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Finally we thank ACIAR and particularly Barney Smith and Chris Barlow for supporting a long term commitment by ACIAR to research around resilient small scale fisheries and management via CBRM in Solomon Islands. Without a long term commitment to community based activities it is doubtful that the communities would have felt supported enough to be able to overcome some of the difficulties they have faced and continue on to strengthen their management systems.

2 Executive summary

Research and capacity development project FIS 2007/116 supported the implementation of community based resource management (CBRM), which has been identified by the Solomon Islands government as the preferred management mechanism for inshore fisheries and coastal marine resources. CBRM needs to be able to accommodate the objectives of local communities, and national priorities, while being flexible enough to adapt to an ever-changing environment. This project aimed to strengthen the livelihood resilience of fishery-dependent communities through four objectives: (1) identify key threats, vulnerabilities and strengths underpinning the resilience of coastal communities and of their small-scale fisheries activities; (2) facilitate the successful establishment of community-based management of coastal marine resources in five (two 'foundation' and three 'new') fishery-dependent community clusters; (3) influence the policy and planning of Solomon Islands government and other regional agencies on issues related to small-scale fisheries, that have impact on the livelihood of rural communities and (4) increase the capacity of Solomon Islands-based organisations so that they can provide support to communities with community based management plans.

Project activities were conducted by partners WorldFish, the Solomon Islands Ministry of Fisheries and Marine Resources (MFMR) and the Foundation for the Peoples of the South Pacific International (FSPI) at national and provincial levels and in five community clusters in Western, Isabel and Malaita Provinces. In addition FSPI facilitated support for community activities through the provincial government led GERUSA Natural Resources Management Network in Central Islands Province. This project and the preceding ACIAR project FIS/2003/051, have now supported six community clusters, comprised of 37 individual villages (this excludes the GERUSA communities which have been supported separately through FSPI) to implement management to varying degrees. Using participatory approaches, vulnerabilities and strengths in relation to resource management were identified and informed the development of community management plans. Management plans include biological and social indicators, and a monitoring protocol for adaptive management. Communities selected different invertebrate and finfish indicators depending on the target species of their fishery. Cost-neutral monitoring techniques, such as catch per unit effort, were more effectively sustained than those that required ongoing funds for fuel or equipment. In the absence of appropriate supporting fisheries legislation, to date enforcement has been through existing community processes.

Community trainings included resource management and monitoring, and financial and committee management. Community representatives participated in Solomon Islands Locally Managed Marine Area (SILMMA) network meetings to exchange ideas with other communities. A marine resource management training was developed for rural women and the learning around this has been published in a regional (SPC) publication. Project findings have also been summarised in project reports and published in one peer reviewed publication. The MFMR Inshore Fisheries Strategy was produced and informed the Solomon Islands National Plan of Action (NPoA) for the Coral Triangle Initiative. Presentations have been made by all project partners to audiences at national and regional fora. National environment days in Honiara and Auki have been supported and lessons learned have been published and disseminated through SILMMA partners and made available on the WorldFish website. Social processes such as community cohesion and good leadership were critical factors influencing the perception that people had about their community's ability to build resilience and cope with change. Related factors, including enforcement, disputes over reef ownership, village disputes about unrelated issues, competing demands, disagreements over committee membership or absentee office bearers; have emerged as barriers that communities may need to overcome to ensure that management activities are sustained. A follow on ACIAR project (FIS 2010/056) will address questions related to the most effective model of CBRM for Solomon Islands and how to scale-out innovations in CBRM to new areas.

3 Background

Key Issues

More than 70% of people in the Melanesian countries of the Pacific derive most of their basic needs from subsistence fishing and agriculture. However, threats to the ability of small-scale fisheries to continue to provide villagers' needs are increasing. In Solomon Islands the rural sector comprises more than 80% of the population and is heavily dependent on subsistence agriculture and fishing. Subsistence fisheries are dominated by small-scale fisheries (SSF) in near-shore waters and these are under threat as human populations grow and an increasing need or desire for cash fuels the commercial harvest of marine commodities. The strong reliance on inshore fish resources to meet subsistence needs, combined with a paucity of income-generating opportunities, means their loss would have severe consequences not only for those directly affected in the rural areas but also for the nation's economy as a whole. The following concerns are commonly expressed by rural fishing communities: (i) stocks of commercially important invertebrates are low; (ii) there is a need for money to cope with external shocks (disasters) food price rises with the attendant risk of pressure to harvest fish and other marine commodities to obtain this money; (iii) traditional tambu (fishery control) systems have declined or disappeared in some places, and there is a poor understanding of fisheries/resource management issues or national regulations.

