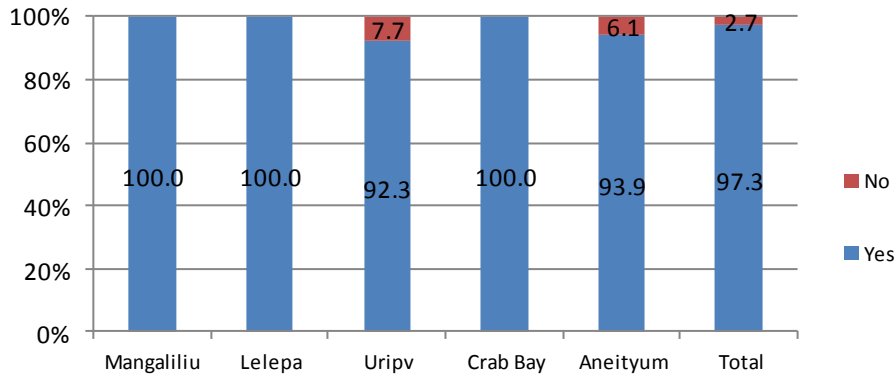


Figure 3-6 Sustainability of the activity after the completion of the Project

4. Result for Project purpose: (indicator) Scores will increase for at least six out of the eight evaluation items listed on the CB-CRM evaluation sheet, at all the pilot sites

4-1. Method of evaluation

Together with the VFD, the Project added more detail explanation to the CB-CRM evaluation sheet agreed on JCC. The evaluation sheets were distributed to the communities, and local C/Ps interviewed to the community members.

4-2. Survey items (19 questions in 8 areas, refer to Annex X for full detail)

Development of resource management plan

Q1. Community Awareness

Q2. Management Body

Q3. Management Plan

Q4. Compliance/Enforcement

Q5. Monitoring & Evaluation

Effect of management

Q1. Status of coastal resources

Q2. Impact of fishing on resources

Q3. Economic stability of fishing households

4-3. Method and period

Method: comparison of the result of CB-CRM evaluation sheet done by the members of MPA committee

The CB-CRM evaluation sheet scores points according with answer to the eight questions explained above. Each question scores 1, 2 or 3 points depending on the answer chosen. In each of the three site, the MPA committee members discussed among themselves to decide the answer. After one year, the same process is repeated to compare the result.

Period: first evaluation: 22 February 2013, second evaluation 19 February 2014

Target: Representatives of the MPA committee

Table4-1 Number of sample

	Efete	Malakura	Aneityum
Feb. 2013	5	4	3
Feb.2014	5	5	3

4-4. Result

On average, seven out of eight areas see the improvement of the score, only one showing the decline of the score. Thus the Project purpose is fulfilled.

Table4-2 Result of Self-evaluation by CB-CRM Evaluation sheet

Main items for evaluation		Change			Total in 3sites
		Efate	Malakura	Aneityum	
Development of resource management plan	Community Awareness	→	↑	↑	↑
	Management body	↑	↑	→	↑
	Management Plan	↓	↓	→	↓
	Compliance/Enforcement	↑	↑	↑	↑
	Monitoring & Evaluation	→	↑	→	↑

Effect of management	Status of coastal resources	→	↑	↑	↑
	Impact of fishing on resources	↑	→	↑	↑
	Economic stability of fishing households	↑	↑	↑	↑

* ↑ : Increased、 → : Stayed the same、 ↓ : Decreased

Results of each project site

North Efate

Table4-3 Result of Self-evaluation

Main items	Items/Year	2013	2014	Change	Change in total
Community Awareness	Understanding of CBCRM	3	3	→	→
	Acceptance of CBCRM	2	2	→	
Management body	Establishment of a management body	2	3	↑	↑
	Stake holder involvement	3	3	→	
Management Plan	Consultation/decision making process	3	3	→	↓
	CBCRM plan	3	3	→	
	Implementation of CBCRM plan	3	3	→	
	Technical assistance by VFD	3	2	↓	
Compliance/Enforcement	Level of compliance	2	3	↑	↑
	Enforcement	2	2	→	
Monitoring & Evaluation	Monitoring and evaluation	3	3	→	→
	Technical assistance by VFD	2	2	→	
Status of coastal resources	Overall status of resources	3	3	→	→
	Inside of MPA	3	3	→	
	Outside of MPA	3	3	→	
Impact of fishing on resources	Diversification of fishing areas and target species	2	2	→	↑
	Fishing pressure on problematic resources	2	3	↑	

Economic stability of fishing households	No. of income resources	1	2	↑	↑
	Value addition of fishery products	2	2	→	

* ↑ : Increased、 → : Stayed the same、 ↓ : Decreased

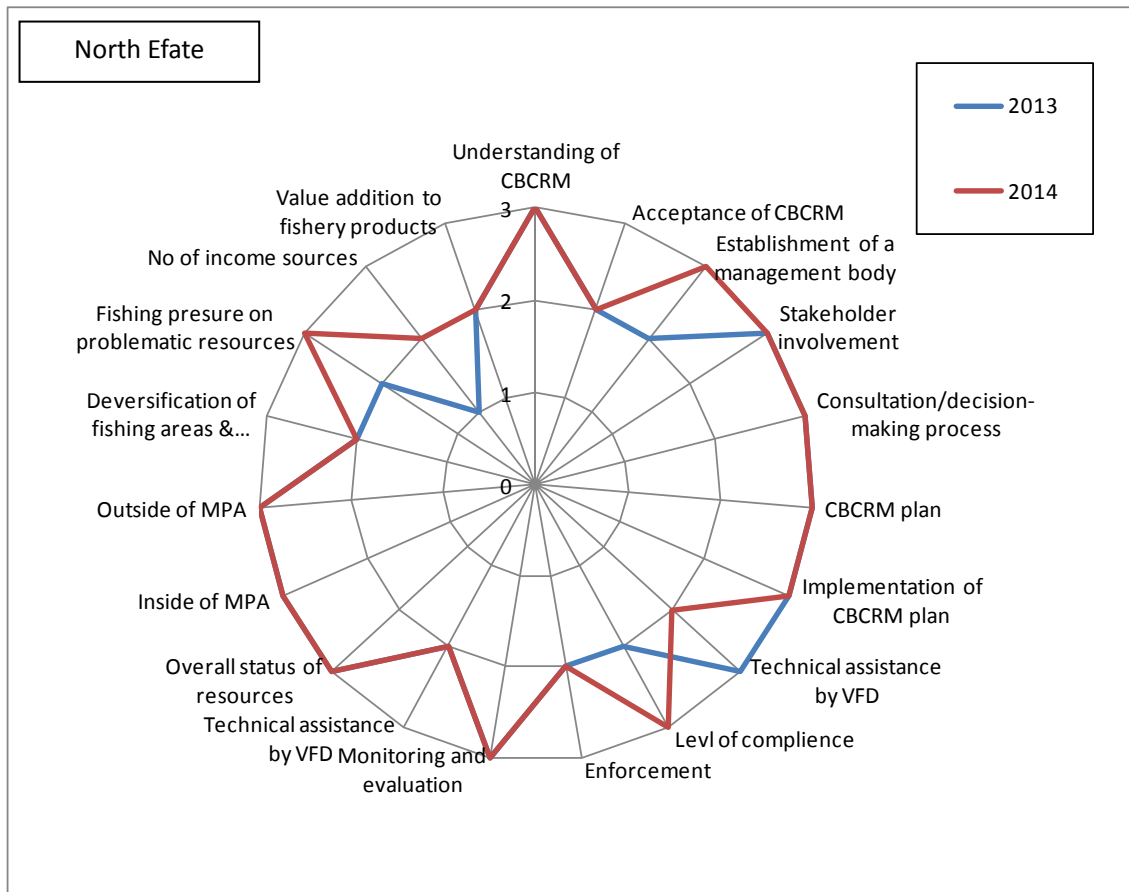


Figure 4-1 Result of Self-evaluation

Score is improved in Management Body, Compliance/Enforcement, Status of coastal resources, and Economic stability of fishing households. The score declined for Management Plan

Malakura

Table 4-4 Result of Self-evaluation

Main items	Items/Year	2013	2014	Change	Change in total
Community Awareness	Understanding of CBCRM	2	3	↑	↑
	Acceptance of CBCRM	2	3	↑	
Management body	Establishment of a management body	2	3	↑	↑

	Stake holder involvement	1	2	↑	
Management Plan	Consultation/decision making process	3	2	↓	↓
	CBCRM plan	3	3	→	
	Implementation of CBCRM plan	3	3	→	
	Technical assistance by VFD	3	3	→	
Compliance/Enforcement	Level of compliance	1	2	↑	↑
	Enforcement	2	2	→	
Monitoring & Evaluation	Monitoring and evaluation	2	3	↑	↑
	Technical assistance by VFD	3	3	→	
Status of coastal resources	Overall status of resources	3	3	→	↑
	Inside of MPA	3	3	→	
	Outside of MPA	2	3	↑	
Impact of fishing on resources	Diversification of fishing areas and target species	2	2	→	→
	Fishing pressure on problematic resources	2	2	→	
Economic stability of fishing households	No. of income resources	1	2	↑	↑
	Value addition of fishery products	1	2	↑	

* ↑ : Increased、 → : Stayed the same、 ↓ : Decreased

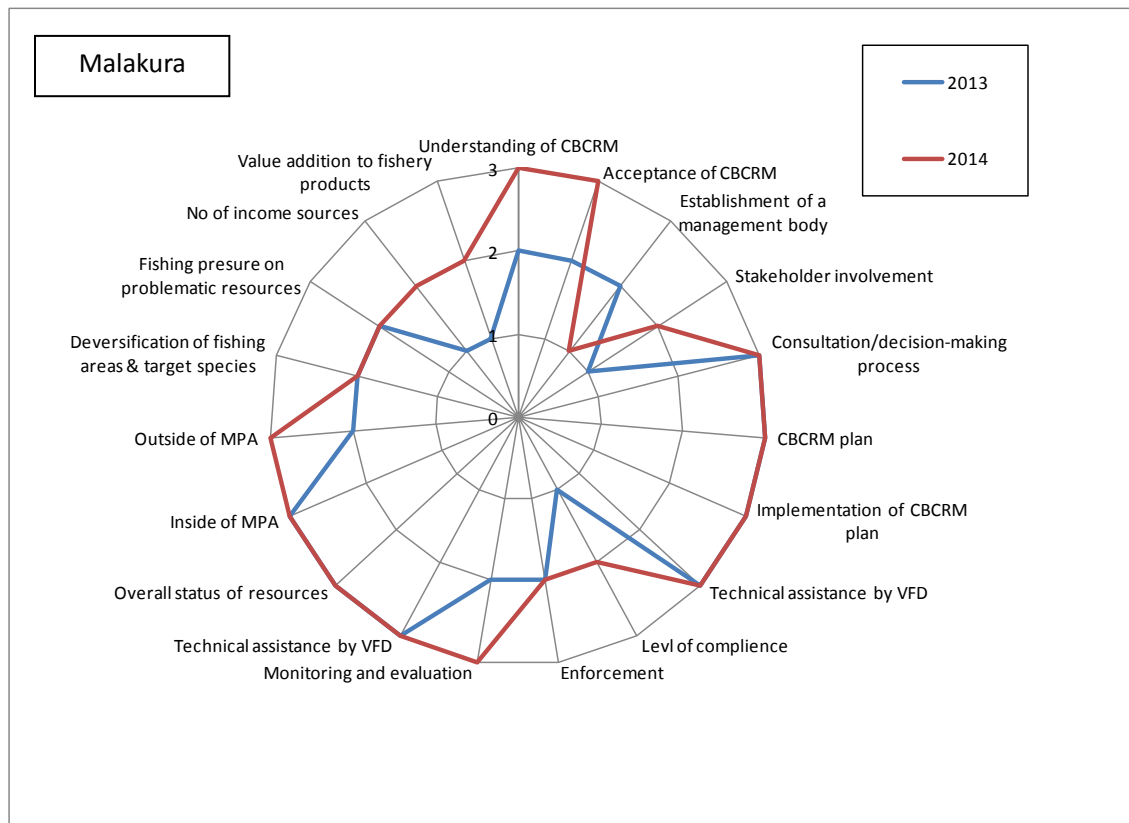


Figure 4-2 Result of Self-evaluation

Score is improved in Management Body, Compliance/Enforcement, Status of coastal resources, and Economic stability of fishing households. The score declined for Management Plan

Aneityum

Table 4-5 Result of Self-evaluation

Main items	Items/Year	2013	2014	Change	Change in total
Community Awareness	Understanding of CBCRM	3	3	→	↑
	Acceptance of CBCRM	2	3	↑	
Management body	Establishment of a management body	3	3	→	→
	Stake holder involvement	3	3	→	
Management Plan	Consultation/decision	3	3	→	→

	making process				
	CBCRM plan	3	3	→	
	Implementation of CBCRM plan	3	3	→	
	Technical assistance by VFD	2	2	→	
Compliance/Enforcement	Level of compliance	2	3	↑	↑
	Enforcement	3	3	→	
Monitoring & Evaluation	Monitoring and evaluation	3	3	→	→
	Technical assistance by VFD	2	2	→	
Status of coastal resources	Overall status of resources	3	3	→	↑
	Inside of MPA	3	3	→	
	Outside of MPA	2	3	↑	
Impact of fishing on resources	Diversification of fishing areas and target species	2	3	↑	↑
	Fishing pressure on problematic resources	2	2	→	
Economic stability of fishing households	No. of income resources	2	3	↑	↑
	Value addition of fishery products	1	2	↑	

* ↑ : Increased、 → : Stayed the same、 ↓ : Decreased

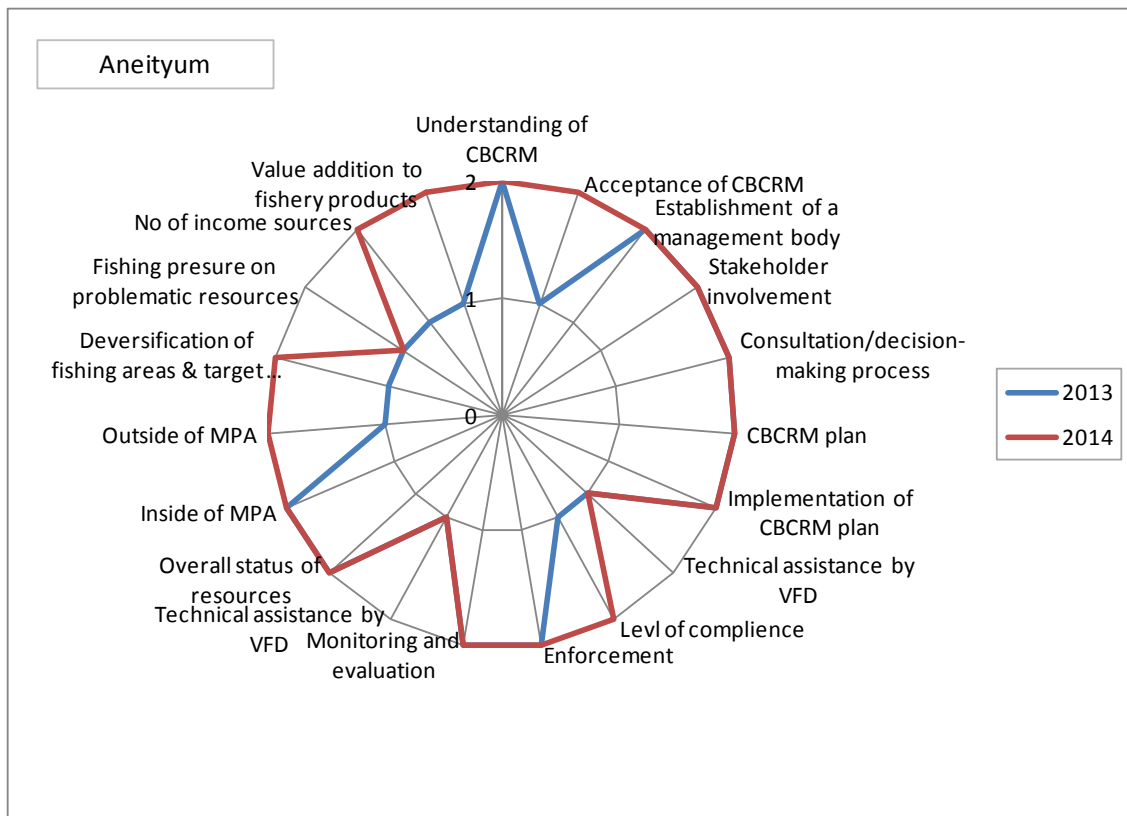


Figure 4-3 Result of Self-evaluation

Score is improved in Community Awareness, Compliance/Enforcement, Status of coastal resources, Impact of fishing on resources, and Economic stability of fishing households.

5. Conclusion

For the self-evaluation for output 1, there was a gap between the extension section and research section. This maybe because the phase II of the Project involved extension section more than research section, and the research section worked more closely with IRD and SPC to conduct more scientific survey, and their activity with the Japanese expert was basically limited to the VFD hatchery and Efate island.

For the self-evaluation for output 2, low percentage of community members in Lelepa and Aneityum answered positive (their capacity is improved). This may be the result of the low frequency of regular visit by VFD staff due to the remoteness of the site.

Questionnaire asked if shell polishing, data collection on the fishing activities, FAD fishery can be effective support measures for CB-CRM. On average, the 70% answered that these supporting

measures are effective. In Lelepa Island, 93% answered that shell polishing is effective and only 61% answered that data collection on fishing activity is effective. This may be because of the high percentage female interviewees in Lelepa than in other communities. In Crab Bay lower percentage answered that shell polishing and FAD are effective (59% and 52% respectively). The reason behind this may be that in Malakula, it is more difficult to attract tourists (who buy the shell polishing products), and more people is engaged in agriculture than fisheries.

The low percentage of the interviewees answered that their skill and knowledge is improved for fishing regulation. It may be because of the low awareness on the fishing regulation. It would be necessary to promote the awareness on it together with the implementation of CB-CRM plan.

As shown in the result, the same questionnaire done firstly in February 2013 and secondly in February 2014 gave different result, and most of the scores improved greatly. This seems to be the evidence that local C/Ps improved their capacity under the guidance of VFD C/Ps.

Annex

- X-1. Guideline for Questionnaire Survey on Self-evaluation form on the improvement of skills and knowledge on CBCRM**
- X-2. Self-evaluation form for VFD on the improvement of skills and knowledge on CBCRM**
- X-3. Self-evaluation form for community on the improvement of skills and knowledge on CBCRM**

Guideline for Questionnaire Survey on Self-evaluation form on the improvement of skills and knowledge on CBCRM

Project of Promotion of Grace of the Seas in Coastal Villages in Vanuatu Phase 2

Drafted on 16 Feb 2014

I. Abstract of the Questionnaire Survey

1. Objective

The objective of questionnaire survey is the follows.

- Identify the level of improvement of skills and knowledge on CBCRM for counterpart personnel at the target areas

2. Target group

	Efate	Malakula		Aneiytem
Target	<ul style="list-style-type: none"> • Lelema Management Committee • FAD Management Committee • Shell Craft Committee • Modified Canoe Group 	<ul style="list-style-type: none"> • Crab Bay Management Committee • FAD Management Committee • Shell Craft Committee 		<ul style="list-style-type: none"> • Mystery Island MPA Committee • FAD Management Committee • Fish Café Committee • Shell Craft Committee • Modified Canoe Group
Community	<ul style="list-style-type: none"> - Mangaliliu - Lelepa 	<ul style="list-style-type: none"> - Barrick - Bushman bay - Hatbol - Limap - Lingarakh - Lowni - Lo Sarsar - MAPEST 	<ul style="list-style-type: none"> - New Bush - Portidur - Taremp - Tevaliant - TFC - Tembimbi - Uri - Uripiv 	<ul style="list-style-type: none"> - Analcauhat

II: Sample Number

a. Target Persons

Committee	Efate		Malakula		Aneityum
	Mangaliliu	Lelepa	Uripiv	Other Crab Bay Commu.	
MPA	2	2	2	14	6
FAD Management	2	3	3	2	3
Shell Craft	2	2	3	3	3
Fish Cafe	--	--	--	--	3
Modified Canoe	2	2	--	--	2
Chief or other representative of the community	1	1	1	--	1
Ordinary community members actively engaged in fishing activity	10 (man) 10 (women)	10 (man) 10 (women)	10 (man) 10 (women)	10 (man) 10 (women)	10 (man) 10 (women)
Maximum	29	30	29	29	37

III. Interview Tips at the Field

Community-Based Coastal Resource Management (CBCRM) is to manage all activities focusing not only resource management measures such as limitation of fishing ground, target species, limitation of size, etc. but also supporting measures to help carrying out all these resource management measures.

1. Q 2: Do you think your understanding on the purpose of supporting measures for CBCRM is increased (i.e. to revitalize CBCRM)?

- Supporting measures means some activities to support to revitalize CBCRM

2. Q 3: Which supporting measures is most useful to revitalize CBCRM activities?

- Diversification of fishing method by FAD out of reef is to reduce fishing pressure in reef
- Shell craft utilizing dead shells is one of the income-generating activities to reduce fishing pressure for shell in reef especially by women.
- Fishing catch record is to recognize resource condition by community itself to help to establish resource management measures by species.

3. Q 4 Is your skills and knowledge on the supporting measures increased?

Skill and/or knowledge about each activity

Please specify in **others** such as fish café, modified canoe, etc.

You should reply Yes or No by marking

4. Q 5 Is your skill and knowledge necessary for CBCRM increased (i.e. current trend)?

For the resource management, it is necessary to understand the current trend of fishing activity.

Q5 asks if the interviewee increased knowledge on the following.

Target species: what species are targeted by community people?

Fishing ground: where the resources are exploited by community people?

Size: How is the average size of catch? are they getting bigger/smaller?

Fishing method/gear: what fishing method/gear is used? How is the effect of that on the resource?

Fishing regulation: any regulation set by government e.g. size limit, close period, fishing gear

5. Q. 6 Do you think you can manage these supporting measures (pilot project) after closing Project?

Are you and your community capable of sustaining each activity by yourself?

Self-evaluation form for VFD on the improvement of skills and knowledge on CBCRM

Section:

Name:

Title or profession:

6. Do you think your capacity to promote the community with regard to Community Based Coastal Resource Management (CBCRM) is increased in terms of linkage between resource management measures and resource management supporting measures?

1. Increased 2.Stayed the same

7. Do you think your capacity to manage the supporting measures for CBCRM is increased (i.e. to revitalize CBCRM activity)?