The commercial value of coastal fisheries in Solomon Islands is poorly quantified but is recognised as being very important because it allows rural people to meet their needs for cash at critical times or for important costs, such as school fees. Comprising reef and pelagic fish and invertebrates, marketing of reef fish within the community and to nearby urban centres are significant sources of income for some communities. The export market for trochus shell and bêche-de-mer (dried sea cucumber) has been a main source of income, particularly in coastal communities that are remote from markets for fresh (fish or garden) products. In 2000, the Solomon Islands bêche-de-mer export industry was worth more than SBD 3.6 million (AUD 620,000) (Ramofafia 2004). Sea cucumber stocks in Solomon Islands have become threatened by intensive harvesting, and since 2006, the sea cucumber fishery has been largely closed (it has been re-opened for short periods in the interim) until sustainable fishing practices can be developed and implemented.

The transition from subsistence to the cash economy exposes people to global market forces. In addition, predicted changes in climatic conditions (sea level rise, frequency and intensity of cyclones) (Brokovich and Schwarz 2011) pose additional threats to coastal communities and reducing vulnerability and increasing resilience will be central to their long term quality of life. This project addressed small scale fisheries management from a vulnerability and resilience perspective. Within small scale fisheries management we define resilience as the capacity of a complex system to absorb shocks while still maintaining function, and to reorganize following disturbance. In this context, the goals of management are to prevent the fishery system (the ecosystem plus people) from moving into undesirable states or circumstances, and to nurture and preserve the elements that enable it to renew and reorganize itself following stresses and disturbance. Although resilience concepts are attractive and are increasingly widespread in academic literature applying them to the lives and ecosystems of rural communities has yet to be effectively implemented. Moving beyond theory to action remains the key challenge for resilience approaches.

In order to ensure the establishment of more flexible management approaches and thereby improve the resilience of SSF to various sources of uncertainty, this project was nested within a wider WorldFish initiative that is testing a generic adaptive management framework (Andrew et al. 2007) and a set of diagnostic tools that feed directly into its application. The framework purpose is to organise lessons learned, guide the development of new methods and refine appropriate indicators of sustainability and

resilience in SSF. The adaptive management framework aims to provide practitioners with a clear pathway to facilitate improved management of small-scale fisheries and has been developed specifically with SSF in the developing world in mind. The approach addresses the need to take account of the broader social vulnerability context of communities, i.e. not just the marine resource (or fishery) component in isolation.

The aim of this project was to strengthen the livelihood resilience of fishery-dependent communities of Solomon Islands through the development and adoption of participatory adaptive management frameworks to facilitate the establishment of effective community-based management. Within this project we have used the framework proposed by Andrew et al. (2007) to assess whether it can help guide communities and their partners, in the establishment and implementation of effective community based management plans. Solomon Islands has long-standing rights-based fishery institutions that have survived better than in some other areas of the Pacific (Aswani 2005). Where traditional institutions remain, and a good understanding of rights and cultural attitudes can be incorporated, non-traditional ('western') fishery management systems can strengthen traditional community-based institutions and practices, and other government regulations (Aswani 2005). The legal recognition of customary tenure-ship in Solomon Islands means that the potential for successful uptake of enhanced community-based management of traditionally owned small-scale fisheries (SSF) is high, however management needs to be able to be flexible to adapt to an ever-changing environment.

Project Justification

The coastal fisheries in Solomon Islands provide more than 70% of the protein intake of the nation (2005/2006 Household, Income and Expenditure survey (HIES)), and if these fisheries were lost or degraded, the impacts on people's diets and potentially their health would be enormous. Despite the advantages of relatively well defined customary rights to marine resources and the continued influence of traditional institutions on small-scale fisheries management, managing the pressures on coastal reef fisheries is a challenge for local communities. There are relatively few tools and traditions to reconcile the limited capacity of reef resources with the rapidly increasing demands made on them.