1. Increased 2.Stayed the same

8. Which supporting measures are most useful to revitalize CBCRM activities?

Please specify (check) three (3) measures which you consider to be useful.

- Management of clam shell seeds production
- Management of clam shell Ocean nursery
- Monitoring method on the released marine shellfish with community
- Shell Craft
- Fish Café
- Fish Marketing
- Fish Farming
- Fishing activity record
- Management of FAD fishing/ fishing diversification
- Others (please specify _____)

9. Is your skills and knowledge on the supporting measures increased?

	Yes	No
Management of clam shell seeds production	<input type="checkbox"/>	<input type="checkbox"/>
Management of clam shell Ocean nursery	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring method on the released marine shellfish with community	<input type="checkbox"/>	<input type="checkbox"/>
Shell Craft	<input type="checkbox"/>	<input type="checkbox"/>
Fish Café t	<input type="checkbox"/>	<input type="checkbox"/>

Fish Marketing	<input type="checkbox"/>	<input type="checkbox"/>
Fish Farming	<input type="checkbox"/>	<input type="checkbox"/>
Fishing activity record	<input type="checkbox"/>	<input type="checkbox"/>
Management of FAD/ fishing diversification	<input type="checkbox"/>	<input type="checkbox"/>
Planning Method (PCM)	<input type="checkbox"/>	<input type="checkbox"/>
Organization analysis (ID/OS)	<input type="checkbox"/>	<input type="checkbox"/>
Others ()	<input type="checkbox"/>	<input type="checkbox"/>

10. Is your skills and knowledge necessary for CBCRM increased (i.e. current trend)?

	Yes	No
Target species	<input type="checkbox"/>	<input type="checkbox"/>
Fishing ground	<input type="checkbox"/>	<input type="checkbox"/>
Size	<input type="checkbox"/>	<input type="checkbox"/>
Fishing method/gear	<input type="checkbox"/>	<input type="checkbox"/>
Others ()	<input type="checkbox"/>	<input type="checkbox"/>

11. Do you think you can manage and apply these supporting measures (pilot project) to other sites after closing Project?

	Yes	No
Management of clam shell seeds production	<input type="checkbox"/>	<input type="checkbox"/>
Management of clam shell Ocean nursery	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring method on the released marine shellfish with community	<input type="checkbox"/>	<input type="checkbox"/>
Shell Craft	<input type="checkbox"/>	<input type="checkbox"/>
Fish Café t	<input type="checkbox"/>	<input type="checkbox"/>
Fish Marketing	<input type="checkbox"/>	<input type="checkbox"/>
Fish Farming	<input type="checkbox"/>	<input type="checkbox"/>
Fishing activity record	<input type="checkbox"/>	<input type="checkbox"/>
Management of FAD/ fishing diversification	<input type="checkbox"/>	<input type="checkbox"/>
Planning Method (PCM)	<input type="checkbox"/>	<input type="checkbox"/>
Organization analysis (ID/OS)	<input type="checkbox"/>	<input type="checkbox"/>
Others ()	<input type="checkbox"/>	<input type="checkbox"/>

Self-evaluation form for community on the improvement of skills and knowledge on CBCRM

Community:

Island:

Name:

Title or profession:

MPA / FAD / shell craft/ fish café/ modified canoe

Others (please specify _____)

12. Do you think your capacity to explain the community the importance of CBCRM is increased?

1. Increased 2. Stayed the same

13. Do you think your understanding on the purpose of supporting measures for CBCRM is increased (i.e. to revitalize CBCRM)?

1. Increased 2. Stayed the same

14. Which supporting measures is most useful to revitalize CBCRM activities?

Shell Craft Fishing activity record FAD

Others (please specify _____)

15. Is your skill and knowledge on the supporting measures increased?

Yes No

Shell Craft

Fishing activity record

FAD/ fishing diversification

Others ()

16. Through the pilot activities (data collection etc), is your skill and knowledge necessary for CBCRM increased (i.e. current trend)?

Yes No

Target species

Fishing ground

Size

Fishing method/gear

Fishing regulation

Others ()

17. Do you think you can manage these supporting measures (pilot project) after closing Project?

1. Yes 2. No

**GOVERNMENT OF THE
REPUBLIC OF VANUATU**



**FISHERIES DEPARTMENT
SÉRVICE DES PECHES**
Private Mail Bag 9045/Sac
Postale Privé No. 9045,
Port Vila, VANUATU
Tel: 678 5333340

**GOUVERNEMENT DE LA
REPUBLIQUE DE VANUATU**



Date : Thursday, October 23, 2014

Ref :

Principal Fisheries Compliance Officer
Ministry of Agriculture, Livestock, Forestry, Fisheries and Bio-security
PMB 9045, Port Vila

Dear Felix Ngwango,

Re: Official registration and gazette of the Aneityum, Lelema and Uripiv/Crab Bay community management plans

Please find attached the Community-Based Resource Management Plan documents for the Fisheries Department's Grace of the Sea pilot project sites of Aneityum, Lelema and Crab Bay.

Over the last 2 years through the Grace of the Sea project funded by JICA and managed under the management of ICNET and its local counterparts i.e. staff of the Vanuatu Fisheries Department, we have managed to achieve the development of the community-based Monitoring, Compliance and Surveillance (MCS) system, with regards to the fisheries resource management of the coastal reef fishery. This community-based coastal MCS system, from the Fisheries Department point of view is a starting point for Fisheries Department that would most likely to increase its technical input on community traditional management regimes by way of legalizing through ministerial order in line with the provisions of the new Fisheries Act of 2014.

As part of the process we have finalized the management plans and also have already obtained the endorsement from the Hon. David TOSUL, the Ministry of Agriculture, Livestock, Forestry, Fisheries and Bio-Security.

We would like request your assistance in taking this further from here for this Community-Based Coastal Resource management (CB-CRM) Plans for further process by the State Law office and to be published on official gazette.

Should you have any further enquiries please do not hesitate to contact me for more clarifications.

Thanks for your cooperation and understanding.

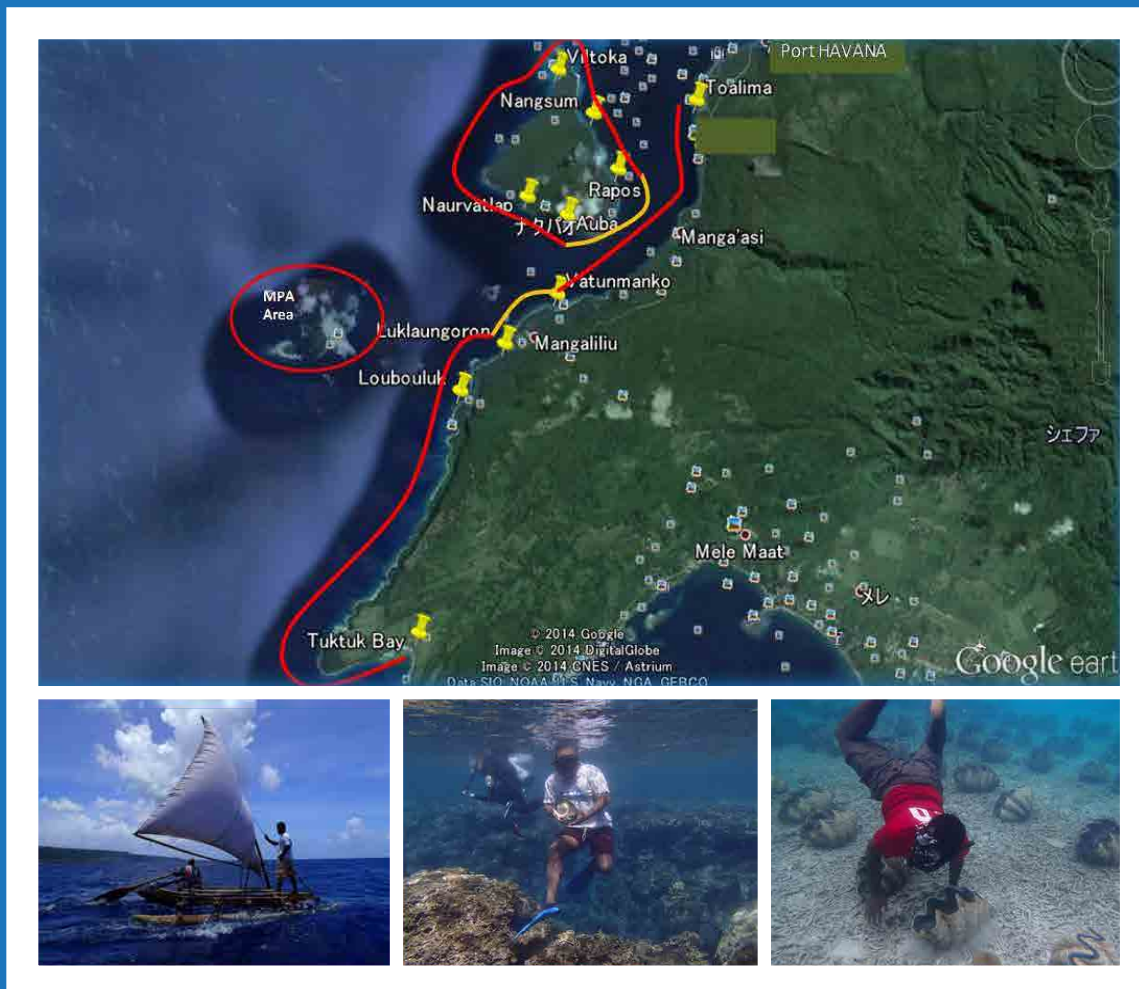

Graham NIMOHO
Acting Director of Fisheries



"We are Aiming Higher and Reaching Further"

Community Based Coastal Resource Management

(CBCRM) Plan for West Efate - Lelema Area



The Community of Lelema October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited



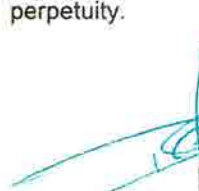
FOREWORD

Coastal Marine resources have long played an important role as a daily source of protein for the inhabitants of coastal Vanuatu. In addition, marine resources have developed markedly in recent years, such that nowadays they contribute not only to income generation, but also provide a resource for the burgeoning tourist industry. Coastal resources provision the growing population of Vanuatu; they also provide entertainment for thousands of tourists. Therefore, the sustainable use of coastal resource is now of crucial important to both the food security and tourist sectors of the economy. As a consequence, the need for coastal resource management continues to increase significantly in our nation.

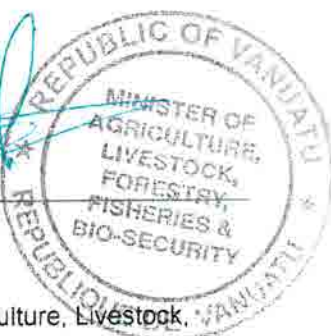
The Vanuatu Fisheries Department has supported people to elaborate their own management plans in coastal communities like the Crab Bay Area of Malakula Island, North West Area of Efate Island, and Aneityum Island. At the same time, the Department has encouraged community members to improve their own capacity for coastal resources management by collaborating with the "Project of Grace of the Seas for the Coastal Villages in Vanuatu", which is financed by the Japan International Cooperation Agency (JICA).

The Government of Vanuatu is convinced that sound coastal resource management will be achieved through the efforts of these communities, and that the results will serve as a model of resource management and thereby be extended to other coastal communities.

We wish to request that all stakeholders put their hands and heads to work alongside the members coastal communities, to realize the sustainable use of our natural resource in perpetuity.



David Tosul
Minister
Ministry of Agriculture, Livestock,
Forestry, Fisheries and Biosecurity





William Naviti
Acting Director
Fisheries Department



Community Based Coastal Resource Management (CBCRM) plan for the West Efate-Lelema Area.

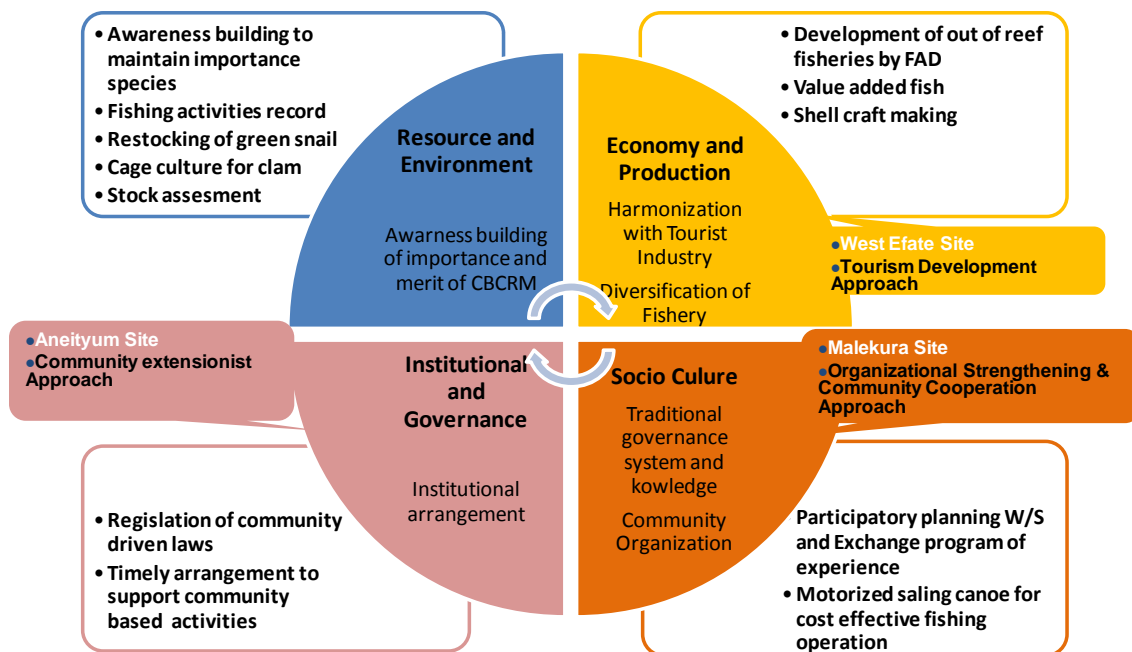
1. Introduction

1.1 Introduction

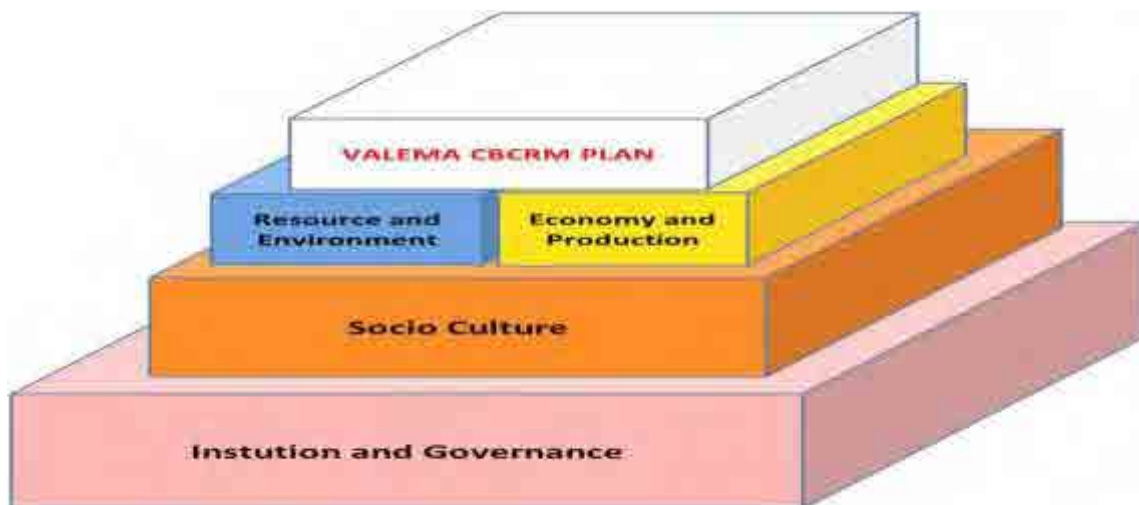
CBCRM (Community Based Coastal Resource Management) consists of resource management measures together with supporting measures based on four perspectives.

These are:

1. The resource and environment perspective, including scientific resource survey and awareness raising on the importance of resource management,
2. The economy and production perspective, mainly the introduction of alternative sources of income to reduce dependence on coastal resources,
3. The social and culture perspective, to establish a solid organization based on traditional experience and knowledge for the implementation of CBCRM, and
4. The Institutional and governance perspective for government and NGOs to support the above three perspectives.



VALEMA is the term given to the CBCRM approaches applied in the three target sites of the JICA Project for “Promotion of Grace of Seas in Coastal Villages in Vanuatu, Phase 2”. The term is derived from Vanuatu, Lelema, Malakula, and Aneityum.



One accomplishment of the Project is that community members formulated the CBCRM Plan. The Plan consists of two main parts. The first is regulation to promote resource management, and the second is the action plan to support the promotion of resource management.

One of the most important lessons learned during implementation of the pilot projects is that resource management can be promoted effectively only when combined with supporting measures. Bearing this in mind, community members made a three-five year Action Plan.

1.2. CBCRM and Related Issues

Some general issues characterize CBCRM in Vanuatu. These are described in this section.

Fragility of Traditional Social Systems

The recent shift to a market-based economy has increased the movement and relocation of people to Port Vila, the capital city, to earn cash incomes. This trend appears to have led to a devaluation of traditional social systems, one result of which is the reduced importance of the traditional management of fisheries and resources.

Limited Alternative Means of Improving Livelihoods

To enable residents to carry out CBCRM on a voluntary basis when the need for cash income is increasing, it is essential to provide them with other means to make a living when resources are unavailable owing to conservation activities or other constraints. However, that is difficult to do within the community alone.

Efficacy of Traditional Resource-Management Zones

The effectiveness of these zones is unclear because no baseline surveys or similar activities have been conducted. Many zones are small, at just a few hundred square meters. Further, many have been established based a community' own notions, rather than on scientific grounds.

Target sites in West Efate include the communities of Lelepa and Mangaliliu.

These communities, sites in Phase I of the project (2006 – 2009), were where the following activities were implemented: 1) Release of Trochus, Green snail, and Giant clam seeds and concentration of spawning Giant clam, 2) Formulation of fisheries-resource management plans for the Lelepa and Mangaliliu coasts, and 3) Designation of no-fishing zones.

As a result of those activities the following issues became clear in Lelepa and Mangaliliu.

Low rate of compliance with existing management measures and frequent disputes among resource users

Although CBCRM plans were formulated for the Lelema (Lelepa and Mangaliliu), almost no activities have taken place owing to a lack of practical plans. Awareness of the importance of CBCRM was low.

Conflict between resource users from different communities owing to overlapping fishing grounds

no effective monitoring system is in place despite the fishing area belonging to Lelepa and Mangaliliu being easily accessible from other communities.

Lack of readiness and awareness among stakeholders to work together

Unlike other islands, inhabitants of Lelepa and Mangaliliu have easy access to income earning opportunities in Port Vila. As a consequence, the willingness of community members to work together for the sake of the community is weakening.

2. CBCRM plan

2.1 Target Species

The target species described below are of major importance to coastal communities throughout Vanuatu. Three resources have gone through the normal boom and bust cycle. As a result the Fisheries Department is considering implementation of the following strategy:

- i) The species currently open for harvesting, such as Sea cucumber and Trochus, will be managed under a rotational strategy to control harvesting in different provinces and reduce the risk of overharvesting. The total harvest per area at a given time will be determined using Total Allowable Catch (TAC);
- ii) Once stock assessment has determined that resources have recovered, the rotational system will be replaced by the TAC alone.

In the Lelema area the following target species are managed using local rules established by the CBCRM Committee and aimed at enabling stocks to recover: The three species are:

- Green snail. Commercial harvesting of this resource is banned nationwide until 2019. (See the attached report from the EFTAV Project for more information on the status of Green snail in the Lelema area.)
- Trochus. This resource shows some evidence of stock recovery, but stocks are currently too low to permit harvesting even in the taboo areas. Therefore it is recommended that the current ban on Trochus harvesting in the Lelema Reef area be continued for the next three to five years, during which time a stock assessment can be conducted (See the EFITAV Project report for more information.)
- Sea cucumber. The harvestable stock of Sea cucumber in Lelema is part of the TAC for Efate B (see Fig. 1) .Sea cucumber companies cannot purchase the TAC without the permission of the Lelema CBCRM Committee and Lelema Council of Chiefs. This approach is currently enforced by the Fisheries Department, under the *Fisheries Act*.

2.2 Objectives of the resource management in West Efate

In West Efate, management of only small areas located just in front of communities is ineffective, since the same resource could be exploited by external communities. The objective of resource management in West Efate is to expand the management area (Fig.1), with effective monitoring and a sound management structure. The management area shown in the map is sub-divided into seven smaller areas. The target species and regulations applied in each sub-area differ slightly (Table 1, 2)..



Fig. 1: Expansion of the management area

Table 1: New Taboo Regulation at Lelema (Lelepa – Mangaliliu)

Management Area and location	Banned Species	Banned Fishing Method	Alternatives	Responsible Persons
Vatunmanko S17° 37' 828" E168° 12' 643" – Loubouluk S17° 39' 176" E168° 11' 266"	Trochus, Green Snail, Prawn, Land Crab, Sea Crab, Fish (including Aquarium fish) , Turtle, shells, Small Green Snail, Giant Clam, Chiton(Tamuruku), Sea cucumber, Clam shells and Octopus	- Dive fishing during day and night.	- Seasonal fishing (Loubouluk-Tuktuk Bay). - Eco-tourism	MPA, Chiefs of Council and Park Rangers. (1 Chief) Vanua-Tai (resource monitor network)
Vatunmanko S17° 37' 828" E168° 12' 643" - Toalima S17° 35' 159" E168° 14' 565"	Trochus, Giant Clam, shells, Land Crab, Sea Crab, Prawn, Clam Shell, Octopus, Chiton (Tamuruku), Sea cucumber Clam shells and Aquarium fish	- Dive fishing during day and night.	- Seasonal fishing - Eco-tourism	MPA, Lelema Council of Chiefs and Park Rangers (Longoro). (4 Chiefs) Vanua-Tai
Loubouluk S17° 39' 176" E168° 11' 266" – Tuktuk Bay S17° 42' E168° 10'	Trochus, Green Snail, Land Crab, Sea crab, shells, Turtle, Giant Clam, aquarium fish, Sea cucumber (Mamu) and Clam shells	- Free take zone	- Seasonal fishing - Eco-tourism	MPA, Lelema Council of Chiefs members and Park Rangers (Longoro). (2 Chiefs) Vanua-Tai
Lapos-Nangsum Rumta S17° 36' 119" E168° 13' 459" – Viltoka – Naurvatlap S17° 36' 775" E168° 12' 759"	Fish, Giant Clam, Clam Shell, shells, Green snail, Trochus, Sea cucumber, Octopus and Aquarium fish	- Dive fishing during night.	- Seasonal fishing - Eco-tourism	MPA, Lelema Council of Chiefs and Park Rangers (Longoro) (2 Chiefs) World Heritage Tourism Committee (W.H.T.C.) Vanua-Tai

<p>Lelepa Taboo area Auba S17° 36' 775" E168° 12' 759" - Lakposa S17° 36' 119" E168° 13' 459"</p>	<p>Giant Clam, Fish, Turtle, shells, Clam Shell, Octopus, Trochus, Green snail and Sea cucumber.</p>	<ul style="list-style-type: none"> - Ban on all fishing activities - Conservation 	<p>- Eco-tourism</p>	<p>MPA, Lelema Council of Chiefs and Park Rangers (Longoro). (Chief) W.H.T.C. Vanua-Tai</p>
<p>Hat Island</p>	<p>Trochus, Green Snail, Prawn, Land Crab, Sea Crab, Fish (including Aquarium fish), Turtle, shells, Small Green Snail, Clam Shell, Tamaruku, and Sea cucumber (Mamu).</p>	<ul style="list-style-type: none"> - Ban on all fishing activities - Conservation 	<p>- Eco-tourism</p>	<p>MPA, Lelema Council of Chiefs and Park Rangers (Longoro). W.H.T.C. (1 chief) Vanua-Tai</p>
<p>Notes</p>	<ul style="list-style-type: none"> - Banned areas are supported by the Fisheries Regulations. - Penalties: 1 Pig, 1 stem (stampa) of Kava, 5 Mats, or some food crops - Women can collect dead shells in the taboo areas for shell polishing and handicraft making. - The season period will be decided by the responsible people in the area. 			

Table 2: Taboo Regulation, Alternatives, and Access requirements at Lelema (Lelepa – Mangaliliu)

Management Area	Banned Species	Alternatives	Access requirements (Commercial)	Lelema requirements	Responsible Stakeholders
Vatunmanko – Loubouluk	Trochus, Green Snail, Prawn, Land Crab, Sea Crab, Fish (including Aquarium fish), Turtle, shells, Small Green Snail, Clam Shell, Chiton (Tamuruku), and Sea cucumber	<ul style="list-style-type: none"> - Seasonal fishing (Loubouluk-Tuktuk Bay). - Eco-tourism - Deep sea fishing - Forestry - Agriculture - Livestock 	<ul style="list-style-type: none"> - Investment Plan -Approval from relevant government agencies. -Approval from Shefa Province. -Approval from Lelema Council of Chiefs 	<ul style="list-style-type: none"> -MOA between investor and Lelema Council of Chiefs. -Sign Copies of approved documents. 	<ul style="list-style-type: none"> -Government institutions -Shefa Province -Lelema Council of Chiefs W.H.T.C.
Vatunmanko - Toalima	Trochus, Giant Clam, shells, Land Crab, Sea Crab, Prawn, Clam Shell, Octopus, Chiton (Tamuruku), Aquarium fish and Sea cucumber	<ul style="list-style-type: none"> - Seasonal fishing - Eco-tourism Activity - Deep sea fishing - Forestry - Agriculture - Livestock 	<ul style="list-style-type: none"> - Investment Plan -Approval from relevant government agencies. -Approval from Shefa Province -Approval from Lelema Council of Chiefs 	<ul style="list-style-type: none"> -MOA between investor and Lelema Council of Chiefs. -Sign Copies of approved documents. 	<ul style="list-style-type: none"> -Government institutions -Shefa Province -Lelema Council of Chiefs
Loubouluk – Tuktuk Bay	Trochus, Green Snail, Land Crab, Sea crab, shells, Turtle, Giant Clam, aquarium fish, and Sea cucumber (Mamu)	<ul style="list-style-type: none"> - Seasonal fishing - Eco-tourism - Deep sea fishing - Forestry - Agriculture - Livestock 	<ul style="list-style-type: none"> - Investment Plan -Approval from relevant government agencies. -Approval from Shefa Province. -Approval from Lelema Council of Chiefs 	<ul style="list-style-type: none"> -MOU between investor and Lelema Council of Chiefs. -Sign Copies of approved documents. 	<ul style="list-style-type: none"> -Government institutions -Shefa Province -Lelema Council of Chiefs W.H.T.C.
NangsumRumta	Fish, Giant Clam, Clam	<ul style="list-style-type: none"> - Seasonal fishing 	<ul style="list-style-type: none"> - Investment Plan 	<ul style="list-style-type: none"> -MOU between 	<ul style="list-style-type: none"> -Government

- Viltoka - Naurvatlap.	Shell, shells, Green snail, Trochus, Aquarium fish and Sea cucumber	Eco-tourism - Deep sea fishing - Forestry - Agriculture - Livestock	-Approval from relevant government agencies. -Approval from Shefa Province. -Approval from Lelema Council of Chiefs	investor and Lelema Council of Chiefs. -Sign Copies of approved documents.	institutions -Shefa Province -Lelema Council of Chiefs
Lelepa Taboo area Aupa - Lakposa	Giant Clam, Fish, Turtle, shells, Clam Shell, Octopus, Trochus, Green snail and Sea cucumber.	- Eco-tourism - Deep sea fishing - Forestry - Agriculture Livestock	- Investment Plan -Approval from relevant government agencies. -Approval from Shefa Province. -Approval from Lelema Council of Chiefs	-MOU between investor and Lelema Council of Chiefs. -Sign Copies of approved documents.	-Government institutions -Shefa Province -Lelema Council of Chiefs
Hat Island (island)	Trochus, Green Snail, Prawn, Land Crab, Sea Crab, Fish (including Aquarium fish), Turtle, shells, Small Green Snail, Clam Shell, Tamaruku, and Sea cucumber (Mamu).	- Eco-tourism - Deep sea Fishing	- Investment Plan -Approval from relevant government agencies. -Approval from Shefa Province. -Approval from Lelema Council of Chiefs	-MOU between investor and Lelema Council of Chiefs. -Sign Copies of approved documents.	-Government institutions -Shefa Province -Lelema Council of Chiefs

Mangaliliu MPA members

1. Harry Kalkoa (Park Ranger), 2. William Billy (Tasivanua), 3. Leisara Kalotiti (Handicraft), 4. Bruce Kalkoa (Youth), 5. Supus Kalsau Kalmel, Council of chiefs

Lelepa MPA members

1. Kalsale Sikot, 2. Tari Manutai (Turtle Monitors), 3. Max Kalsong (MPA member), 4. Truti Kalotiti (Shell Craft), 5. Lilian Reuben, 6. Fartpar Micka (Chief)

2.3. Strategies

Integrated management focusing on tourism development

In this area, shellfish resources were restocked during Phase 1 of the Project, and community-based activities were initiated for their management. Therefore it can be said that a “Shellfish Resource Centered Management Approach” was taken first as a basis. Building on such an achievement, the communities made use of an external opportunity by linking their management of shellfish with CBCRM. With a tourism development plan for West Efate being formulated, using the only World Heritage site in Vanuatu, community members in West Efate gradually recognized the potential of coastal resources as touristic resources, which led to an expansion of their existing taboo areas.

A FAD Committee, formulated under the Project and led by a prominent member of the community, has played a key role in promoting FAD installation and fishing (two were installed by the Project and a third by the community), in formulating shell polishing groups, and the conservation of reef resources, among other things. The women’s shell-polishing group has set aside 10 percent of the income from sales for training new members and to provide a start-up fund for those who have completed training. The women’s group also set up a roadside station on Efate Island and secured marketing through an existing shop and another to be established soon in Port Vila, and managed by ACTIV (Alternative Community Trade in Vanuatu), a charitable association.

2.4 Action Plan to support CBCRM

As explained in the Introduction, one of the most important lessons learned during the implementation of the pilot projects is that resource management needs effective supporting measures. Bearing this in mind, community members made an Action Plan based on the four perspectives of the VALEMA approach (see 1.1 Introduction).

2.5 Linkage between management and measures to generate alternative income

Without proper supervision, measures to generate alternative income could have an adverse effect on the promotion of CBCRM. Community members discussed this point and set up the management Accordingly (Fig. 2).

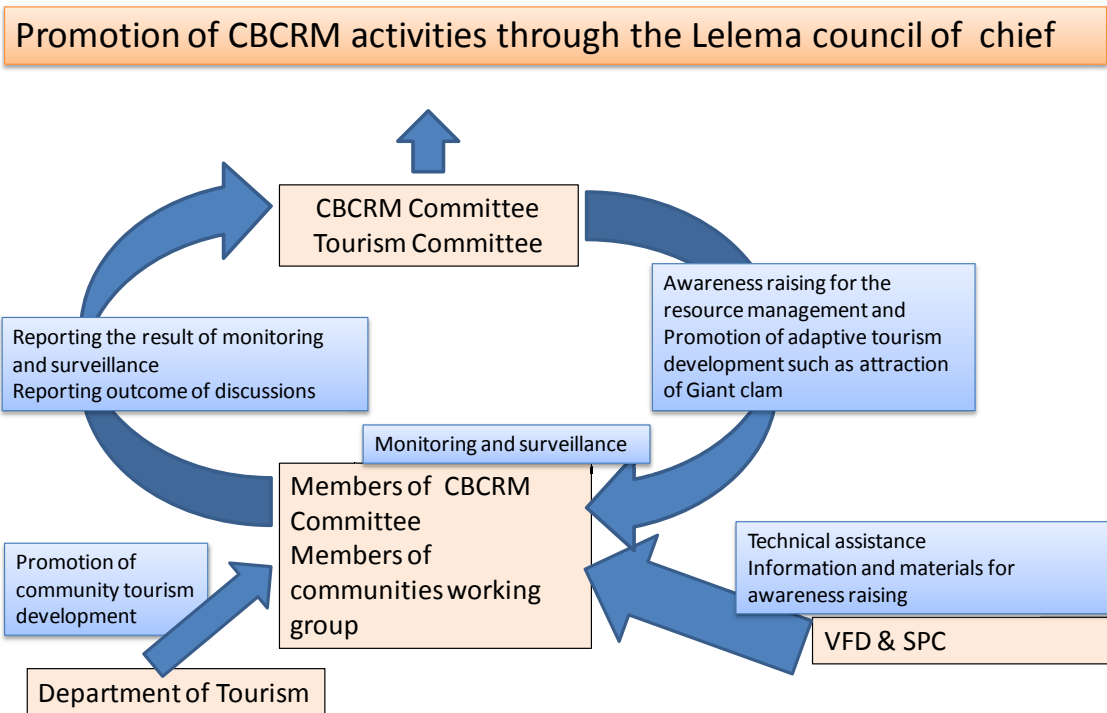


Fig. 2: Tourism development and management of overexploited resource (Giant clam, green snail)

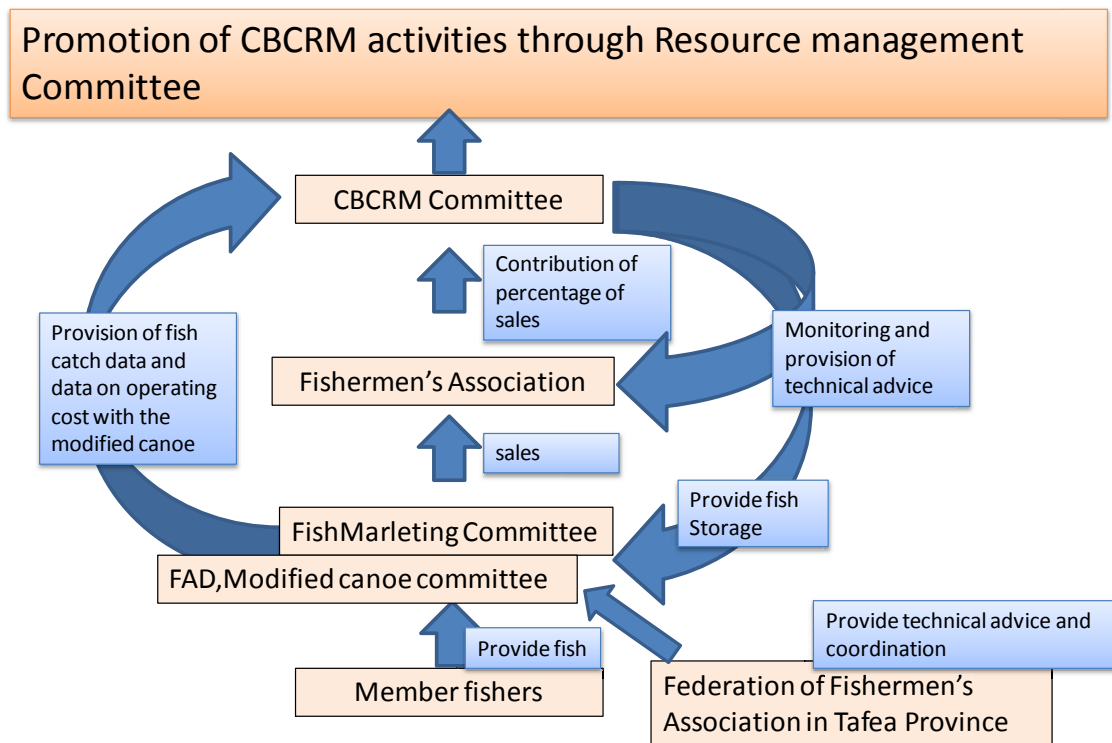
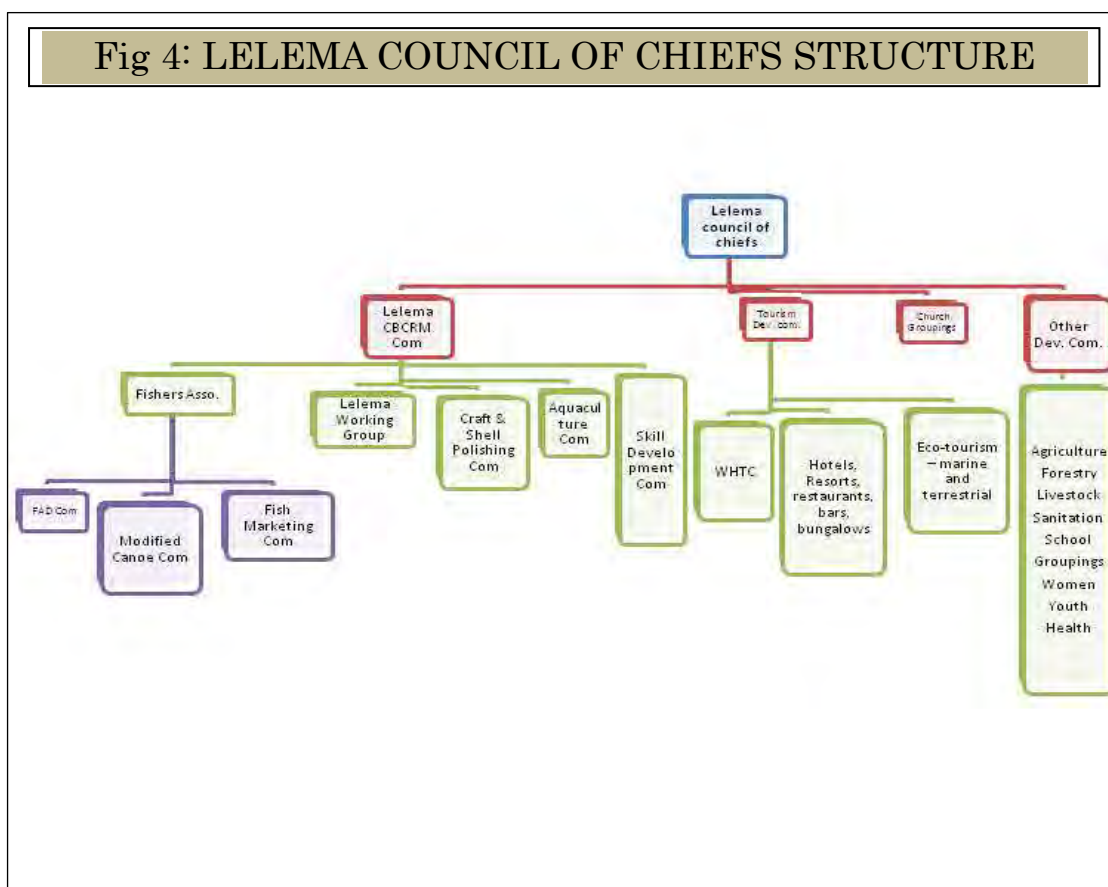


Fig. 3: Diversification of fishery, marketing and value addition to fisheries product

2.6 Lelema Council of Chiefs organizational structure (as of July 2014)



Stakeholders:

- National Government – Departments of Fisheries, Agriculture, Livestock, Forestry, Tourism, Internal Affairs, Vanuatu Police force, and Others.
- Provincial Government – SHEFA
- NGO's – Wan Smol Bag, Live and Learn, Roi Mata Domain
- Lelema Council of Chiefs - Chiefs from Mangaliliu and Lelepa Island
- Lelema CBCRM Committee – Mangaliliu CBCRM Team and Lelepa CBCRM Team
- Other Lelema committees - Those Identified under this plan
- Lelema Working Group –Those Identified under this plan
- Donor group – JICA, SGP, Museum, Climate Change adaptation program, others

2.7 Monitoring and reviewing process

As shown in the Lelema organizational structure (Fig. 4), the Lelema Council of Chiefs is the supreme body responsible for the overall implementation of the Plan Committees, including the CBCRM team. This supreme body will be required to report regularly to the Council of Chiefs, as it requests. Matters arising from the Plan will be presented to the Council of Chiefs during its the meetings. During its regular meetings the Council of Chiefs will discuss all matters arising from the Plan, and decisions will be made known to the respective committees. As necessary, the Council of Chiefs may request the participation of Government institutions, Shefa Province, and other stakeholders.

The CBCRM component is critical to this Plan, thus during meetings of the Council of Chiefs the team is required to report regularly on the status of CBCRM and the progress of the Action Plan . Decisions on amendment of the Plan can be discussed by the Lelema Council of Chiefs only after thorough consultation with the respective committees/groups under the Plan.

2.8 Dispute resolution

This section of the Plan deals with dispute resolution arising from any area¹ access and resources use (see “Lelema Council of Chiefs organization structure”). Offences committed within the jurisdiction of the Lelema Council of Chiefs will be dealt with at the community level. Offences against national legislation and regulations will be dealt with by the relevant Government agency, in close collaboration with the CBCRM Committee and the Lelema Council of Chiefs.

The relevant community enforcement groups, committees and working groups will be responsible for implementing and enforcing the Plan at the community (Lelema) level.

¹ The term “Area” refers to the Lelema customary land boundary

Acknowledgements;

The Lelema CBCRM Management Plan Formulation Committee wishes to thank those members of the community who participated in all meetings and consultations within the two communities of Lelepa and Mangaliliu, and who thereby contributed to the completion of this Plan. The community of Lelema is grateful to JICA for funding the “Grace of the Sea Project”. The community is grateful to the ICNET Team of Seko-san, Iinuma-san, Nishiyama-san, Fuji-san, and Takayama-san for their immeasurable assistance and perseverance in completing this Plan and the associated Action Plans. The assistance of FAI Company, especially that of Sone-san and Kikutani-san, is also greatly appreciated. The community wishes to thank the Government of Vanuatu, especially the Department of Fisheries officers, Director William Naviti, Graham Nimoho and George Amos, for their tireless efforts in organizing and mobilizing the community consultation process that ensured completion of this Plan.

The community of Lelema is ever grateful for the unstinting support of its Paramount Chief, Chief Murmur, for his strong leadership of the community CBCRM Plan formulation team that successfully completed and launched this Plan. The Lelema community is thankful to the team members, Chief Murmur, Chief Arier Turi, Mr. Max Kalsong, and Mr. Harry Kalkoa, for their dedication and the time they devoted on behalf of the community to successfully complete this Plan. The efforts and assistance of those not specifically mentioned is nevertheless much appreciated, and to them Chief Murmur wishes to say “Apsawio”.

To the ancestors of the Lelema people;

***“Apsawi kumu te matu. Tetekan, Keke, Tat, Tatu, Papu, Tatia.
Msala kumu nawiana na ego puel”.***

None of this achievement of hard work and success would have been achieved without the divine blessing of the Creator, God the Father.