Over the last two decades, various forms of community based management, often focused on MPA's and with conservation targets have been implemented in Solomon Islands with varying degrees of success. Within the Pacific region lessons from Solomon Islands community-based management initiatives in Roviana lagoon (Aswani 2002, Aswani and Hamilton 2004); Gizo Marine Conservation Area (WWF-Solomon Islands) and the Arnavon Conservation Area (The Nature Conservancy; see also Lincoln Smith et al. 2000, 2006), as well as the wider Pacific; village-based management of trochus and other natural resources in Vanuatu (Johannes and Hickey 2002); and experiences of the LMMA network (Dalzell and Schug 2004, Govan et al. 2008) have informed relevant parts of the adaptive management framework.

Specifically however, this project built strongly on the ACIAR project FIS/2003/051 (*Improving sustainability and profitability of village sea cucumber fisheries in Solomon Islands*) where community based management plans for sea cucumber initially, and ultimately all marine resources, were developed with a small group of communities. The consistency of this approach with the evolving of strategies of MFMR (MFMR community strategy) at the time this project was being developed, provided a strong basis to move forward on what was becoming identified as the preferred way forward for coastal resource management by the Solomon Islands government. The ultimate goal of this research is to develop a framework to guide stakeholders toward attaining the goal of sustainably managed coastal marine resources. The primary intended beneficiaries are rural Solomon Islanders. Secondary beneficiaries are government officers (national and provincial), through increased capacity to manage coastal fisheries; and NGOs participating in this project that gain experience in diagnosis of needs and of the adaptive management process.

4 Objectives

The aim of the project was to strengthen the livelihood resilience of fishery-dependent communities of Solomon Islands through the development and adoption of participatory adaptive management frameworks to facilitate the establishment of effective community-based management. To achieve this aim, the project was articulated around four main objectives. Activities in italics were added in a variation to the contract dated 16 March 2009.

Objective 1. To identify the key threats, vulnerabilities and strengths underpinning the resilience of coastal communities and of their small-scale fisheries activities

Activities

- 1.1 Design a participatory diagnosis and train the project team in the participatory diagnosis approach
- 1.2 Carry out the participatory diagnosis including socio-economic and fisher surveys.
- 1.3 *Undertake gender specific resilience analysis of data collected in resilience (socio-economic and fishers) surveys.*
- 1.4 *Conduct a 'Resilience workshop' in Solomon Islands for project partners, invited guests including representatives working in CBFM in Papua New Guinea and WorldFish experts.*

Objective 2. To facilitate the successful establishment of strong community-based management of coastal marine resources in five (two 'foundation' and three 'new') fishery-dependent community clusters of the Solomon Islands

Activities

- 2.1 Identify the mechanisms and options for management actions that strengthen the resilience of those communities against the identified sources of threats and vulnerability.
- 2.2 Prepare and implement the management plans and actions that have been proposed and agreed by the communities.
- 2.3 Strengthen the capacity of communities to independently implement their CBMPs.
- 2.4 Facilitate connection by the target communities to alternative livelihoods activities conducted under other projects.
- 2.5 *Conduct two provincial awareness and training workshops introducing community groups with community based management plans .*

Objective 3. To influence the policy and planning of Solomon Island government and other regional agencies on issues related to small-scale fisheries that have impact on the livelihood of rural communities and their fisheries.

Activities

- 3.1 Develop a communication strategy for the project.
- 3.2 Produce reports, policy briefs and information sheets on the demographic, social and economic attributes of the communities, and perceived or anticipated threats to the sustainability of the fish resources and food security.
- 3.3 Present key findings and recommendations at (a) the national level: to the FAC, to the Ministry of Planning & Aid Coordination, national offices of the major donors, and at national workshops convened as part of this project; and (b) the regional level: through the Secretariat of the Pacific Community (Policy & Planning Unit), biennial Pacific Heads of Fisheries meetings.