Attachment: Action plan to support CBCRM

“©” indicates the activity which Fisheries Dep. is in charge of

Activities	Period																In charge of Activity	
	2014				2015				2016				2017				Fisheries Dep.	Community / Others
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Output 1: To strengthen coastal resource management measures																		
1.1: Establish MPA committee																		
1.1.1: Liaise at Lelema Council of Chiefs meetings																		Chief Mormor
1.1.2: Organize community meetings																		Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.1.3: Select MPA Committee members																		Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.1.4: Formulate MPA Committee																		Chief Mormor for Mangaliliu, Wilson Billy for Lelepa
1.2: MPA rules and regulations																		
1.2.1: Make draft of MPA rules and regulations																		Max in Lelepa, Harry in Mangaliliu
1.2.2: Present the draft to community and receive feedback																		Max in Lelepa, Harry in Mangaliliu
1.2.3: Finalize the rules and regulations																	©	MPA committee chairman

1.2.4: Print the rule and regulations										◎	
1.3: Awareness for MPA											
1.3.1: Media Radio/ TV/ newspapers											MPA committee
1.3.2: Distribute MPA booklet to community											MPA committee
1.3.3: Put billboards in several places											Chief Mormor/NGO
1.4: Patrol and security											
1.4.1: Patrol of the area by Park Rangers											Max and Harry
1.4.2: Patrol of the area by Turtle Monitors (NGO)											William and Harry
1.5: Monitor and Evaluate											
1.5.1: Monitor Trochus, Green Snail & Giant Clam										Every 6month, 2014-2017	◎ MPA committee
1.5.2: Monitor Land Crab & Coconut Crab										Every 2years, 2014-2017	◎ MPA committee
Output 2: To create / strengthen alternative income generations as supporting measures											
2.1: FAD fishing diversification of target species											
2.1.1: Acquire deep sea FAD materials											◎ FAD committee
2.1.2: Construct and deploy deep sea FADs											◎ FAD committee
2.1.3: Monitoring and data collection											◎ FAD committee
2.1.4: Maintenance and replacement											◎ FAD committee
2.1.5: Newly introduced gear (DBS, drop line, etc.) test fishing											◎ FAD committee
2.2: Fishermen's House as fish market											
2.2.1: Select a site in Lelepa											MPA committee (Lapusaru and Billy)
2.2.2: Select manager											MPA committee
2.2.3: Construct a house											Lelema community
2.2.4: Install solar deep freezer											Donor

2.2.5: Sales of fish												Fishermen house manager	
2.2.6: Keep record of fish sales												Fishermen house manager	
2.2.7: Monitor the operation	Every 3 month, 2014 - 2017											MPA committee	
2.2.8: Follow-up training (fish handling, record keeping/analysis, etc.)	Once a year or as necessary										©	Donor	
2.3: Create / strengthen eco-tourism													
Idea 1: Giant clam garden for snorkeling tour													
Idea 2: Fish and agriculture Local road market for fresh fish and vegetable													
Idea 3: Shell polishing for local shell products													
Idea 4: Fish café for natural local food and drinks													
Idea 5: Traditional culture (dancing, string band) & introduction of Roimata domain													
Idea 6: Modified canoe (sail and OB engine) for economic fishing and tourist attraction													
2.3.1: Organize community meeting with Minister of Tourism Officer in Shefa													Chief Mormor and council chiefs
2.3.2: Elect market committee members													Chief Mormor and council chiefs
2.3.3: Organize planning workshop													Market committee
2.3.4: Liaise fund for local road market													Market committee
2.3.5: Select a site for local road market													Chief Mormor
2.3.6: Construct a house for local road market													Lelema community
2.3.7: Install furniture, toilet, water tank & storage													Market committee

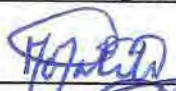




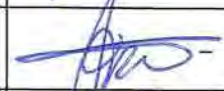


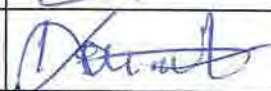




2.3.8: Promote Lelema Eco-tourism by media																			Market committee		
2.3.9: Operate Local road market																			Manager of Market committee		
2.3.10: Keep sales record																			Manager of Market committee		
2.3.11: Monitor & evaluate operations																			Every 6 months, 2014-2017	©	Tourism Dep. / Market committee / Shefa tourism
2.3.12: Follow-up training Workshop																			Once a year or as necessary. 2014-2017	©	Tourism Dep. / Market committee / Shefa tourism

Long dei ia, Saturday 27th September 2014

Mifala we i saenem community- Based Coastal Resource Management (CBCRM) manejimen plan ia stap deklarem se;

Oi man we oli sign nao oli luk save (kim raet) blong ol aria we i stap long plan blong kam manejmen eria.

Evri man o pipol we oli gat raet mo interest long Komuniti Manejmen Eria ia oli akri mo sapotem long CBCRM.

Location	Name	Signature
Mangaliliu	Paramount Chief Murmur	
Mangas	Chief Meto	
Fatkau	Chief Napangau	
Vatenling	Chief Arier	
Utaon	Chief Tivate	
Natapau	To be named	
Mangororiki	Chief Masong	
Losa	Chief Tunguluman	
Sukuluku	Chief Patok	
Siviri	Chief Mantai	
Tuktuk	Chief Masepong	
Alpat	Chief Vartapar	
Lelepa	Chairman wilson Billy	

The Community of Lelema

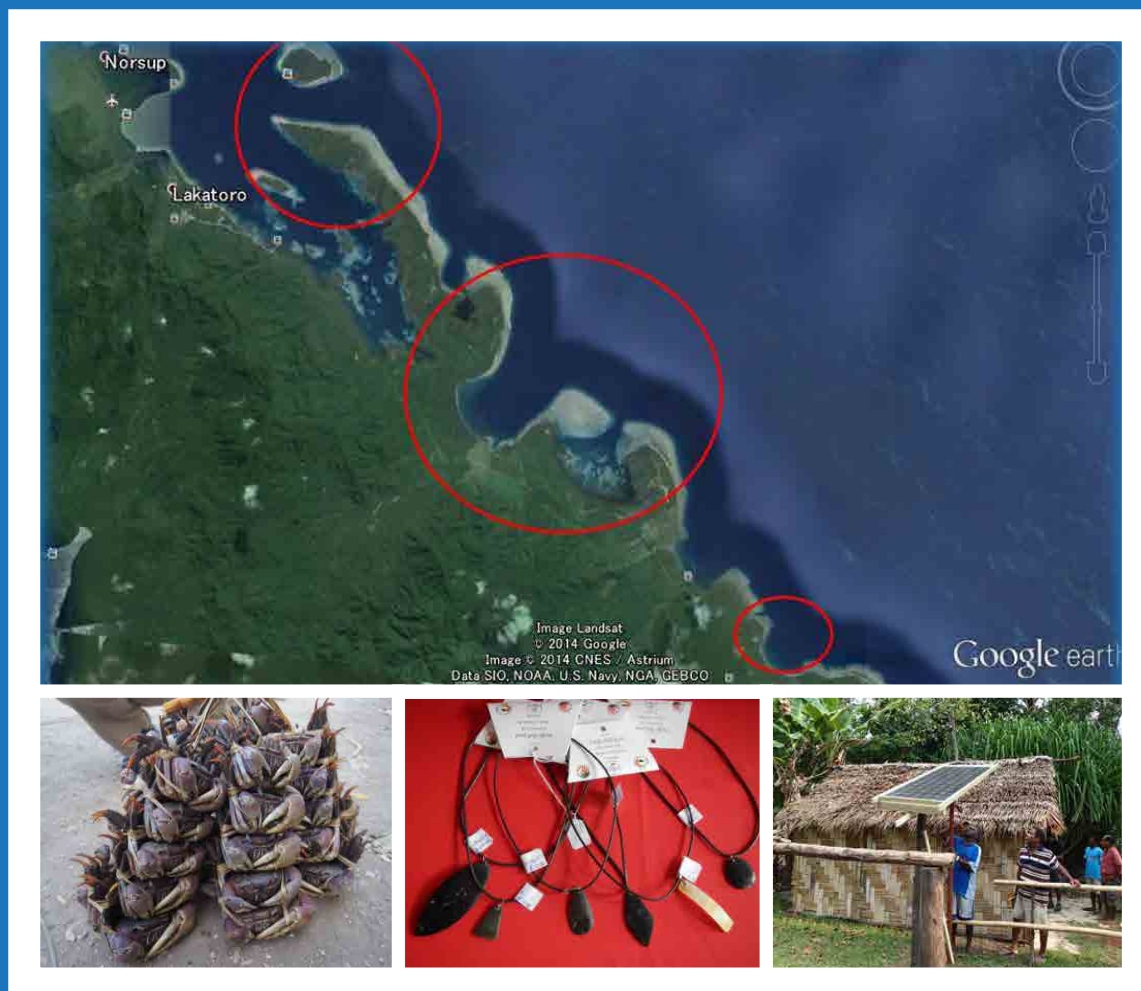
October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited



Community Based Coastal Resource Management

(CBCRM) Plan for Malekula



The Community of Malekula October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited




FOREWORD

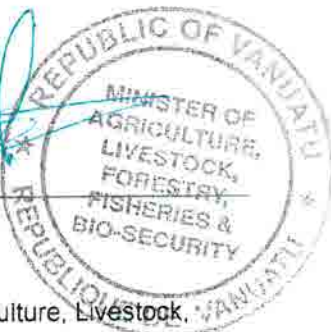
Coastal Marine resources have long played an important role as a daily source of protein for the inhabitants of coastal Vanuatu. In addition, marine resources have developed markedly in recent years, such that nowadays they contribute not only to income generation, but also provide a resource for the burgeoning tourist industry. Coastal resources provision the growing population of Vanuatu; they also provide entertainment for thousands of tourists. Therefore, the sustainable use of coastal resource is now of crucial important to both the food security and tourist sectors of the economy. As a consequence, the need for coastal resource management continues to increase significantly in our nation.

The Vanuatu Fisheries Department has supported people to elaborate their own management plans in coastal communities like the Crab Bay Area of Malakula Island, North West Area of Efate Island, and Aneityum Island. At the same time, the Department has encouraged community members to improve their own capacity for coastal resources management by collaborating with the "Project of Grace of the Seas for the Coastal Villages in Vanuatu", which is financed by the Japan International Cooperation Agency (JICA).

The Government of Vanuatu is convinced that sound coastal resource management will be achieved through the efforts of these communities, and that the results will serve as a model of resource management and thereby be extended to other coastal communities.

We wish to request that all stakeholders put their hands and heads to work alongside the members coastal communities, to realize the sustainable use of our natural resource in perpetuity.


David Tosul
Minister
Ministry of Agriculture, Livestock,
Forestry, Fisheries and Biosecurity




William Naviti
Acting Director
Fisheries Department



Community-Based Coastal Resource Management (CBCRM) plan for Malakula

1. Introduction

1.1 Introduction

CBCRM (Community-Based Coastal Resource Management) consists of resource management measures and supporting measures. It is based on four different perspectives:

1. The resource and environment perspective, which includes both scientific resource survey and awareness raising on the importance of resource management;
2. The economy and production perspective, which is mainly the introduction of alternative sources of income to reduce dependence on coastal resources;
3. The social and culture perspective, which establishes a solid organization based on the traditional experience and knowledge for the implementation of CBCRM; and
4. The institutional and governance perspective for government and NGOs to support the first three perspectives.

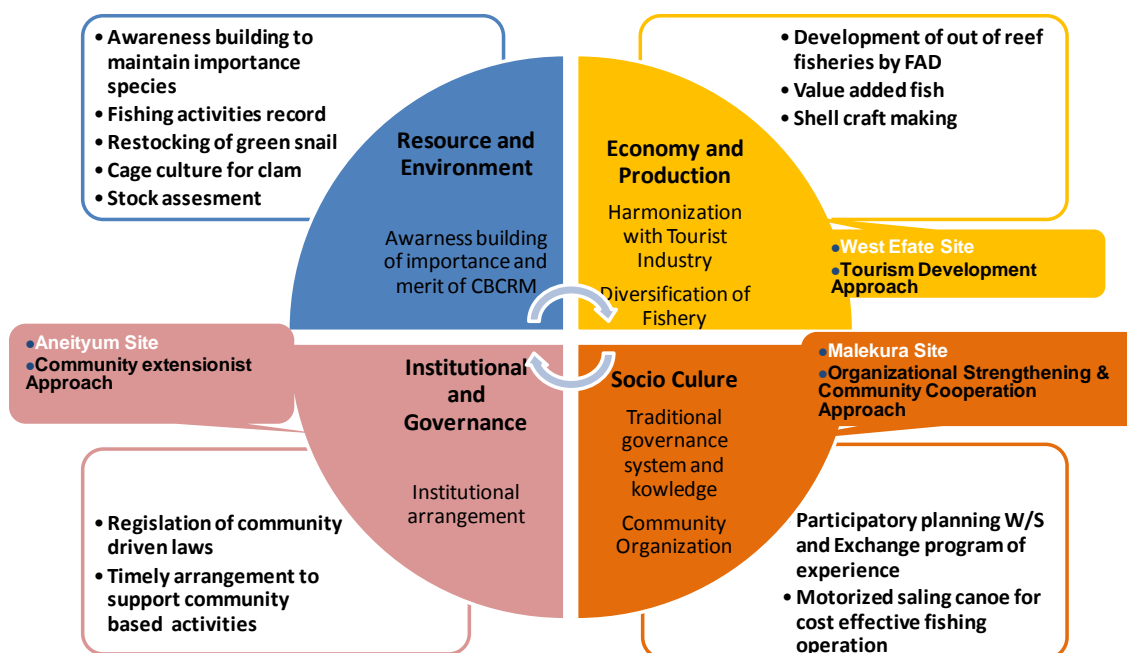


Fig1. Main approaches in different perspective

VALEMA is the name of CBCRM approaches created in the three target sites of the JICA Project for Promotion of Grace of Seas in Coastal Villages in Vanuatu, Phase 2. The name of the approaches came from Vanuatu, Lelema, Malakula, and Aneityum.

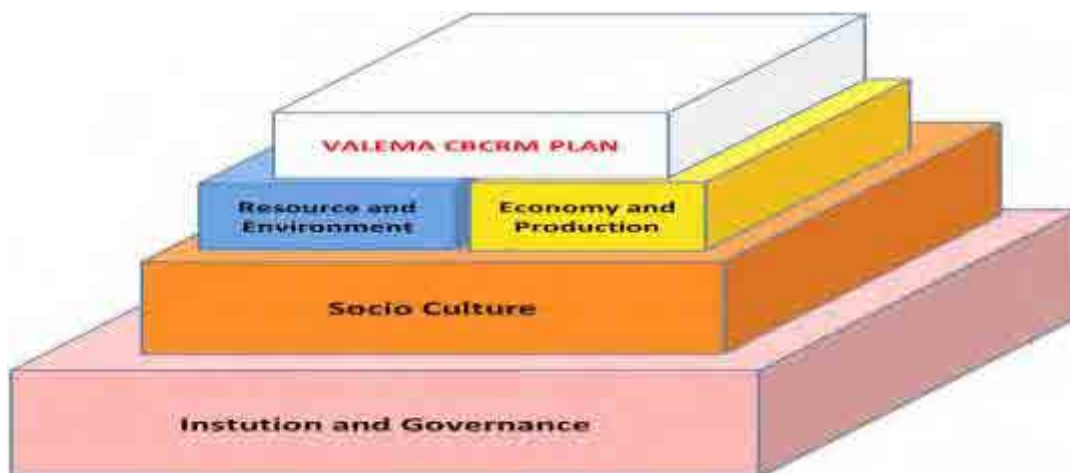


Fig2. Structure of VALEMA CBCRM Plan

One accomplishment of the Project is that community members formulated the CBCRM Plan. The Plan consists of two main parts. The first is regulation to promote resource management, and the second is the action plan to support the promotion of resource management.

One of the most important lessons learned during implementation of the pilot projects is that resource management can be promoted effectively only when combined with supporting measures. Bearing this in mind, community members made a three-five year Action Plan.

The AMAL Krab-Bay Taboo Eria (AKTE) Management Plan was updated, and subsequently, in December 2013, the Department of the Environment registered Crab Bay as an MPA. This Management Plan includes the AKTE plan.

1.2. CBCRM and Related Issues

There follows a brief description of some general issues on CBCRM observed in Vanuatu.

Fragility of Traditional Social Systems

The recent shift to a market-based economy has increased the movement and relocation of people to Port Vila, the capital city, to earn cash incomes. This trend appears to have led to a devaluation of traditional social systems, one result of which is the reduced importance of the traditional management of fisheries and resources.

Limited Alternative Means of Improving Livelihoods

To enable residents to carry out CBCRM on a voluntary basis when the need for cash income is increasing, it is essential to provide them with other means to make a living when resources are unavailable owing to conservation activities or other constraints. However, that is difficult to do within the community alone.

Efficacy of Traditional Resource Management Zones

The effectiveness of these zones is unclear because no baseline surveys or similar activities have been conducted. Many zones are small, at just a few hundred square meters. Further, many have been established based a community's own notions, rather than on scientific grounds.

The following issues are also observed in the case of Malakula.

Deficiencies in the Resource Monitoring Structure

Because many communities are involved in the Resource Management Committee in Crab Bay, attention is required to take into account the differences among member communities in resource use and socio-economic conditions. Were this not done the effectiveness of resource management, would be undermined.

The no-fishing zone is uninhabited and the MPA Committee lacks both the capacity and financial resources to implement a monitoring system. Although in about 2008 the no-fishing zone Management Committee was trained by the U.S. Peace Corps to check reefs, the methods for monitoring resources in no-fishing zones failed to develop. For example, the present condition of the Trochus released in the zones by the Fisheries Department has not been ascertained.

Pressure on No-Fishing Zones:

Pressure by fishermen from nearby communities who want to fish in this area is increasing each year. Therefore, they must be given incentives to observe the no-fishing zones.

Increasing Fishing Pressure in Waters around Uri-Uripiv

Fishing is difficult in northern Uripiv, which faces the open sea and so experiences rough waves. For this reason, fishermen from Uripiv fish around Uri. This has caused a decrease in reef fish between Uri and Uripiv.

2. CBCRM plan

2.1 Target Species

The target species described below are of major importance to coastal communities throughout Vanuatu. Three resources have gone through the normal boom and bust cycle. As a result the Fisheries Department is considering implementation of the following strategy:

- i) The species currently open for harvesting, such as Sea cucumber and Trochus, will be managed under a rotational strategy to control harvesting in different provinces and reduce the risk of overharvesting. The total harvest per area at a given time will be determined using Total Allowable Catch (TAC);
- ii) Once stock assessment has determined that resources have recovered, the rotational system will be replaced by the TAC alone.

The following three target species exist in the central Malekula area (Uri, Uripiv, etc.). They are managed under local rules, established by the CBCRM Committee and approved by the Council of Chiefs, to prevent the overfishing of current stocks. The three species are:

- Green snail. Commercial harvesting of this resource is banned nationwide until 2019. (See the attached report from the EFTAV Project for more information on the status of Green snail in the Crab Bay area, as a baseline for the whole area.) Further work will be conducted to check the status of this resource.
- Trochus. This resource shows some evidence of stock recovery, although around Malekula and offshore Islands stocks remain low in the open areas and high in taboo areas. Results of reseedling programs in Crab Bay and Uripiv Island will be monitored carefully so that lessons learned can contribute toward management at the community level. Therefore, to avoid overharvesting, it is recommended that before any Trochus is harvested the Fisheries Department provide a TAC to the community..
- Sea cucumber. The TAC for the harvestable stock of Sea cucumber in the Central Malekula area will be based on an annual rotational harvest by the Department of Fisheries. Sea cucumber companies cannot purchase the TAC without the permission of the CBCRM Committee and the Malekula Island Council of Chiefs. This approach is currently enforced by the Fisheries Department, under the *Fisheries Act*.

Species controlled by community regulation

Land crab and Mangrove crab (to be included in the future)

2.2 Objectives of resource management in Malakula

Land crab in the MPA area is protected under the current management structure. However, the MPA Committee lacked funds to organize proactive resource management. Thus sustainability is unclear, given increasing pressure on resources in the absence of monitoring.

As a consequence, the main objectives of resource management in Malakula are strengthening that for Land crab, and expanding management for Mangrove crab and other main species. This requires the provision of effective alternative income generating activities.

Prior to the beginning of the Project, there were community resource management measures for the land crab. These consisted of an MPA and access area in Crab Bay (Fig 3), a three-finger minimum size limits (Fig. 4), and collection of data on crabs sold at the market in Lakatoro.

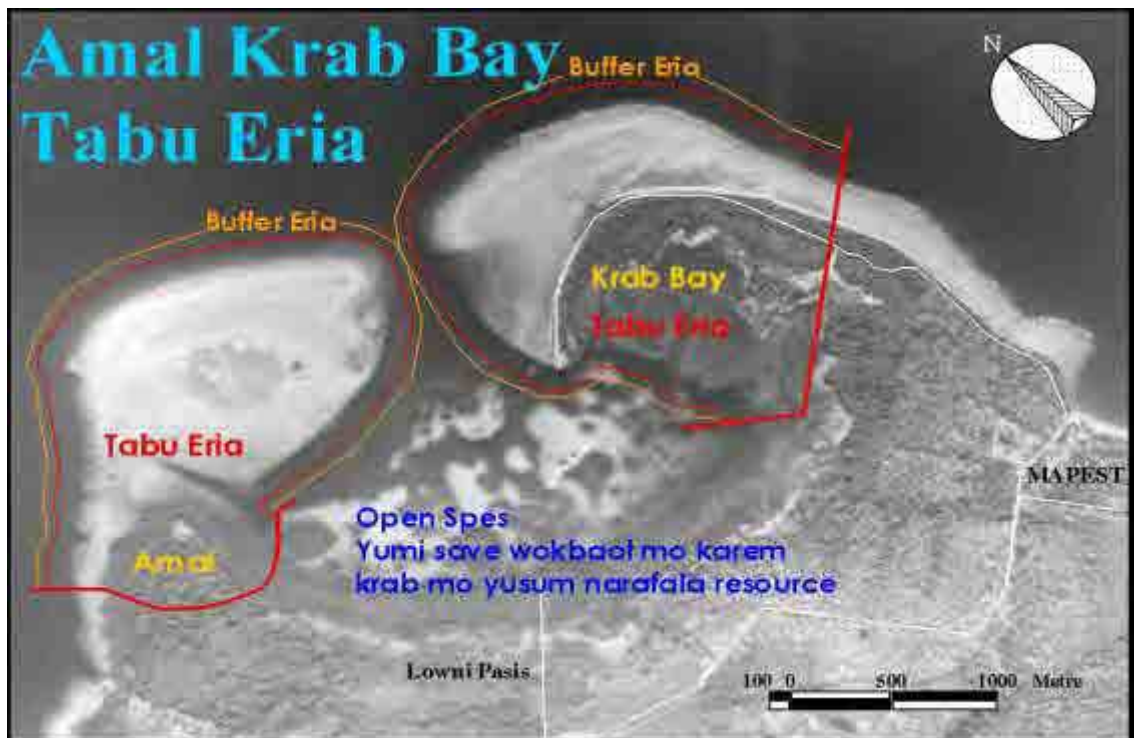


Fig. 3: The MPA and access area for Land crab in Crab Bay



Fig. 4: Minimum catch size for Land crab

In addition, community members decided to strengthen the measures by including the Mangrove crab in the management system. Also, it was decided to collect more detailed information on Land crab sold in the Lakatoro market, by dividing the access area into five zones, and recording from which zone crabs on sale had been caught (Fig. 5).

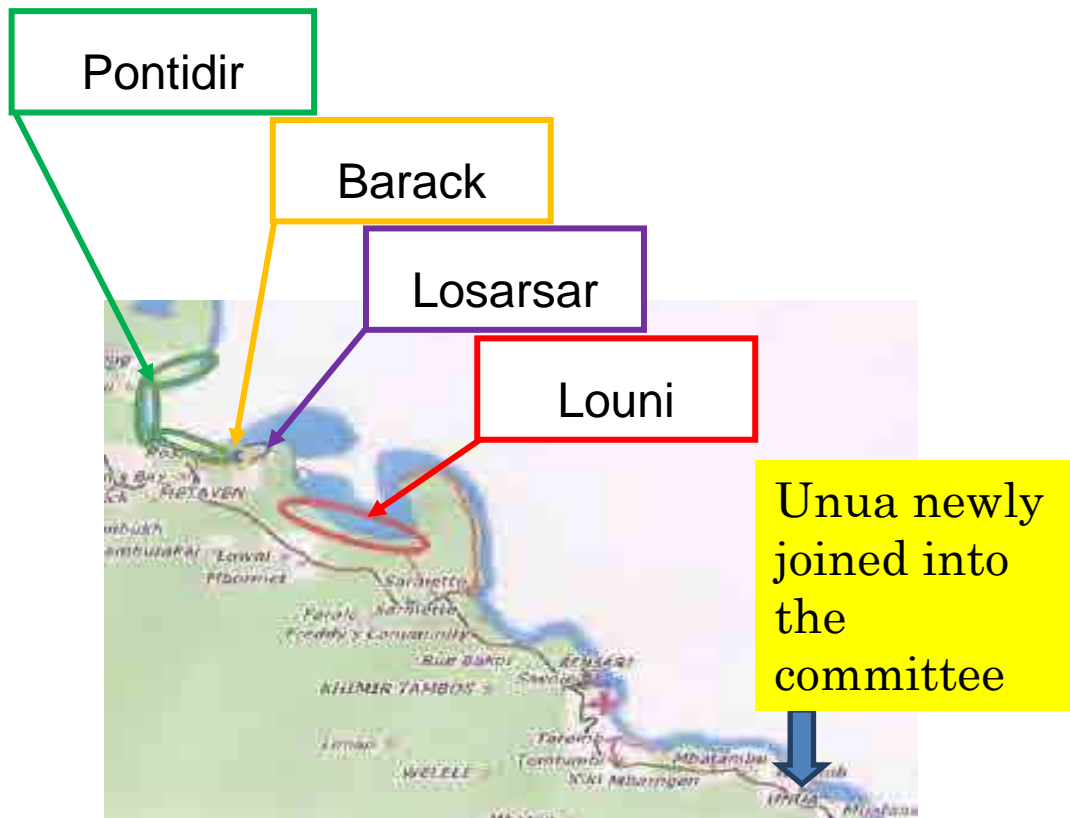


Fig. 5: Zones for collecting data of land crab catch

2.3. Strategies

Integrated management focusing on inter-community coordination

A principal characteristic of the CBCRM in Malakula is that 17 communities together form the AKTE Committee for managing the resource in Crab Bay, and it is a challenge to coordinate the different communities.

Young leaders were identified through a number of Project workshops and they started participating in existing MPA Committee meetings as new members. Motivated by the Project, the Committee revised the existing resource management plan and formulated an Action Plan. These initiatives led eventually to the authorization of their MPA plan by the government. The Committee voluntarily carried out supporting activities through its sub-committees. These activities included construction of fish markets on Uripiv Island and in Louni (one community in the Amal Crab Bay area), shell polishing and craft making activities among the 16 communities in the area, and tourism development in the MPA area. The establishment of fish markets serves also to collect data on fish catches, to evaluate the effectiveness of long-term marine resource management, and establish a cooperative relationship among the 17 communities in the Amal-Crab Bay area, which have supported this activity as a means of collective marketing and resource management.

2.4. Action plan to support CBCRM

As explained in the introduction, one of the most important lessons learned during the implementation of the pilot projects is that resource management needs effective supporting measures. Bearing this in mind, the community members made an Action Plan based on the four perspectives of the VALEMA approach.

2.5 Linkage between management and supporting measures

Without proper supervision, the supporting measures could have an adverse effect on the promotion of CBCRM. Community members have discussed this and set up the following management flow.

Tourism development

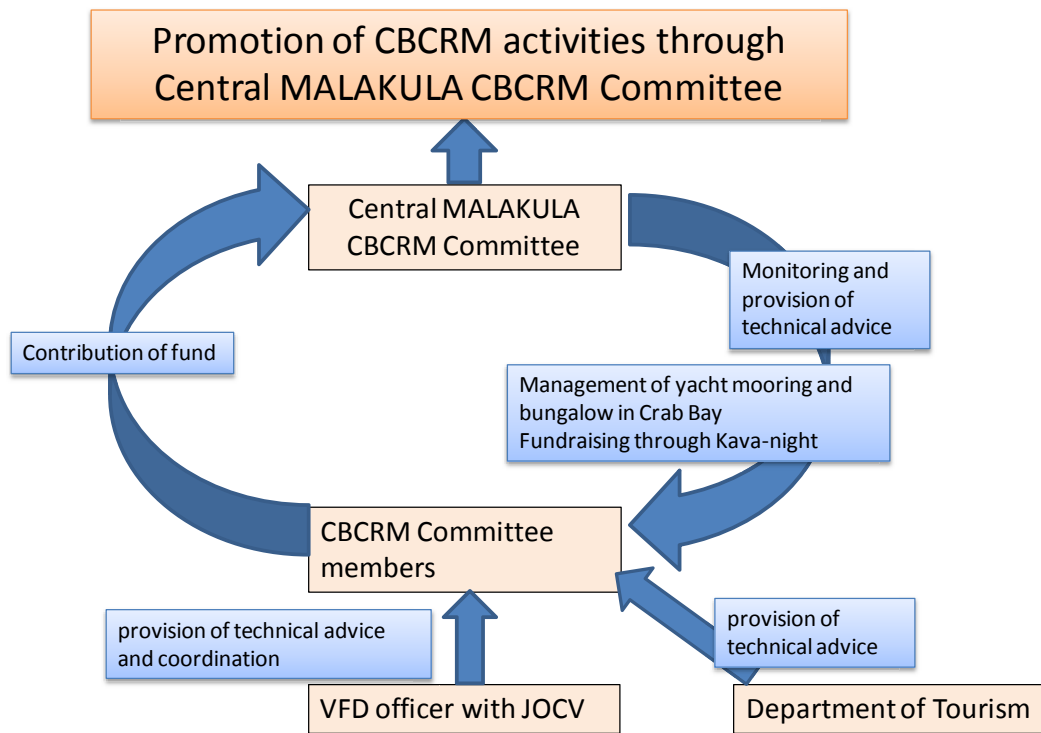


Fig 6. Structure of CBCRM Committee (1)

Marketing of fish

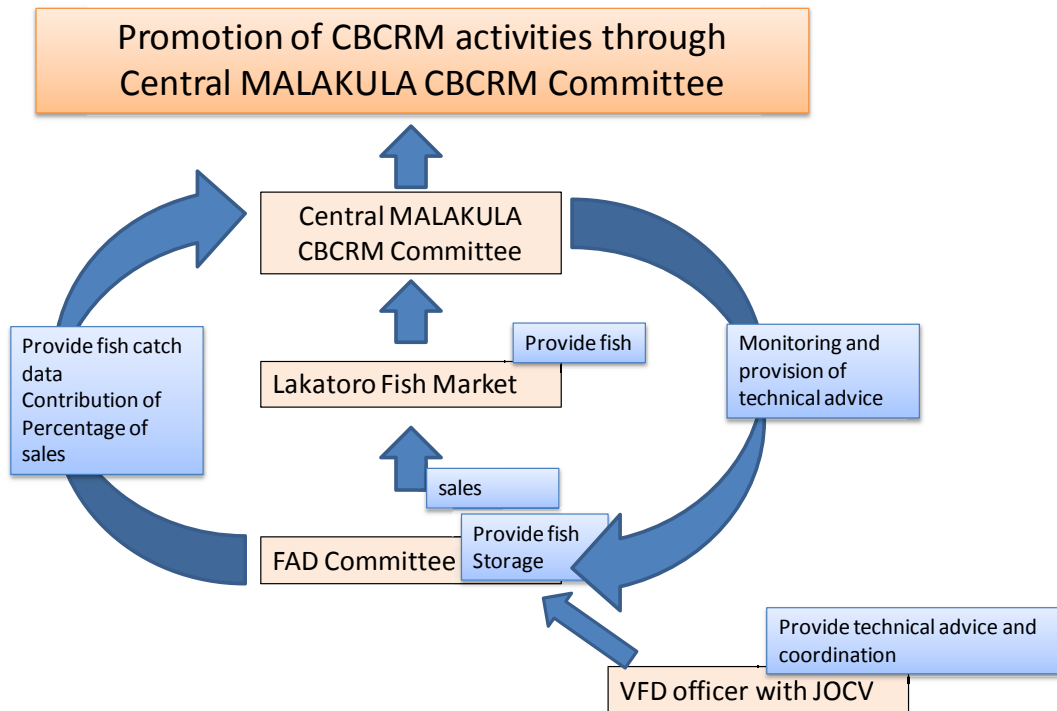


Fig 7. Structure of CBCRM Committee (2)

The FAD Committee and Lakatoro fish market provide the data. The MPA Committee uses it for resource monitoring and supervises the fishing activities.

Shell polishing

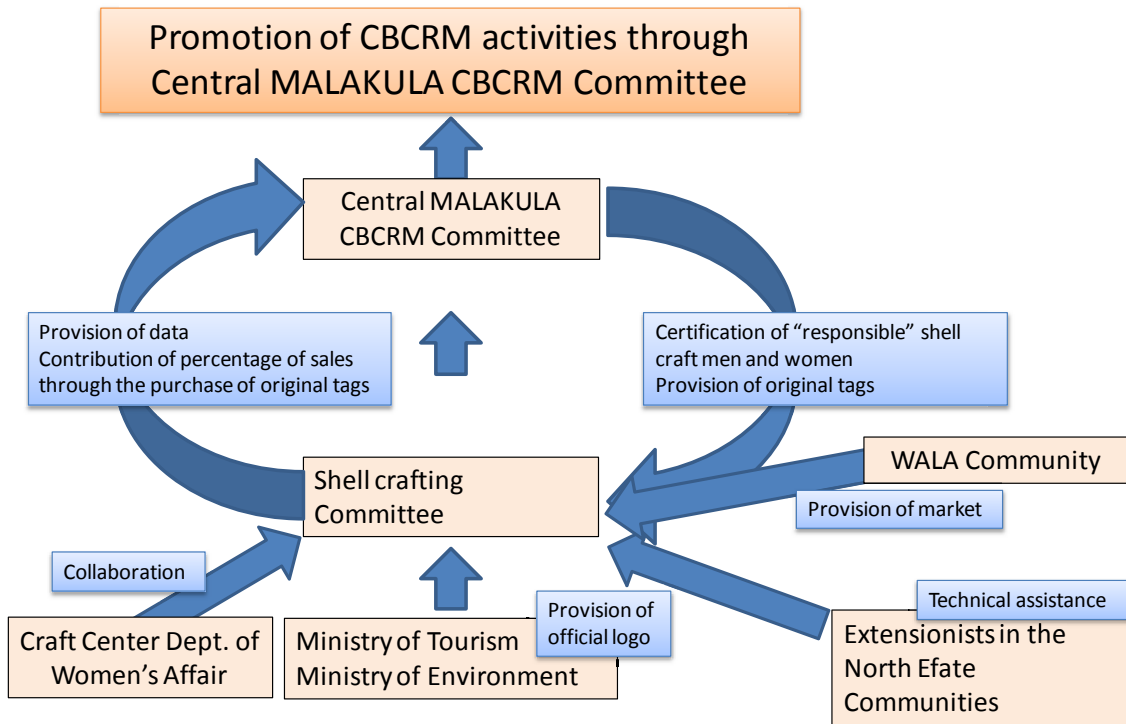
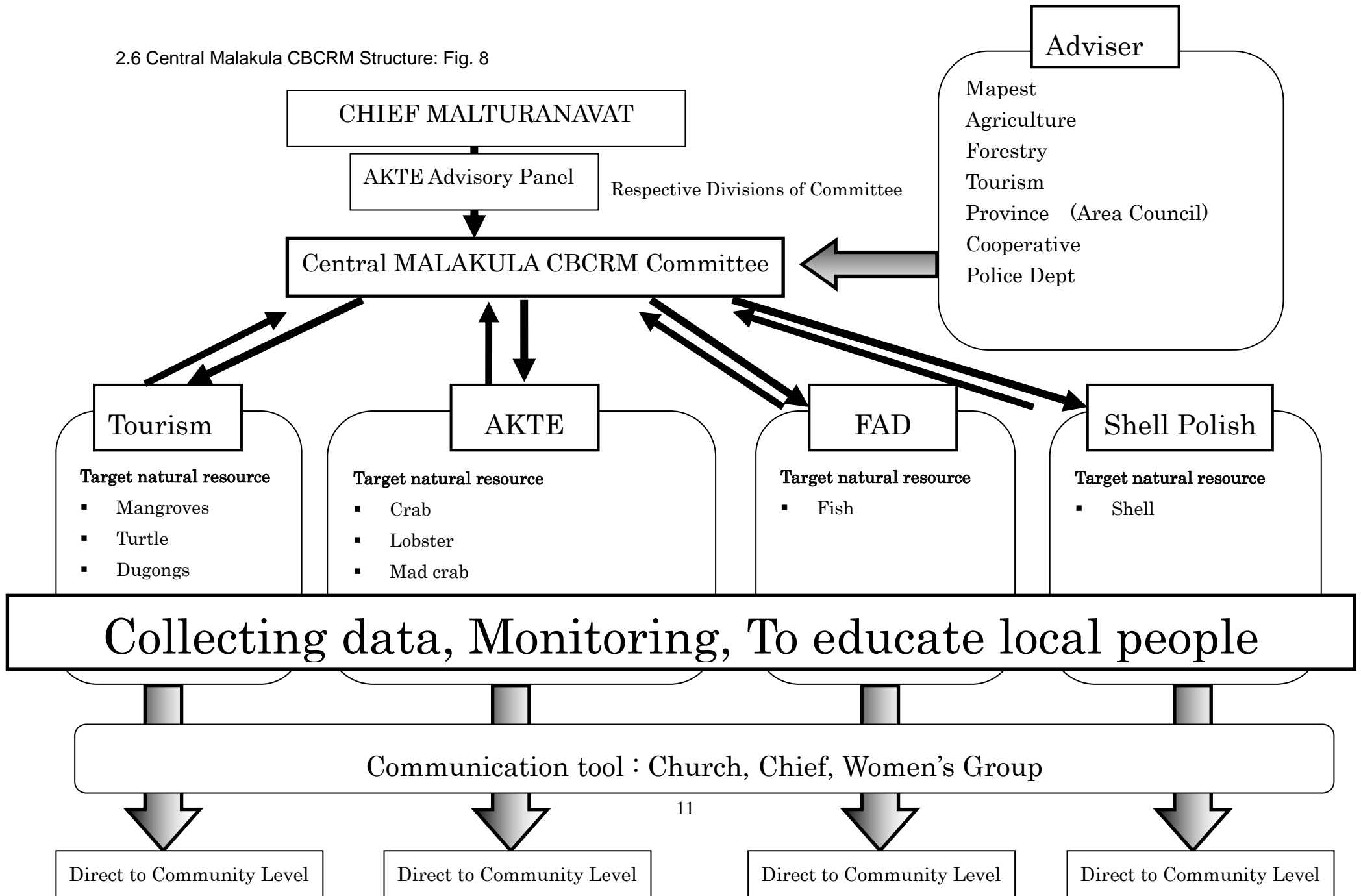


Fig 8. Structure of CBCRM Committee (3)

The Resource Management Committee supervises the shell-polishing group to ensure that shell-polishing does not increase pressure on the living shellfish resources.

2.6 Central Malakula CBCRM Structure: Fig. 8



2.7 Monitoring and reviewing process

As shown in the organizational structure (Fig.6, 7, 8 and 9), the Central Malakula CBCRM Committee reports the status of CBCRM and progress on the Action Plan. Chief Malturanavat monitors any issue that arises, and instructs a review.

The Central Malakula CBCRM Committee oversees all the sub-groups. Other related organizations, such as Mapest, Agriculture, and Forestry, among others advise the CBCRM Committee.

2.8 Dispute resolution

This section of the plan deals with dispute resolution arising from any area access and resources utilization. Offences within the jurisdiction of Chief Malturanavat will be dealt with at the community level. Other offences in relation to existing national legislations and regulations will be dealt with by respective Government Agencies in close collaboration with the CBCRM Committee and Chief Malturanavat.

“Rapmetmet e sur, evi mauren se kerr.

Wallas ie kam malamal ”.

The relevant community enforcement groups, committees and working groups will be responsible for implementation and enforcement of the plan at the community level.

Management Committee level

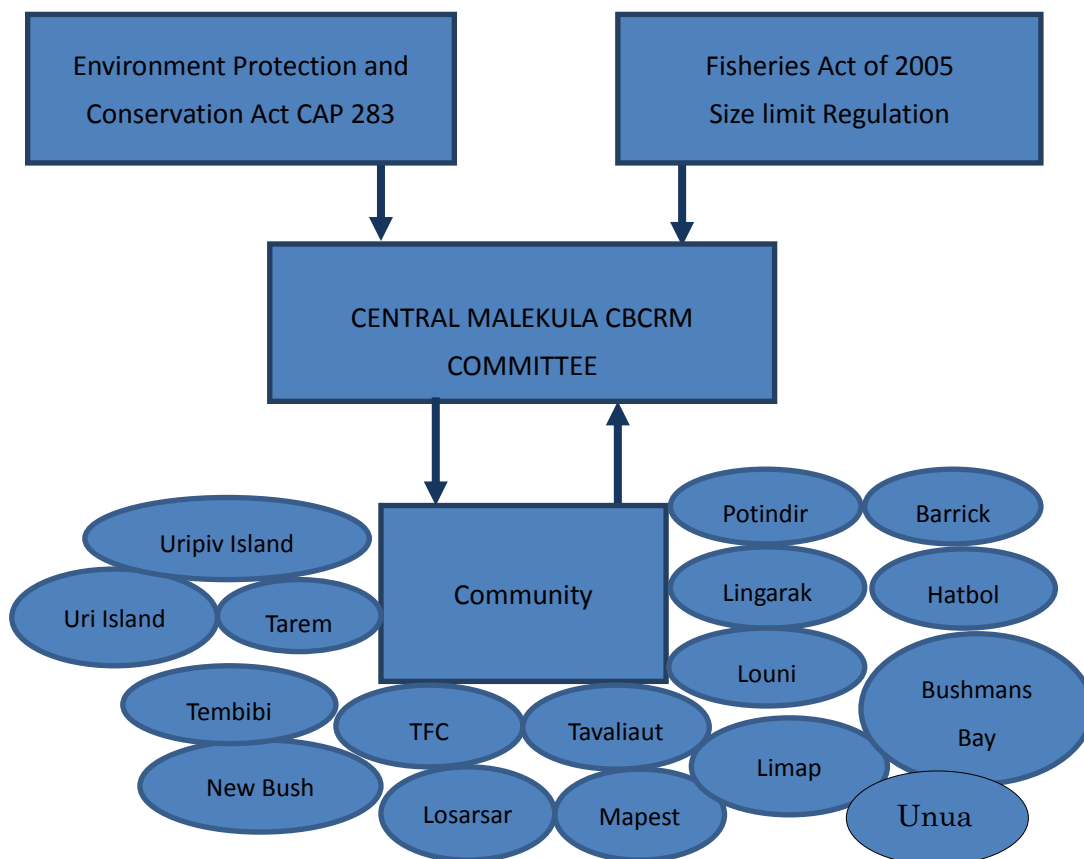
1. When a person violates a regulation, the Management Committee must act first by issuing a letter informing the culprit of the nature of the infringement.
2. Should the person fail to respond according to the conditions set forth in that letter, the matter will be further dealt with in the culprit's own community. The Management Committee allows two weeks for the community to handle the matter. Should the culprit fail to respond to the community's decision, the issue would be returned to the Management Committee.
3. The Management Committee would then handle the case according to the terms of the *Environmental Protection and Conservation Law, CAP 283*.

Community Level

1. The Management Committee assists the culprit to comply with the terms of the penalty.
2. Should the culprit fail to comply, the community would return the case to the Management Committee.

Environmental level and Fisheries Law

Should a person fail to comply with the terms of the penalty imposed by the CBCRM Management Committee, the case would be dealt under the terms of the *Environmental Protection and Conservation Law* [CAP 283] and the *Fisheries Law*.



Structure for the Village Court: Fig. 9

Acknowledgements;

The CBCRM Plan for Malakula formulation committee would like to thank each and every members of the community who participated in all meetings and consultations within the Malakula and shared their views that contributed to the completion of this plan. The community of Malakula is grateful for the assistance from JICA for funding the Grace of the sea Project in the Malakula community and the ICNET Team, Seko-San, Inuma-San, Nishiyama-San, Fuji-san and Takayama-San for their immeasurable assistance and perseverance in completing this plan and associated action plans. The assistance of FAI Company especially, Sone-San and Kikutani-San is also very much appreciated. Kayanoma-San, Japan Overseas Cooperation Volunteers, have contributed to the successful completion of the plan. To the Government of Vanuatu especially the Department of Fisheries officers, the Director Mr William Naviti, Graham Nimiho, George Amos, and Kevin Morris for your tireless effort to organize and mobilize the community consultation process ensuring the completion of this plan.

The community of Malakula is ever grateful for the unlimited support from the Chairman of Malakula Council of Chiefs and Chiefs of each area for their strong leadership to lead the community CBCRM Plan formulation team to successfully complete and launch this Plan. To the team members, Chairman of Malakula Council of Chiefs, Chiefs of each area, the Malakula community is thankful for your dedication and time devoted on behalf of the community to successfully complete this Plan. The assistance of those not specifically mentioned, your efforts and assistance is very much appreciated.

To the ancestors of the Malakula people;

"Nanu Jile evi mauren se kerr".

All this achievement of hard work and success would not have been achieved without the divine blessing from the creator GOD the Father.