Objective 4. To increase the capacity of Solomon Islands-based organisations so that they can provide support to communities with CBMPs

Activities

- 4.1 Train MFMR fisheries officers (in Honiara and the provinces) in CBM and resource-monitoring techniques.
- 4.2 With FSPI analyse lessons learnt from both FSPI and WorldFish sites, and within the forum of SILMMA, promote, test and refine the principles for CBRM in Solomon Islands.
- 4.3 Develop extension material to facilitate the process of extending the successes of the adaptive management approach widely throughout rural Solomon Islands.
- 4.4 Through the WorldFish / FSPI / MFMR partnership, facilitate the establishment of culturally appropriate guidelines to facilitate MFMR and SILMMA in assisting communities to continue long term with their locally managed marine areas.
- 4.5 Synthesise and disseminate lessons through workshops, reports and publications.

5 Methodology

5.1 Site selection and description

This research and capacity development project was conducted in Solomon Islands and comprised national government, provincial government and community level activities. The primary national government partner was the Ministry of Fisheries and Marine Resources (MFMR) in Honiara. Provincial and community level activities were undertaken in three provinces in Solomon Islands; Isabel, Western and Malaita (Figure 1). We continued to work with two community clusters (Kia on Isabel, Isabel Province and Jorio on Vella Lavella, Western Province) that had community-based marine resource management programmes that had been developed from ACIAR project FIS/2003/051 (*Improving sustainability and profitability of village sea cucumber fisheries in Solomon Islands*). These were referred to as the ‘foundation’ communities.

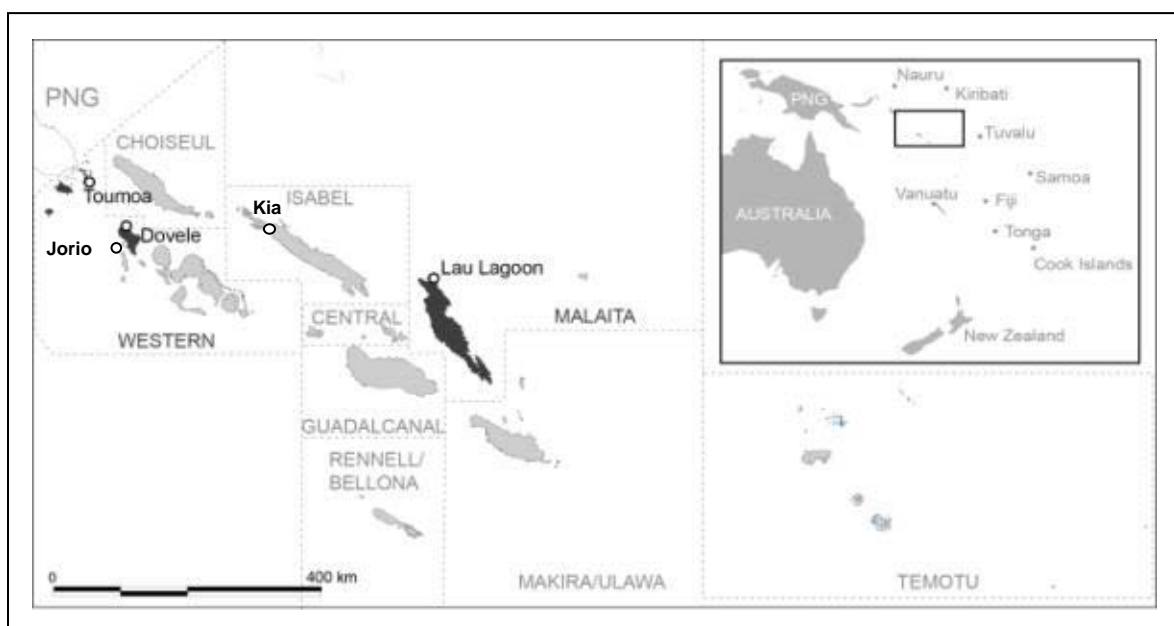


Figure 1. Location of project study areas.

In addition the project intended to work with three 'new' communities or community clusters. The communities that were originally selected were drawn from expressions of interest (in accordance with Solomon Islands Locally Managed Marine Area (SILMMA) Network principles¹) made to WorldFish and / or MFMR. Accordingly, once the project started, the original diagnosis (definition follows) was focused in the region of the communities of Liangai on the north eastern side of Vella Lavella Island; Toumoa on Fauro Island in the Shortland group; both in Western Province and Tauba in Lau Lagoon on Malaita Island (Figure 1). Further to the requirement that the communities themselves initiated requests for CBRM, part of the initial selection also followed criteria related to the communities perception of the significance of their marine resources to food security and consistent with the "design principles" for long-enduring institutions for participatory management of natural resources proposed by Ostrom (1990, 2005), all had a self-proclaimed, relatively high degree of community cohesion², hypothesised to improve the chance of successfully implementing the project. All sites referred to here were remote in that none has regular public transport or ready access to an urban market in Solomon Islands.