Attachment: Action Plan to support CBCRM

“©” indicates the activity which Fisheries Dep. is in charge of

Activities	Period																In charge of Activity					
	2014				2015				2016				2017				2018				Fisheries Dept.	Communities and Others
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Output 1: Strengthening the AKTE Committee																						
1.1: Organize continuous meeting with board members and stakeholders (3 times / year) to review and update the plan																						Chairman of AKTE
Subcommittee meeting under AKTE to have continuous meeting as required																						
1.2 : MPA Committee has to raise funds (through the sales of kava, rental of fishing net, contribution from community, Fishermen's House, and Shell-polishing Committee) <ul style="list-style-type: none"> - Kava – Community has access for fund raising - Fund-raising plan/program by using kava grinder - Yearly fund-raising plan for AKTE (2014) - Contribution from income generating projects under AKTE - Clear budget for AKTE based on yearly work program activities. (have yearly work program drafted) - 17 community contribution annually - Donor fundraising 																						AKTE secretary and chairman

1.3: Talk with JICA and other donor agencies to make study visit to Aneityum								
Output 2: Improvement of Knowledge and Skills of AKTE Committee through Training								
2.1: Organize training on fish handling (use of ice) 2.1.1 TVET to run training on fish quality at Malampa fish market center							◎	
2.2: Teach fisherman in record-keeping 2.2.1 Chairman of AKTE and Fisheries to visit each village community to have meeting and to sort out fish scale and data collection								FAD Committee
2.3: Training on how to make stock assessment and surveys 2.3.1 Request fisheries research to do survey and training 2.3.2 Crown-of-thorns clear up campaign							◎	Chairman of AKTE
2.4: Construct and training on modified canoe								AKTE and Malapma Province
2.5: Provide training on freshwater prawn farming and fish farming 2.5.1 Training for fresh fish farming and demonstration plot at Lakatoro Agri-station 2.5.2 TVET training on freshwater fish							◎	TVET
2.6: Provide training on diving guide								Hospitality, Tourism & Leisure Training Centre + TVET

2.7: Provide training on tourist guide								Hospitality, Tourism & Leisure Training Centre + TVET
Output 3: Awareness and Monitoring for Coastal Fisheries Resource Management								
3.1: Community makes announcement to church and nakamal about the activities of AKTE								AKTE member in each community
3.2: Advertisement of AKTE management and activities (Video) 3.2.1 to upgrade exist AKTE pamphlet by JOCV							◎	
3.3: Distribute information on the importance of mangrove to nearby communities 3.3.1 Carry out mangrove awareness at Uripiv, Uri/Bare, Litzlitz, Potindir, Barick, Louni, Tevaliaut, and TFC (AKTE Committee to be responsible)							◎	AKTE (all members)
3.4: Obtain information from FD for the proper management of Mud crab and Land crab 3.4.1 JOCV and Stewart to search internet for Mud-crab cycle							◎	AKTE (Chairman)
3.5: Set up proper management rule for Mud crab and land crab 3.5.1 AKTE Committee to meet and set the management rule for mud-crab							◎	AKTE (Chairman)
3.6: Review the system of limiting the selling amount of Land crab by each area 3.6.1 Review village community management of								AKTE

access area and improve communication among villages									
3.7: Introduce a ban on the sale of gravid Land crabs 3.7.1 Put notice board at market house detailing crab harvest area and gravid crab ban October to March									AKTE
3.8: Introduce TAC (Total Allowable Catch) and rotating harvest								©	AKTE
Output 4: Alternative Income Measure									
4.1: Further study on yacht mooring								©	AKTE, Malampa Tourism Committee
4.2: Modify yacht mooring 4.2. 1 Consult and apply for permission to deploy mooring at Crab Bay with Department of Ports and Habor									
4.3: Talk with Fisheries Department and P&O to arrange cruise ship route to Crab Bay 4.3.1 AKTE to apply for membership with Tourism Council at Malampa Province (5,000VT membership fee) 4.3.2 Tourism ground work at crab Bay – work in progress (21 to 23 May, 2014)								©	AKTE
4.4: Obtain glass bottom boat and floating jetty for the tourism development (Bungalow open for surrounding communities to do)								©	AKTE
4.5: Obtain horse cart for tourism development									AKTE, MAPEST plantation

4.6: Find market for the shell=polishing products 4.6.1 Promote shell products at handicraft center, bungalows and Wala tourism								AKTE
4.7: Put display in the fish market 4.7.1 Find affordable display counter to display shell products								Manager of the fish market
4.8: Start sales in nearby bungalow in Lakatoro and in Port Vila								Chairwoman of the Shell=polishing Committee
4.9: Negotiate and sell the shell polishing products to the ladies in Wala (they in turn sell to the cruise ships)								Chairwoman of the Shell-polishing Committee
4.10: Introduce modified canoe (both for fishing and tourism purposes) 4.10 AKTE to arrange canoe repair at Crab Bay								Chairman of the FAD Committee
4.11: Set up new Fishermen's House in (Louni) Crab Bay area(work in progress with the making of foundation and thatch)								AKTE, Chairman of the FAD Committee
4.12: Create more advertisement for Crab Bay as tourist destination (in progress)							◎	AKTE
4.13: Deploy three new deep sea FADs (in progress and awaiting George to come to Lakatoro)							◎	FAD Committee
4.14: Carry out FAD maintenance and activities like record keeping and teach other fishermen how to keep records							◎	FAD Committee

Output 5: Environmental Management							
5.1: Create new walking track (path) in AKTE area (in progress)							AKTE
5.2: Beautify Crab Bay Point (planting, cleaning and waste management) (in progress)							AKTE, Vango, Forestry, Province, Agriculture, Environment, and Tourism
5.3: Construct toilet in Crab Bay (in progress)							AKTE
5.4: Upgrade Bungalow and Barbeque facility 5.4.1 Improve Barbeque area with kitchen utensils							AKTE
5.5: Establish proper water system in Crab Bay (ank already installed but insufficient, needs another bigger tank to increase water storage capacity.)							AKTE
5.6: Create signboard for tourist attraction activities (Felt off) 5.6.1 Re-installed sign board at airport and Bushman's Bay							AKTE, Province Government
5.7: Transplant giant clam						©	Lelepa MPA Committee
5.8: Conduct stock assessment for Trochus 5.8.1 Letter to Fisheries research to inform for harvest on August 2014						©	


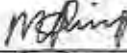
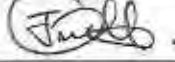
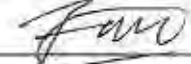

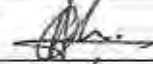

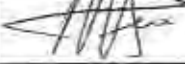




Long dei ia, 11th August 2014,

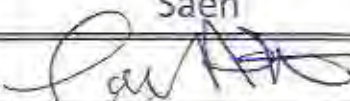
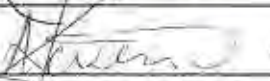
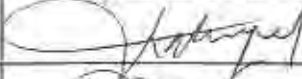


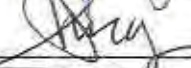



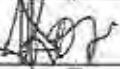




Mifala we i saenem community-Based Costal Resource Management (CBCRM) manejimen plan ia stap deklarem se :

Amal-Krab Bay Tabu Eria (AKTE) olsem wan Komuniti Knsevesen Eria.

Evri man o pipol we oli gat raet mo interest long Komuniti Knosevesen Eria ia oli akri mo sapotem long CBCRM.

Signatures:

	Nam	Saen
Limap	GRAHAM JAMES	
Lingarak	MORAINÉ .PHILIP	
Hatbol	SEPIO JELLA	
TFC	FREDDY Motie	
Tevaliaut	HOLEK	X X
New Bush	ELIA MAEL	X
Mapest	RENNETH STING	
Tembibi	KALOA CHARLEY	
Tarem	EIKEN STING	
Louni	KOUN MANOATH	
Barrick	THOMSEN NOEL	
Potintir	KALIMBEE	
Bushmans Bay	Sevi Jimmy	
Uri Island	JACKSON SIMON	JACKSON
Uripiv Island	John Sandy	

	Nam	Saen
Malampa Province	PALEN ATA	
Fisheries Officer	KAYEN MORUH	
Agriculture Officer	JOEL KALNPEL	
Forestry Officer	Toufan Kalsakau	
Tourism Officer	EDNA PADLE	
Cooperative Officer	BEN ASMUS (SOSBO)	
Police Officer	JOHN YAIKA	
Livestock Officer	CHARLES TARI	
AKTE Chairman	KALEN-ABBIE	
AKTE FAD Chairman	STEWART VOY	
AKTE Tourism Chairman	JAAC-JOSEPH	
AKTE Shell Polishing Chairlady	SUSAN-KAUN	
MBFM (Malampa Butchery and Fish Market)	Maliti Malisa	
Louni Fishmarket Manager	HAMILTON AMBI	

The Community of Malekula October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited



Community Based Coastal Resource Management

(CBCRM) Plan for Aneityum



The Community of Aneityum October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited



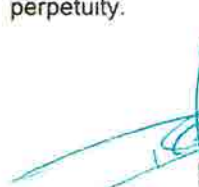
FOREWORD

Coastal Marine resources have long played an important role as a daily source of protein for the inhabitants of coastal Vanuatu. In addition, marine resources have developed markedly in recent years, such that nowadays they contribute not only to income generation, but also provide a resource for the burgeoning tourist industry. Coastal resources provision the growing population of Vanuatu; they also provide entertainment for thousands of tourists. Therefore, the sustainable use of coastal resource is now of crucial important to both the food security and tourist sectors of the economy. As a consequence, the need for coastal resource management continues to increase significantly in our nation.

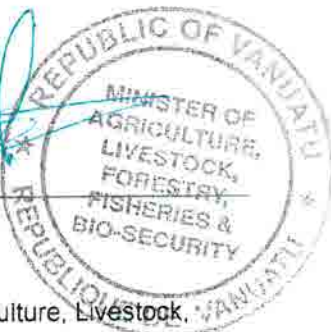
The Vanuatu Fisheries Department has supported people to elaborate their own management plans in coastal communities like the Crab Bay Area of Malakula Island, North West Area of Efate Island, and Aneityum Island. At the same time, the Department has encouraged community members to improve their own capacity for coastal resources management by collaborating with the "Project of Grace of the Seas for the Coastal Villages in Vanuatu", which is financed by the Japan International Cooperation Agency (JICA).

The Government of Vanuatu is convinced that sound coastal resource management will be achieved through the efforts of these communities, and that the results will serve as a model of resource management and thereby be extended to other coastal communities.

We wish to request that all stakeholders put their hands and heads to work alongside the members coastal communities, to realize the sustainable use of our natural resource in perpetuity.



David Tosul
Minister
Ministry of Agriculture, Livestock,
Forestry, Fisheries and Biosecurity





William Naviti
Acting Director
Fisheries Department



Community-Based Coastal Resource Management (CBCRM) plan for Aneityum

1. Introduction

1.1 Background

CBCRM (Community-Based Coastal Resource Management) consists of resource management measures and supporting measures. It is based on four different perspectives:

1. The resource and environment perspective, which includes both scientific resource survey and awareness raising on the importance of resource management;
2. The economy and production perspective, which is mainly the introduction of alternative sources of income to reduce dependence on coastal resources;
3. The social and culture perspective, which establishes a solid organization based on the traditional experience and knowledge for the implementation of CBCRM; and
4. The institutional and governance perspective for government and NGOs to support the first three perspectives.

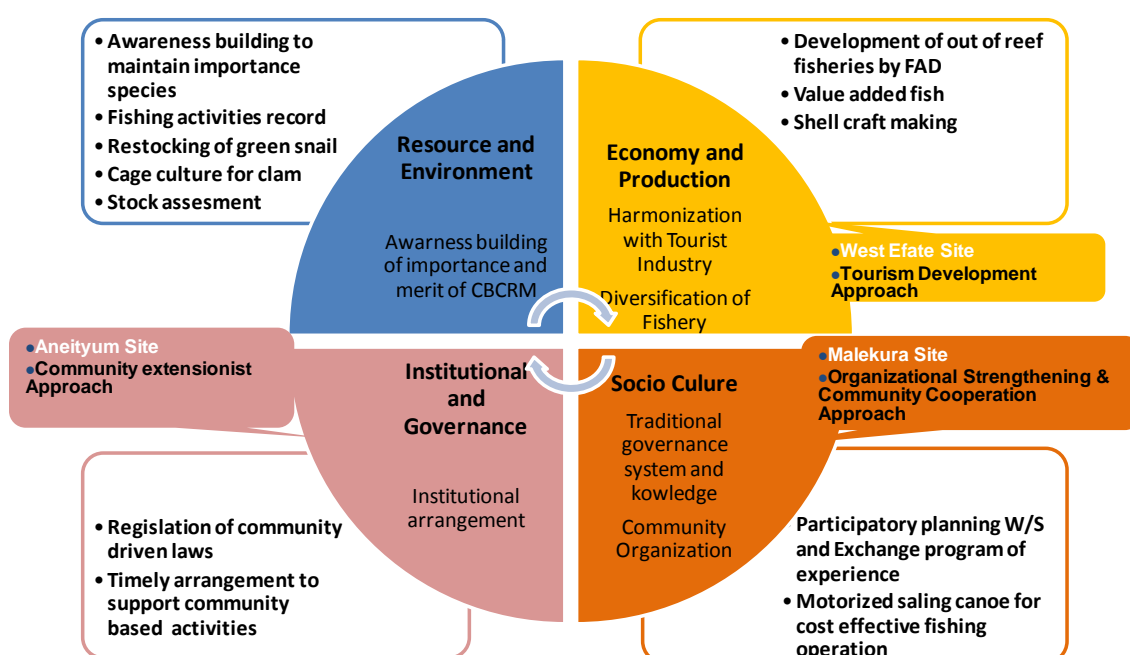


Fig1. Main approaches in different perspective

VALEMA is the name of CBCRM approaches created in the three target sites of the JICA Project for “Promotion of Grace of Seas in Coastal Villages in Vanuatu, Phase 2”. The name of the approaches came from Vanuatu, Lelema, Malakula, and Aneityum.

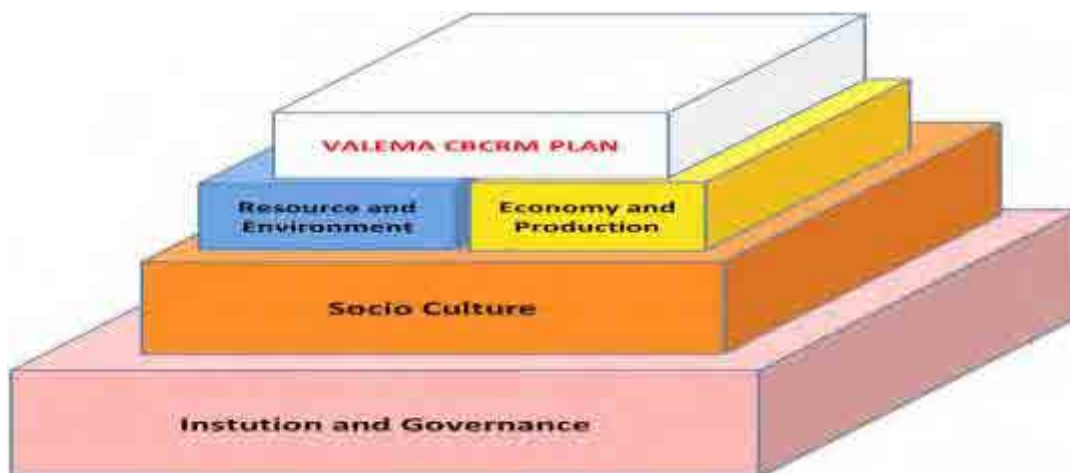


Fig2. Structure of VALEMA CBCRM Plan

One accomplishment of the Project is that community members formulated the CBCRM Plan. The Plan consists of two main parts. The first is regulation to promote resource management, and the second is the action plan to support the promotion of resource management.

One of the most important lessons learned during implementation of the pilot projects is that resource management can be promoted effectively only when combined with supporting measures. Bearing this in mind, community members made a three-five year Action Plan.

1.2. CBCRM and Related Issues

There follows a brief description of some general issues on CBCRM observed in Vanuatu.

Fragility of Traditional Social Systems

The recent shift to a market-based economy has increased the movement and relocation of people to Port Vila, the capital city, to earn cash incomes. This trend appears to have led to a devaluation of traditional social systems, one result of which is the reduced importance of the traditional management of fisheries and resources.

Limited Alternative Means of Improving Livelihoods

To enable residents to carry out CBCRM on a voluntary basis when the need for cash income is increasing, it is essential to provide them with other means to make a living when resources are unavailable owing to conservation activities or other constraints. However, that is difficult to do within the community alone.

Efficacy of Traditional Resource-Management Zones

The effectiveness of these zones is unclear because no baseline surveys or similar activities have been conducted. Many zones are small, at just a few hundred square meters. Further, many have been established based a community's own notions, rather than on scientific grounds.

In the case of Aneityum the following three issues are also observed.

The Pressure on Resources Owing to the Sale of Lobsters to Tourists

The sale of lobsters to tourists, which began in recent years, has proven quite successful. Despite the application of resource management measures, such as size limitation and catch data collection, they appear not enough to maintain the lobster resource. If the pressure on the resource continues, then depletion is likely. It is imperative to manage the lobster resource effectively because this would be a good management model for application to other species not yet regulated according to the Fisheries Law.

Absence of Fisheries Department staff

Owing to geographical remoteness combined with the limited financial and human resource of the Fisheries Department, no FD staff member is based in Aneityum.

Declining awareness of the importance of resource management among community members

Community members have been complying with resource management measures. However, pressure for the temporal opening of the MPA area is increasing, such that prospects for continued compliance are now uncertain.

2. CBCRM plan

2.1 Target Species

Species controlled closely according to the Fisheries Law and the possible introduction of a TAC system

The target species described below are of major importance to coastal communities throughout Vanuatu. Three resources have gone through the normal boom and bust cycle. As a result the Fisheries Department is considering implementation of the following strategy:

- i) The species currently open for harvesting, such as Sea cucumber and Trochus, will be managed under a rotational strategy to control harvesting in different provinces and reduce the risk of overharvesting. The total harvest per area at a given time will be determined using Total Allowable Catch (TAC);
- ii) Once stock assessment has determined that resources have recovered, the rotational system will be replaced by the TAC alone.

In the case of Mystery Island and the Aneityum area the following target species are managed using local rules established by the CBCRM Committee and aimed at enabling stocks to recover: The three species are:

- Green snail. Commercial harvesting of this resource is banned nationwide until 2019. (See the attached report from the EFTAV Project for more information on the status of Green snail in the Lelema area.) Aneityum Island is the only location in Vanuatu with a good stock of Green snail, and the Fisheries Department is progressing with stock assessment surveys to determine the stock condition before a decision can be made regarding a management regime.
- Trochus. This resource shows some evidence of stock recovery. However, stocks are low at present in the open areas and high in taboo areas. Therefore it is recommended that prior to any harvest the Fisheries Department provides a TAC to the community to avoid overharvesting of this resource. (See the EFITAV Project report for more information.)
- Sea cucumber. The TAC for the Aneityum Sea cucumber harvestable stock will be made available by the Fisheries Department, based on rotational harvesting. Sea cucumber companies cannot purchase the TAC without the permission of the CBCRM Committee and the Aneityum Council of Chiefs. This approach is currently enforced by the Fisheries Department. under the *Fisheries Law*.

Species controlled by community regulation (See Fig 3.).

2.2 Objectives of resource management in Aneityum

The main objective in Aneityum is to improve the management of lobster and other main species.

Prior to this Project, there was voluntary resource management of lobsters. A taboo area had been established around Mystery Island, there was a 25 cm minimum size limit for lobster that could be sold to tourists visiting Mystery Island, and data was collected on the size and quantity of lobsters sold to tourists

Further, community members decided to take additional steps to strengthen the management measures. They established a new taboo area in four zones in Analcauhat (Fig 3. and Table 1.), and additional data was collected on lobsters sold to tourists in order to divide the catch area into the four sections of east, west, south and north (Fig 4.).



Fig3. Map and regulation of new taboo areas in Analcauhat, including target species

Table 1. Zones and Taboo Area











ZONE	BOUNDRY	Location	TABOO AREA (LANDMARK)	MANAGEMENT MESURE (Gear or species)	Landmark starting point	Landmark ending point
ZONE 1	Aniplithei to Analvinec	S 020°14'15,97" E169°48'54.97"	Aniplithei (river mouth) to Anijethuros (Rocks)	Trochus and Green snail		
		S 020°14'06,72" E169°47'36.62"				
ZONE 2	Analvinec to Anijijiau	S 020°14'06,72" E169°47'36.62"	Anijanumu (Reggea beach) to Blue water SDA (Tall coconut)	Small hooks and cast net, gill net (4') – Seagrass area		
		S 020°14'04,05" E169°46'07.96"				
ZONE 3	Anijijiau (SDA tall coconut) to Anithwunamaukuri	S 020°14'04,05" E169°46'07.96"	Anijijao (2 pine trees) to Uje bay (black stone)	Green snail and trochus		
		S 020°12'55,88" E169°45'28.55"				
ZONE 4	Anithwunamaukuri to Anthwunabunmop (Coconut)	S 020°12'55,88" E169°45'28.55"	Ivahak to Anwaj bay	No take for all species Lobster by night diving		
		S 020°10'19,00" E169°44'31.04"	Anabras to Anthwunabunmop	Anabras to Anthwunabunmop		
ZONE 5	Mystery Island	S 020°14'37,04" E169°45'49.07"	Mystery and stone	No take for all species		
Special zone		S 020°12'58,98" E169°44'38.90"	3 mile reef	No take for all species		



Fig4. Map of Lobster fishing ground

2.3. Strategies

Utilization of community extension officer

In a site like Aneityum, where no FD staff member is assigned and governmental service limited, promotion of the active involvement of community members is indispensable. According to the *Fisheries Law*, the FD is empowered to appoint and authorize Community Extension Officers. Aneityum is the first instance of a Community Extension Officer having been appointed through in such a way.

Capacity-building of assistants for Community Extension Officers

The role of a Community Extension Officer is to supervise the promotion of CBCRM and its supporting activities. Since a Community Extension Officer might lack specialized skills and knowledge, enhancing the capacity of his/her assistants is indispensable. Through the implementation of a pilot project, community members organized sub-groups, each of which is specialized in a specific activity like FAD, fish café, and shell polishing, among others. The leader of each group is the Assistant to the Community Extension Officer.

2.4 Action Plan to support CBCRM

As explained in the Introduction, one of the most important lessons learned during the implementation of the pilot projects is that resource management needs effective supporting measures. Bearing this in mind, community members made an Action Plan based on the

four perspectives of the VALEMA approach (see 1.1 Introduction).

2.5 Linkage between management and supporting measures

Without proper supervision, measures to generate alternative income could have an adverse effect on the promotion of CBCRM. Community members discussed this point and set up the management accordingly..

FAD and fish café

The Resource Management Committee supervises the FAD and fish café Committee to ensure that the fishing pressure on the alternative resources to lobster (mainly bottom fish and pelagic fish) is controlled.

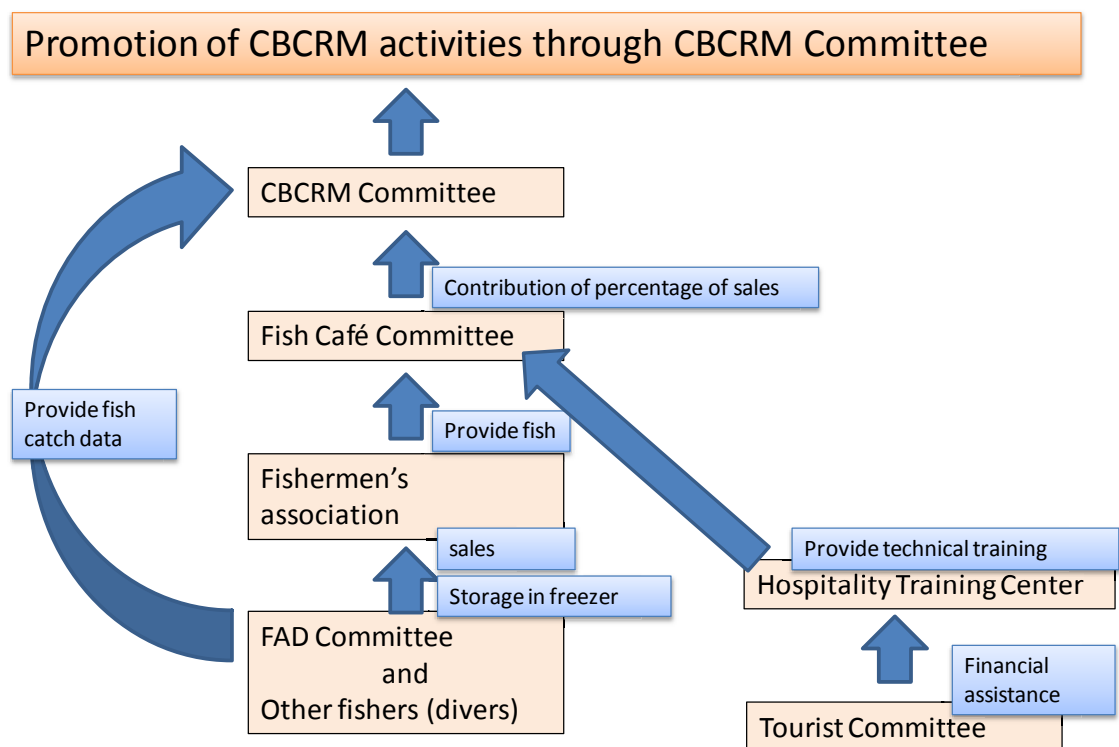


Fig 5. Structure of CBCRM Committee (1)

Shell-polishing

The Resource Management Committee supervises the shell-polishing group to ensure that the activity does not result in increased pressure on living shellfish resources.

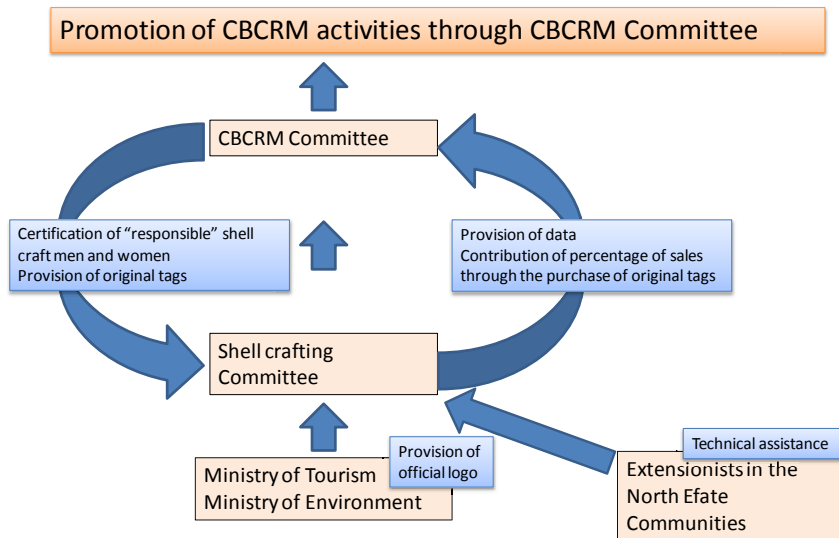


Fig 6. Structure of CBCRM Committee (2)

2.6 Implementation structure

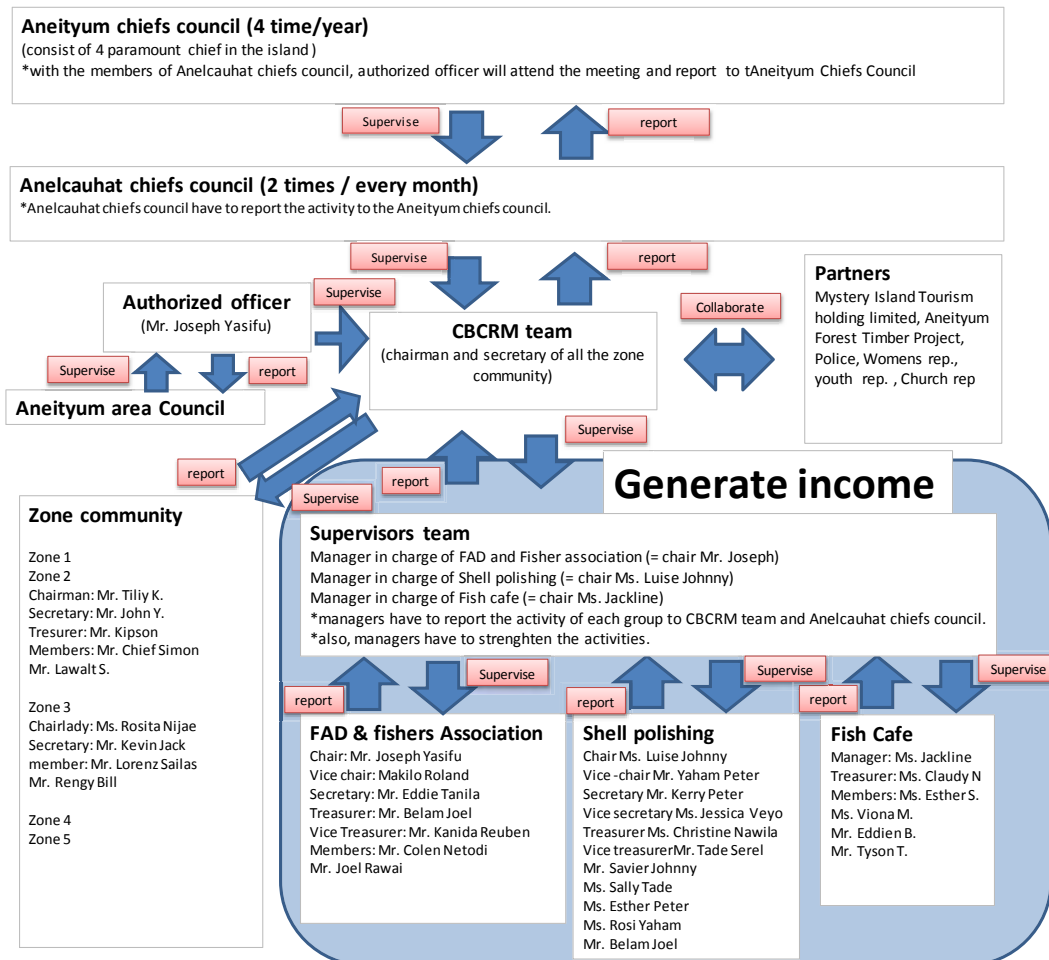


Fig 7. Implementation structure (as of July 2014)

2.7 Monitoring and reviewing process

As shown in the organizational structure, the Aneityum Council of Chiefs and the Analcauhat Council of Chiefs are the supervising bodies. They hold regular meetings; four times per year and twice a month, respectively. The CBCRM team reports the status of CBCRM and progress on the Action Plan. Should issues arise, the Councils of Chiefs would monitor the situation and issue an instruction for a review. This is the traditional process of governance. In parallel, the authorized officer will also monitor and participate in the monitoring and review. An authorized officer communicates closely with the FD staff assigned to Tana and Port Vila, to report on the situation and discuss problems and solutions that arise.

2.8 Dispute resolution

This section of the Plan deals with dispute resolution arising from area access and resources use. Offences within the jurisdiction of the Aneityum Council of Chiefs are dealt with at the community level. Offences against national legislation and regulations will be dealt with by the relevant Government agency, in close collaboration with the CBCRM Committee and the and Aneityum Council of Chiefs.

The relevant community enforcement groups, committees and working groups will be responsible for implementing and enforcing the Plan at the community level.

Acknowledgements;

The Aneityum CBCRM Management Plan Formulation Committee wishes to thank those members of the community who participated in all meetings and consultations in Aneityum, and who shared views that contributed to the completion of this Plan. The community of Aneityum is grateful to JICA for funding the “Grace of the Sea Project”. The community is grateful to the ICNET Team of Seko-san, Inuma-san, Nishiyama-san, Fuji-san, and Takayama-san for their immeasurable assistance and perseverance in completing this Plan and the associated Action Plans. The assistance of FAI Company, especially that of Sone-san and Kiku-san, is also greatly appreciated. The community wishes to thank the Government of Vanuatu, especially the Fisheries Department officers, Director William Naviti, Graham Nimoho and George Amos, for their tireless efforts in organizing and mobilizing the community consultation process that ensured completion of this Plan.

The community of Aneityum is ever grateful for the unstinting support it received from the Chairman of the Aneityum Council of Chiefs and the Chiefs of each area for their strong leadership of the community CBCRM Plan Formulation Team to successfully complete and launch this Plan. To the team members, Chairman of Aneityum Council of Chiefs, Chiefs of each area, Mr. Reuben Neriam and Mr. Joseph Yasifu, the Aneityum community is thankful for your dedication and time devoted on its behalf to complete this Plan successfully. The efforts and assistance of those not specifically mentioned is nevertheless much appreciated, To the ancestors of the Aneityum people;

"Lumu anjap et numu uja.

Nauwurin'in' Alpas".

None of this achievement of hard work and success would have been achieved without the divine blessing of the Creator, God the Father.

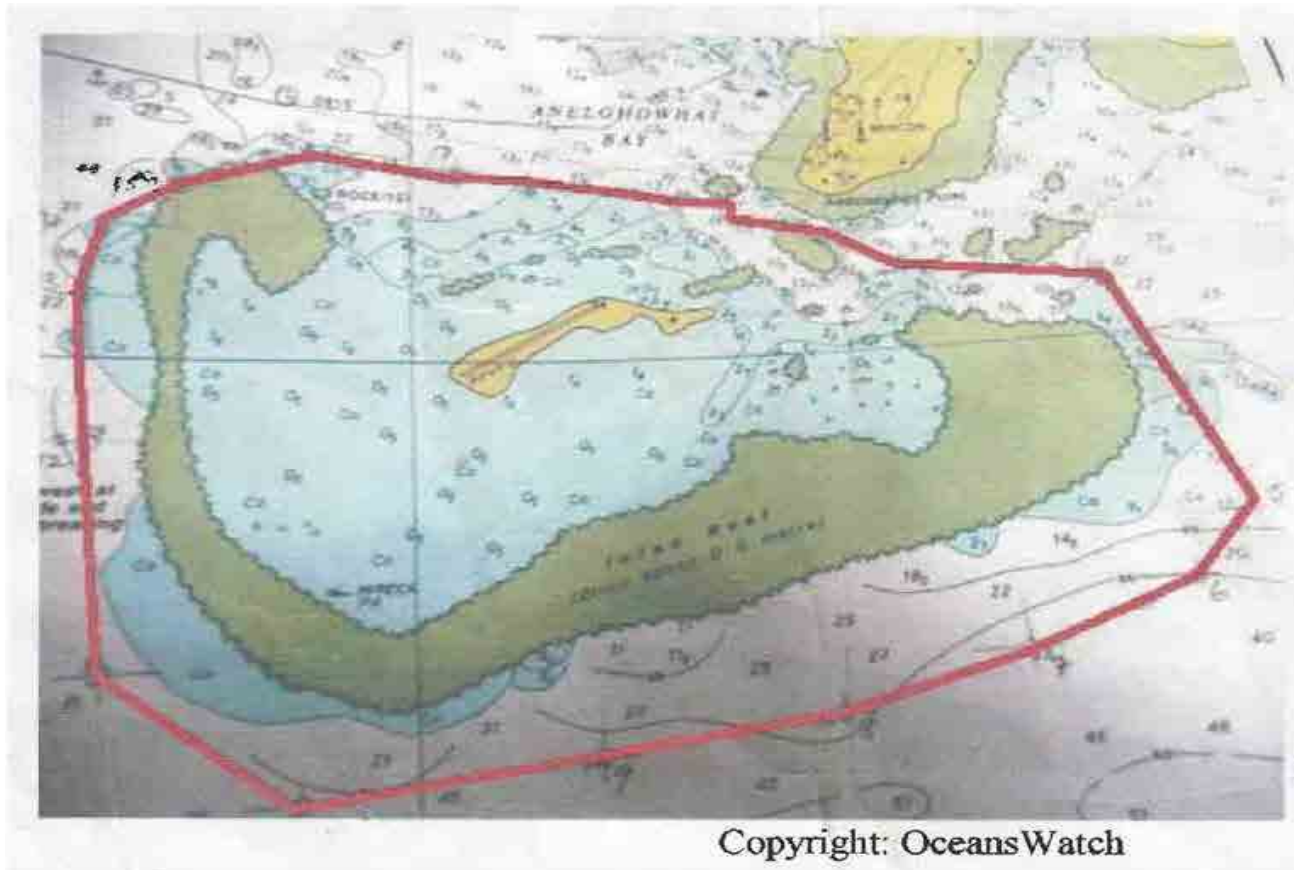
Attachment: Action plan to support CBCRM

Activities	Period																In charge of Activity		Remarks
	2014				2015				2016				2017				Gov.	Community	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Output 1: Promotion of Income Generation Activities																			
Output 1.1: Increase fish catch																			
1.1.1: Deploy more FADs																		FAD Committee	Deployment Umeji 2014 Deployment Port Patrik 2014 Deployment Anelcauhut 2015
1.1.2 : Test fishing by new fishing methods																		Fishermen's Association and FAD Committee	
1.1.3: Apply for duty exemption of fuel for fishing																		Fishermen's Association	
1.1.4: Establish the supply system of fishing gears																		Fishermen's Association	
1.1.5: Hold annual training on engine maintenance and repair																	FD VMC	Fishermen's Association	
1.1.6: Sail canoe project using traditional canoe																		Fishermen's Association	Zone 1: Canoe Project
1.1.7: Encourage canoe fishing																		Fishermen's Association	

Output 1.2: Add-value of Local Fish								
1.2.1: Establishment of Fishermen's Center								FD supplies cable
1.2.2: Produce fish fillet							Fishermen's Association	
1.2.3: Sell fish to Tana and cruise ship							Fishermen's Association	
1.2.4: Operate more fish cafés for the sale of local fish							Mystery Island MPA, Fish café manager, Tourism Committee	
Output 1.3: Other Alternative Income Sources								
1.3.1: Make and sell shell-polishing products (sell craft tags)							Shell polishing Committee	
Output 2: Strengthening of Local Government System								
2.1: More awareness to community in Analcauhat (e.g. Church, nakamal)							Aneityum area secretary	3 times per year
2.2: Promote new CBCRM management plan (Awareness to Analcauhat communities 2014)							Reuben, Joseph, Joel	
2.3: Set up MPAs inside Umeji (Management Plan)						FD	Environmental Unit	
2.4: Set up MPAs inside Port Patrick (Management Plan)						FD	Environmental Unit	
2.5: Make sure all the local laws and fisheries regulations are followed strictly							Aneityum area secretary	

Output 3: Establishment and Management of Fishermen Association								
3.1: Establishment of Fishermen's Association							Reuben, Joseph, Joel	
Output 4: Improvement of Resource Management Measures								
4.1: Carry out monitoring activities for lobsters and fish							Reuben and Joseph	
4.2: Manage lobster data by area							Reuben and Joseph	
4.3: Manage commercial fisheries resources by area							Reuben and Joseph	
4.4: Review Mystery Island Adaptive Management Plan							Analcauhat council of Chiefs,	
4.5: Set up MPA inside Analcauhat							Tourism Project, MPA Committee	
4.6: Reporting system inside MPA and Tourism Board of Management							MPA Committee, Council of Chiefs	
4.7: Others: Analcauhat zone's area report to Council of Chiefs (Analcauhat MPA)							MPA Committee, Council of Chiefs	
4.8: Gear restriction (hooks, line, net etc) 3 times/year							Area secretary, Joseph, Reuben, Joel	Community restriction, based on each area

Taboo Area at Mystery Island



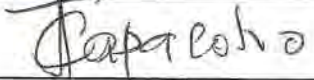

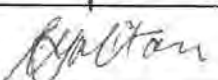


Long dei ia, 1 / October / 2014

Mifala we i saenem community- Based Coastal Resource Management (CBCRM) manejimen plan ia stap deklarem se;

Oi man we oli sign nao oli luk save (kim raet) blong ol aria we i stap long plan blong kam manejmen eria.

Evri man o pipol we oli gat raet mo interest long Komuniti Manejmen Eria ia oli akri mo sapotem long CBCRM.

Location	Name	Signature
Anawonse	Chief Frank Inhap	
Anelcauhat	Chief Simon Nijina	
Umeij	Chief Cleman George	
Anivap-Awonjei	Chief Nichola Leye	
Anejo	Chief Katawi Saliva	

The Community of Aneityum

October 2014

Project for Promotion of Grace of Seas in Coastal Villages, Phase 2
Vanuatu Fisheries Department
Japan International Cooperation Agency
IC Net Limited





Alatoi Ishmael Kalsakau
Attorney General
State Law Office
Port Vila
Republic of Vanuatu

30th October 2014

Dear Sir,

RE: Request for gazettal of appointment of authorised officer

I am writing to request for the gazettal of the appointment of authorised officer Mr. JOSEPH IASIFU of ANELGAUHAT VILLAGE, ANEITYUM ISLAND. He is appointed as a Community Based Fisheries Authorised Officer. This in accordance with Section 108(1) of the Fisheries Act No 10 of 2014 where:

(1) The Minister may, on the recommendation of the Director, by notice published in the Gazette, appoint a person or category of persons as an authorised officer or authorised officers for the purposes of this Act.

Attached with this letter are his terms of reference and brief guidelines on his line of work as an authorised officer for that particular aforementioned area.

Thank you for your understanding and cooperation.

Yours sincerely

W William Naviti
Acting Director

CC: Graham Nimoho, Manager, Development and Capture Division

**GOVERNMENT OF THE
REPUBLIC OF VANUATU**



**FISHERIES DEPARTMENT
SÉRVICE DES PÉCHES**
Private Mail Bag 9045, Port Vila,
VANUATU

Tel: 678 23119

**GOUVERNEMENT DE LA
REPUBLIQUE DE VANUATU**



BREIF GUIDELINE FOR FISHERIES AUTHORIZED OFFICER

Title: Authorized Officers

Presented by: William Naviti, Acting Director, Vanuatu Fisheries Department

Background

The management, development and conservation of all fisheries resources in Vanuatu is the obligation of the Fisheries Department mandated through the fisheries act. Fisheries in Vanuatu are categorized into two broad categories of offshore fisheries and inshore or coastal fisheries. The coastal fisheries is managed under a centralized fisheries management system where the regulation and enforcement of fisheries laws and regulation is done through a centralized office base in Port Vila and Luganville and sub centres in each provincial government headquarters.

Issue

Vanuatu archipelago comprised of more than 80 inhabited islands stretching about 1,300 kilometres from the northern to the southern tip of the archipelago. Given the geographical nature of Vanuatu combined with limited Department staffing and funding constraints, regulating and enforcement of fishing activities throughout all the islands using a centralized fisheries management system is a huge challenge for the Fisheries Department.

Way forward

To ensure sustainability of coastal fisheries resources, fisheries activities in all the islands should be effectively regulated and enforced. This could be achieved through working closely with local authorities such as provincial governments, communities and resources owners who owns and use the resources on a regular basis. The Fisheries Act No. 10 of 2014 provides for the appointment of 'authorized officers' who could assist the Department in executing such duties to monitor and enforce fisheries laws and regulations at the provincial or community level.

Purpose

Community fisheries Authorized officers will be the ears and eyes of the Department assisting in ensuring sustainability of coastal fisheries resources through reporting, enforcement and monitoring of fishing activities to ensure utilization of fisheries resources abide by the provisions of the fisheries laws and regulations.

Legal implication

Part 10 of the Fisheries Act No. 10 of 2014 provides for the power of the minister to make appointment of 'authorized officers' on the recommendation of the Director of Fisheries. The Department aims to use this provision to make appointments of outstanding members of communities that could carry out the roles and duties of authorized officers as stipulated under section 109 of the act. Any persons or community members appointed in accordance with the fisheries act is protected under the act when exercising his/her duties.

The current powers of authorized officers as stipulated under the act are broad and more tailored towards enforcement of offshore fishing activities. The Department in collaboration with the 'JICA Grace of the Sea Project team' has developed a policy paper that will assist the Department in the process of making appointments of members of the community as community fisheries authorized officers. The paper is attached as Attachment A.

Financial implication

The appointment of community members as authorized officers will be on a voluntary basis with limited cost to the Department. The cost will include awareness materials, ID cards for the authorized officers and training to be conducted by the Department.

Conclusion

Part 18 of the fisheries act on the appointment of authorized officers has only been used once in the past to make appointments of community fisheries authorized officers. It is still in the early stages of implementation and Fisheries Department will work to perfect the system noting the rich traditional governance system of resource management that existed and found in our rural communities throughout the archipelago.

Attachment A

<p>GOVERNMENT OF THE REPUBLIC OF VANUATU</p> 	<p>FISHERIES DEPARTMENT SÉRVICE DES PECHES Private Mail Bag 9045, Port Vila, VANUATU Tel: 678 23119</p>	<p>GOVERNEMENT DE LA REPUBLIQUE DE VANUATU</p> 
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COMMUNITY-BASED AUTHORIZED FISHERIES OFFICER (CBAFO)'S GUIDE LINE

Initiated and developed under the Fisheries Department/JICA's Project "the Promotion of
Grace of the Sea in Coastal Villages"

1 DEFINITION

By definition under the Fisheries Act No. 10 of 2014 any fisheries officer, any police officer not below the rank of sergeant and any person or category of persons designated as authorized officers under section 108 Part 18, has the duty to enforce Fisheries legislations and policies.

Where there is no Fisheries officers at a particular location due to its remoteness and other factors the Minister shall assign a community representative, under the recommendation of the Director of the Vanuatu Fisheries Department, as "Authorized Fisheries officers (AFO)" The AFO shall be appointed through the official process by way of an order from the Minister of ALFFB and must be gazette for his function to be legally recognized.

2 POWERS OF THE AFO

- 2.1 The power of the AFO is as specified in section 109 of the Fisheries Act No. 10 of 2014
- 2.2 Under this guideline the power of the community-based Authorized Fisheries Officer appointed by order from the Minister of ALFFB, is subject to the TOR attached to this guideline.

3 ELIGIBILITY

- 3.1 **Community-based resident** - The nominee is permanently based and reside with the community.