Their remoteness also meant that the target communities had received little assistance from government and NGO projects and none of the Western Province communities (foundation or new) had previously received assistance with marine resource management. At the time the project started none had access to a telephone network³.

The 'diagnosis' phase of the adaptive management framework (Figure 2) is the starting point for management planning and involves the exchange of information between project teams and the communities, assisting facilitators to understand community dynamics and leadership structures, and helps facilitators and community decision makers alike to identify suitable entry points for management. This phase focuses on the evaluation of opportunities, strengths and threats, covering both the biological/ ecological and social/economic processes in a fishery. Prior to entering into the diagnosis proper, a scoping visit was made by the project team to each of the three 'new' sites with the goal of ascertaining the interest on the ground and amongst the wider community, as well as getting to know surrounding and related communities and what their relationships are as resource owners and users.

¹ For elaboration of the principles see Boso et al (2010).

² In the event this cohesion was not always an absolute and this is discussed in more detail in Section 8.3.2.

³ It has been a significant event in improving communications between the project team and communities that over the lifetime of this project the majority of communities now have mobile phone access.

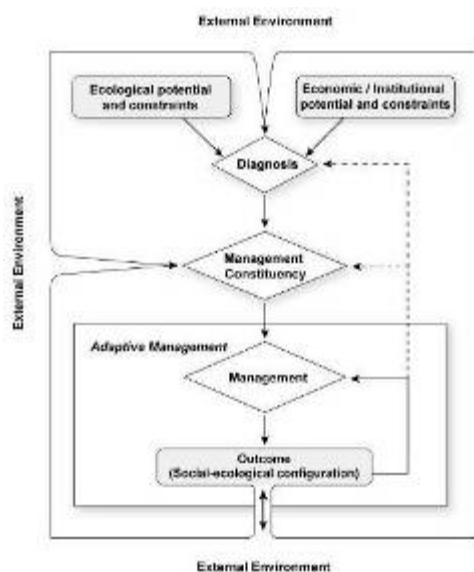


Figure 2: The Participatory Diagnosis Adaptive Management framework: a conceptual scheme for the diagnosis and management of small scale fisheries (Andrew et al., 2007).

Following the scoping visits, four new communities or clusters of communities (16 individual communities in total) showed sufficient interest to come together to develop marine resource management plans (Table 1). An additional community in Shortland Islands (Kariki) was included in 2010.

Table 1. Communities that were directly involved in activities through this project

Island	Province	Villages included in management planning process (bold) or targeted awareness (<i>italics</i>) by project end
Isabel	Isabel	Kia District communities (14)
Vella Lavella	Western	Jorio cluster: Iriqila, Vatoro, Leona, Paramata, Tiberius
		<i>Supato, Lajaka (awareness via women's group extension)</i>
		Dovele Cluster: Liangai, Suantali and Dovele
		<i>Karaka, Paraso, Karokesa (awareness via women's group extension)</i>
Fauro, Shortland Islands group	Western	Toumoa, Kariki
Lau Lagoon	Malaita	Makwanu cluster: Funa'afou and satellite communities of Niuleni, Taraniara, Foubebe and Foufiolo (MP)
		Makwanu Adasulia cluster: Foueda and satellite artificial island communities Ropa and Auri and mainland communities Boulalia, Fousagai, Kafo'ere and Foulakeno along the Gounasu'u River (MP)

		Tauba
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5.2 CBRM implementation

5.2.1 Terminology

The research in this project is specifically around Community Based Adaptive Management (CBAM) with the adaptive component being central to the approach. Multiple terminologies in use in Solomon Islands however have begun to create confusion as to the difference between CBAM, CBFM, CBM, CBRM, CBEAFM and others. We have chosen to adopt Community Based Resource Management CBRM as the terminology in this report as that is consistent with the NPOA and is now in common usage in Solomon Islands. The adaptive component remains central to the approach, as do fisheries.