- 3.2 **Community Experience:** Already conducting voluntary activities related to resource management in the community.
- 3.3 **Sex and age:** Male or Female of age between 25 & 60
- 3.4 **Academic experience:** Secondary school graduate or vocational institution or higher (optional)
- 3.5 **Language:** Able to communicate, write and read Bislama. Understanding English and French would be an advantage.
- 3.6 **Support from the community:** Well recognized and respected person in the community and have the trust of the community council of chiefs
- 3.7 **Enthusiastic and motivated person:** Willingness to carry out his responsibility at any time of the day when needed or call upon by the community or the Fisheries Department.

4 REQUIRED KNOWLEDGE AND EXPERIENCE

AFO should have the minimum knowledge and experience to be able to undertake the following:

- a) **Fisheries laws:** having a sound knowledge on fisheries laws and regulations relating to coastal resource management.
- b) **Basic resource management skills and knowledge:** AFO is able to demonstrate and explain the life cycle and characteristics of the main target species and factors affecting the resource fluctuation including the fishing pressure. Knowing the lifecycle of important commercial species and species protected by the Fisheries Act would be desirable. Other species may not be desirable but fair or minimum knowledge is required
- c) **Diversification of the fishing methods:** able to assist Fisheries Department staff to conduct workshop for the new fishing methods (fish aggregating devices, trolling, bottom line) and management plan making
- d) **Aquaculture:** able to assist Fisheries Department staff to conduct training on the aquaculture of marine shellfish, tilapia, and freshwater prawn (pond construction, management of water, feed, other indicators, and marketing of the products)
- e) **Recording on the fishing activities:** able to collect data, manage the data and analyzing data through provided simple computer database program.
- f) **Alternative livelihood measures:** able to introduce practical alternative livelihood measures (e.g. shell polishing, road market, distribution and processing of fish), and also able to conduct simple profitability analysis (income and expense)
- g) **Planning and monitoring:** able to conduct simplified problem analysis and action plan making (plan of operation).
- h) **Training experience:** Have attended additional short term training workshop on fisheries development and resource management (optional).

4.0 DUTIES AND RESPONSIBILITIES

The AFO duties and responsibilities would be outline in detail on his TOR, which would include some or all the following:

- 4.1 Maintain regular communication with the Fisheries Department for technical advice and information
- 4.2 Assist in awareness rising on fisheries resource management policies
 - a) Assist in disseminating the Fisheries Department policies to the rural communities.
 - b) Informing the Fisheries Department on community needs regarding fisheries development through the Fisheries Development Offices based in the provinces.
- 4.3 Assist in awareness rising on the fisheries related laws and regulations
 - a) Assist in disseminating fisheries posters, pamphlets, brochure relating to fisheries regulations
 - b) Assist to conduct awareness meetings and workshops on fisheries laws and regulations
 - c) Promote and advocate the importance of introducing new resource management measures as such as:
 - d) Establishment of more resource management areas (e.g. marine protected areas, taboo areas, buffer zone).
 - e) Minimum (or maximum) size or weight limits on species that have significant importance to the culture and livelihood of communities.
 - f) Selection of the fishing methods that could be detrimental to reef fish resources other than gear specified in the fisheries regulation.
 - g) Promote the establishment of the fishing season by species and fishing gears and methods (e.g. closed season in long and short term, ban on the night diving)
- 4.4 Assist the Fisheries Department and Fishermen associations in the collection of catch data and the recording of fishing activities by individual landing / storage / distribution site to enhance resource management
- 4.5 Promote and encourage alternative fisheries (diversification of the fishing methods) activities off-the-reef fisheries to reduce the fishing pressures on the coastal resource
- 4.6 Has the Power to Seize and issue penalty notices on the advice of the Fisheries Department

5 NOMINATION PROCESS FOR THE APPOINTMENT

- 5.1 Interested community submit a written letter of interest to the Director of Fisheries.

5.2 The Fisheries Department conducts an investigation or assessment to establish the need to appoint a community-based fisheries authorize officer based on the following criteria:

- i). Serious environmental and conservation concerns
- ii). Geographically distant away from the closest fisheries office.

5.3 The Director of Fisheries gives his final approval for the community's eligibility to have an authorize officer in their area.

5.4 Community scrutinizes and submits the recommendation of the potential candidates.

5.5 Fisheries Department conducts the validation review and assessment based on the above sections (2) & (3).

5.6 In the case where the community is unable to decide on the suitable candidate the Fisheries Department has the duty to intervene and conduct further community consultation.

5.7 Successful candidate will be official appointed by the Director of Fisheries Department through an order from the Minister of Agriculture and gazette at the State Law Office.

6 TERMINATION OF APPOINTMENT

The Director of Fisheries Department reserves the right to terminate the appointment through a Ministerial order if:

- a) The AFO fails to carry out its duties diligently and effectively or incompetent
- b) Abuses its power for personal gain
- c) Mis-conduct when carrying out his/her activities
- d) Involve in criminal activities
- e) Any other offences that would undermine the work on resource management.
- f) Voluntary resignation

7 AFO PRIVILEGE AND INDENTITY

AFO has the privilege to wear at all time the AFO identity barge or card that carries the following information:

- a) Name of Authorized Fisheries Officer
- b) Department logo
- c) Person's photo
- d) Period of validity
- e) Minister of ALFFB and the state law.

8 COMMENCEMENT

The appointment of the authorized officer will come into effective as from the date of official gazette.

Guideline for Questionnaire Survey
Project of Promotion of Grace of the Seas in Coastal Villages in Vanuatu Phase 2

I. Abstract of the Questionnaire Survey

1. Objective

The objectives of questionnaire survey are the follows.

- Identify the current socio-economic condition and the important issues of the target communities,
- Collect the baseline indicators of community-based coastal resource management

2. Composition of Questionnaire

There are three questionnaire sheets for the baseline survey.

	Sheet 1	Sheet 2	Sheet 3
Objective	Socio-economic condition of community level	Socio-economic condition of household level	Consciousness of coastal resources management
Target persons	Community representative (chief and other leaders in the community)	Household representatives	Three age layers (10 - 20 years, 20 - 40 years, more than 40 years)

3. Target communities

	Efate	Malakula		Aneityem
Target	Lelema Management Committee	Crab Bay Management Committee		Coastal community in the island
Community	- Mangaliliu - Lelepa - Sunae - Tasiriki	- Barrick - Bushman bay - Hatbol - Limap - Lingarakh - Lowni - Lo Sarsar - MAPEST	- New Bush - Portidur - Taremp - Tevaliant - TFC - Tembimbi - Uri - Uripiv	- Analcauhat - Umetch - Other communities

II: Sample Number

a. Target Households for Sheet 2

1. Efate

Community	Mangaliliu	Lelepa	Moso (Sunae & Tasiliki)
Household	10	15	20 10 each for Sunae/Tasiliki

2. Malakula

Community	Uri	Uripiv	Other Crab Bay Communities
Household	5	20	76

3. Aneityum

Total 36 household in the island

b. Target Persons for Sheet 3

Age	Efate			Malakula			Aneityum
	Mangaliliu	Lelepa	Moso (Sunae/Tasiliki)	Uri	Uripiv	Other Crab Bay Com.	
10 - 20	8	12	5/5	3	6	45	30
21 - 40	8	12	5/5	3	6	45	30
41 -	8	12	5/5	4	7	45	30
Total	24	36	15/15	18	36	135	90

Note: a half of interviewees are men, another half are women.

III. Interview Tips at the Field

Sheet 1: Questionnaire for Community Representative

1.0 Preliminary Information

Q 1.2: Village / Community

- Please also note the name of island additionally.

2.0 Profile of Household Representative

Q 2.4: Ethnicity

- Please also note the origin island where they came from originally.

3.0 Community Characteristics

Q 3.4: What are the two main reasons for increasing, decreasing or remaining the population of the community?

- Please note the actual reasons, such as lack of income source, land for production, public infrastructure like drink water, health system, and etc.

Q 3.5: What are the three main economic activities for men in this community?

Q 3.6: What are the three main economic activities for women in this community?

- In case of men, “economic activities” mean income generating activities, such as sale of local products from agriculture, livestock or fisheries, temporal employment, and etc.
- In case of women, catering, dress making, sales of products like folk craft, and etc

4.0 Principal Services

Q 4.1.3: What are the two main problems with the portable water service?

- The quantity or quality of portable water may be affected by dry or rainy seasons

5.0 Social Condition and Services

Q 5.3: Health

- For collecting proper answers, you should ask a health post person.

9.0 List of Community Institutions

Q 9.2: Which groups play the most active role in helping improve the well-being of community members?

- If you can specify what sort of well-being in the community, please write it at a blank space.

Sheet 2: Questionnaire for Household Representative

2.0 Profile of Household Representative

Q 2.4: Ethnicity

- Please also note the origin island where they came from originally.

3.0 Household Structure and Economy

Q3.1: Structure of household

- “How long have you lived” means the years of living at the current place, in which he / she lives.

Q 3.2.1: What is the average income of your family?

- You should ask minimum and maximum income per day or week, in case of difficulty to estimate their monthly incomes.

Q 3.2.2: What is the average living cost of your family?

- You should ask minimum and maximum costs per day or week, in case of difficulty to estimate their monthly living cost.
- “Food” includes the purchase costs of meal ingredients such as rice, sugar, cooking oil, salt, and etc.
- “Education” includes school tuition fee, the purchase costs of uniform, stationery, and etc.
- “Electricity/Fuel” includes rental cost of solar panels, fuel, and etc.
- “Medical/Health” includes medical costs at hospital, medicine cost at health posts, and etc.

4.0 Fishing Activities

Q 4.1: What is the average amount of fish catch?

- You should ask the minimum and maximum amount of fish catch (kg) at first and estimate the average amount.

Q 4.5: What type of fishing gears do you use?

- Please mark in plural, if he or she uses plural fishing gears.

Q 4.6: Where are the main fishing grounds?

- “2.Coastal areas (within 3 miles)” includes the outer reef areas out of the front reefs in the community, such as the near-shore areas and the reef edges, where they can make access by boat (too far by foot).

6.0 Structure Social Capital

Q 6.1: Organization Social Capital

- “Organization” includes the formal organization in the community, such as cooperative, a

ssociation, committee, and also informal group, such as soccer group, women's group for dressmaking, and etc.

- In "Name of Organization", you should also note the characteristics of the organizations, such as fisher's association, women group, youth group, and etc.
- In "Who belong to", in case plural family member belong to same organization. please put plural figures, like 1. (Head) and 3 (Child).
- In "Degree of participation" in case plural family members belong to the same organization, please put plural figures, like "1.2" which means 1(Head) and 2 (Very Active).
- In "Importance", it is better that some family numbers answer, because some family members may belong to a certain organization at the same time. For example, if they belong to 10 organizations as indentified in this sheet, 2 of them have 1 (No.1), 3 of them 2 (No.2) and 5 of them 3 (No.3).

7.0 Cognitive Social Capital

Q 7.2.4: If a community project does not directly benefit your neighbor, but has benefits for others in this community, then do you think your neighbor would contribute *time* for this project?

Q 7.2.5: If a community project does not directly benefit your neighbor, but has benefits for others in this community, then do you think your neighbor would contribute *money* for this project?

- One example situation is, who will spend time for cleaning playground of primary school? or who will contribute money to fix minor problem of the school?

Scope of Works in Baseline Survey

Project for Promotion of Grace of the Seas in the Coastal Villages in Vanuatu, Phase II

1. Purpose of Baseline Survey

The purposes of the baseline survey are the follows.

- Select appropriate indicators to monitor the progress and achievement of Community-Based Coastal Resource Management (CBCRM) activities.
- Formulate the management plans of the sustainable CBCRM.
- Consider the proper approaches for strengthening CBCRM activities.
- Formulate the implementation plans of pilot projects to verify the effectiveness of approaches for CBCRM activities.

According to Vanuatu Fisheries Department (VFD), CBCRM activities have been carried out at target sites of this project, and coastal fisheries resources have been gradually recovering. Then, the main issue of CBCRM is the sustainability of the community-based activities. There is a concern that CBCRM activities may eventually weakened, unless the coastal communities can get clear benefits from their CBCRM activities. Thus, VFD regards two approaches, i.e. i) to introduce livelihood improvement activities and ii) to consider a maximum allowable catch by species in protected areas in accordance with the resource survey, as essential for maintaining the sustainability of CBCRM. The baseline survey will focus on strengthening existing CBCRM groups¹ and identifying necessary conditions to vitalize their activities. At the same time, the survey results will establish appropriate indicators to monitor the progress of their CBCRM activities.

There are some serious constrains of coastal resource surveys at remote target sites, such as limited time and budget and less public transportation. Therefore, the project will focus on converting local empirical knowledge and experiences of coastal communities into objective information and data, and motivating their CBCRM activities².

¹ The strengthening of CBCRM groups will be carried out, for example, through the improvement of livelihood. However, livelihood improvement shall be designed in such way that it provides not only economic benefits to the groups involved, but also strengthens their cooperative activities in the communities to ensure the sustainability of CBCRM activities. The baseline survey will collect the necessary information to design proper organizational structures of coastal communities which can cope with social, economical, environmental changes.

² For example, establishing monitoring points and collecting data or fish landing survey are options. The timing of survey varies by the progress on socio-economic data collection.

2. Scope of Baseline Survey

In order to strengthen the organization of coastal communities and maintain the sustainability of their CBCRM activities, the baseline survey will be carried out in the following aspects on social capital of the target areas.

2.1. Principle Conditions

The baseline survey clarifies the principle conditions of coastal communities for CBCRM activities, i.e. current situation and issues on their motivation of CBCRM activities, current organizational structures to support the activities, and etc.

- System of decision-making and job sharing in the community
- Chain of commands, communication, coordination in the community
- Complexity and demarcation in the community
- Formality and informality (activities, demarcation, level of enforcement)

The information obtained in the survey will be utilized as initial conditions (baseline) of organizational strengthening of CBCRM groups. The project will monitor the competencies of CBCRM activities and the capacities of coordination of CBCRM activities. The data collected by monitoring activities is a part of the information to evaluate the relevance, effectiveness, and sustainability of CBCRM approaches, which are potential indicators for Output 2 in the Project Design Matrix. In term of the CBCRM extension services to coastal communities, related to Output 1, the project will evaluate the current VFD's capacities for analyzing and responding the results of baseline survey.

2.2 Condition of Target Aquatic Animals

The baseline survey clarifies target aquatic animals and their management areas at target sites

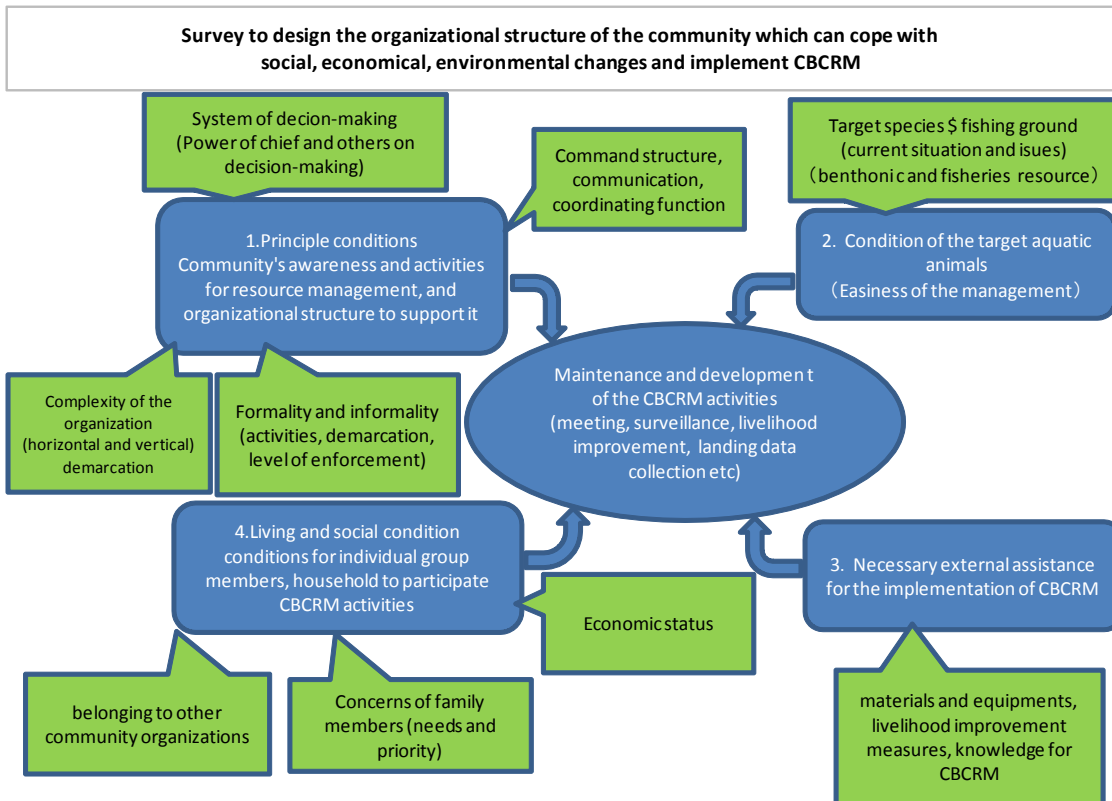
2.3 Necessary External Assistances for CBCRM activities

The baseline survey clarifies the capacities of external organizations, such as VFD and NGOs, to assist CBCRM activities of the coastal communities. In addition, the survey also clarifies the necessary supports for their CBCRM activities. Thus, the projects will respond some of their requests for formulating the pilot project plans.

2.4 Living and Social Condition (individual and household conditions for CBCRM activities)

- Priority of community groups (groups for CBCRM or other purposes)
- Concerns of family members (needs and priorities)
- Economic status for support CBCRM activities

Framework of the survey



3. Process of Baseline Survey

3.1 Socio-economic Data Collection

The baseline survey collects existing statistical information, e.g. household income, expenditure, and etc. In cases necessary data does not exist, field survey will collect them.

3.2 Basic Data Collection (Social Capital)

The baseline survey conducts focus group interviews with questionnaires, which are prepared on Instruments of Social Capital Assessment Tool (World Bank), to clarify the social positions and conditions of CBCRM groups in target communities.

3.3 Workshop for confirming the motivation and needs of CBCRM groups

The baseline survey holds participatory workshops with CBCRM groups to make resource maps of fishing grounds and fishing calendars. Those activities in the workshops identify the current status of their CBCRM activities, their utilization of CBCRM plans and their initiatives for problem-solving. In addition, the workshops also identify complexity of groups and communities and their formality and informality, which are principle conditions for properly planning their organizational strengthening activities. Moreover, the survey results lead to draft ideas for pilot

projects.

Survey Item	<ul style="list-style-type: none"> • Basic information: population structure, household structure, educational levels, and etc • Economic situation: economic activities, dependency on fisheries incomes, and etc. • Fishing activities: number of fishers, boats, and canoes, fishing methods, fishing seasons, amount of fish catches, and etc. • Other economic activities: agriculture, forestry, handicraft production, and etc. • Distribution: distribution routes, prices, infrastructures for local products, and etc.
Survey Method	<ul style="list-style-type: none"> • Focus group interviews • Participatory workshop in Rapid Rural Appraisal (RRA) workshop

*In addition to RRA workshops (making resource maps and calendars), the survey team may conduct Problem Analysis of Project Cycle Management (PCM) and Strength, Weakness, Opportunity, Threat (SWOT) analysis

*Prior to field surveys, the project team will hold training programs for VFD staffs on social capital survey, RRA, problem analysis, and SWOT analysis.

3.4 Capacities of Extension Services for Livelihood Improvement, Fishing Effort Diversification, Biological Survey on Reef Resources

3.4.1 Survey for Livelihood Improvement

3.4.2. Survey for Fishing Effort Diversification

The baseline survey develops the detail ideas of livelihood improvement. Those ideas should be valuable for coastal communities, but avoid conflicts among community members. The introduction of livelihood improvement activities revitalizes cooperative activities in coastal communities and ensures the sustainability of their CBCRM activities.

<Example>

The activities of FAD (Fish Aggregating Device) deployment and livelihood improvement are carried out in participation with coastal communities. Their incomes obtained by those activities are saved as their funds for CBCRM activities. The funds are utilized for the following purposes:

- i) Loans for other members to introduce livelihood improvement activities.
- ii) Purchase or maintenance of public facilities or equipments in the communities

The communities manage to coordinate the utilization of the funds and minimize conflicts among community members. Based on the results of baseline surveys, the implementation plans of pilot

projects are prepared.

3.4.3 Biological survey

Biological survey has two components, community-based biological observation of reef resources and field monitoring of marine shellfish propagation, whose broodstock released in Phase I. The purpose of community-based biological observation of the reef resources is to capacitate coastal communities in CBCRM. Through those observation activities, community members can understand coastal resource conditions objectively.

Even though community members have a lot of empirical knowledge and experiences on coastal fisheries resources in their regular fishing activities, their knowledge and experiences are not sufficiently utilized for their CBCRM activities. Thus, it is desirable to accumulate their biological observation results with objective data and information. In the biological observation surveys, the survey team sets several observation points at target sites, and leads community members to join observation activities to existing resources by snorkeling. The results of surveys will be mapped out with community members.

In the monitoring survey on marine shellfish released in Phase I, the survey team confirms the current situation of green snails, giant clams and trochus, released at target site in Efate. Especially, green snails have been reproduced after releasing broodstock, the distribution of reproduced green snails is confirmed and mapped out.

3.4.4. The Capacity of External Organizations for Support to Coastal Communities

The surveys to external organizations, like VFD, NGOs, or other governmental organizations, confirm the actual capacities for support to coastal communities. The survey team holds workshops with the staffs of those organizations in Problem Analysis of PCM and Institutional Development / Organizational Strengthening (ID/OS). Those surveys may be carried out by the end of June.

4. Implementation schedule

	Late April	May	June	July
3.1 Socio-economic data collection				
3.2 Basic data collection				
• Review of questionnaire, translation, selection of interviewers at target sites				
• Training for the VFD staffs				
• Field interview survey				
3.3 Participatory Workshops				
3.4.1 Survey on livelihood improvement measures				
3.4.2 Survey on the fishing effort diversification				

3.4.3 Biological Survey							
• Survey for converting empirical knowledge and experiences of communities to objective data (Schedule will be determined by the progress of socio-economic survey)							
• Survey on current situation of marine shellfish released in Phase I (Schedule will be decided by the expert on marine shellfish propagation around the end of May)							
3.4.4 Survey on capacity of external organizations for support to CBCRM activities							

*Specific survey schedules of respective target sites will be determined on the result of the preliminary surveys.