5.2.2 Management planning

The project started with a project planning meeting in Gizo which was attended by the project partner teams (WorldFish, MFMR and FSPI)⁴, representatives from Liangai and Toumoa and, representing the Malaita communities, the Malaita Province chief fisheries officer. The project background, objectives, activities and major outputs were discussed and planned in detail. The opportunity was taken for one-on-one meetings with each of the community/province representatives to identify the next steps and the messages they could take back to their regions about what action the communities could expect to happen next.

The project activities were carried out in three main phases. Phases 1 and 2 were concerned primarily with the testing and implementation of the adaptive management framework through the development and strengthening of community management plans and linkages to provincial and national government. Phase 3 was focused on consolidation, lessons learned, communication and wider networking.

During the **preparatory phase** (Phase 1, associated mostly with Objective 1) the WorldFish team established an approach for a participatory diagnosis (PD) within the communities. This included socio-economic and fisher surveys, group discussions and working with key informants in the communities to identify entry points for management.

As the PD process began the project team developed a working relationship with the new communities; an understanding of the project goals and objectives and contributed what they would like to get out of the process. At this stage existing or new committees or management groups were identified that then became the key contacts for the project team. Through the participatory process the project partners (facilitators and communities) identified key threats, vulnerabilities and strengths underpinning the resilience of the communities and of their small-scale fisheries activities, and identified mechanisms and options for management actions.

During the **implementation phase** (Phase 2, associated mostly with Objective 2), resource management plans were developed and implemented within the new communities and strengthened for those already established in the foundation communities.

The project team worked with management committees to identify goals for the community management plan, the rules and norms of behavior that each community (via the committee) chose and agreed to implement, enforcement protocols and a monitoring and evaluation programme. WorldFish staff took responsibility for writing the management

⁴ *Inception meeting report*

plan and returning it to the committee for input before finalising a printed document. Poster size versions were produced for the community in the language of choice of the community (English, Pidgin or local language).

As needs were identified a range of trainings were arranged. These included training in the resource management planning process such as marine resource survey techniques and the adaptive management process. Other trainings related to governance such as running of committees and financial management were provided by Honiara based providers (e.g. the Melanesian Small Business training Centre was funded by the project to travel to communities. In the process they adapted their curricula to a version that was relevant for resource management committees).

5.2.3 Indicators and monitoring

A significant component of defining management plans in new and foundation communities was identifying suitable community-level indicators of fishery management performance and as the management plans matured, refining and testing these. Indicators are defined as aspects or components of the social-ecological system that can be measured to show if management goals are being achieved. Monitoring of indicators underpins the adaptive management process. Indicators are attributes of the system that are important to the community in their own right, but are also expected to reflect whether the community and its resources are moving towards, or further away from, what they have decided are their goals of marine resource management. The analysis of indicators using quantitative data can also provide an objective assessment of the performance of management, free from the biases associated with individual interests. Thresholds in the measurement of the indicators (e.g. catch levels or animal densities) provide a decision point regarding the need for action.

In year 1 of the project; indicators that had been established in Kia for sea cucumber and benthic invertebrates through ACIAR project FIS/2003/051 (*Improving sustainability and profitability of village sea cucumber fisheries in Solomon Islands*) were assessed and revised based on the results of monitoring. In addition attention was paid to learning from the underwater (snorkel) survey based monitoring that the community had been conducting as to the sustainability and suitability of this technique for assessing management plan effectiveness.

Jorio and the 'new' project communities tended to choose finfish rather than (or as well as) benthic invertebrates as indicator species and in Years 1 and 2, trials began on implementing community-friendly approaches for measuring and analysing catch per unit effort (CPUE). Through an adaptive learning process between the project team and the communities, community guides to CPUE were developed; a SILMMA guide to community CPUE monitoring was produced with SILMMA partners, and community training was conducted on monitoring, data analysis and the use of findings in making adaptive management decisions.

5.2.4 Province and national level activities

Provincial level activities were focused on strengthening platforms and relationships between communities and their provincial representatives in preparation for the expected agreement on a national model of CBRM rollout. This included making presentations on CBRM activities to the Premiers of Western and Malaita Province, making a presentation to the full Malaita Executive, and bringing community representatives to Auki for Malaita Environment week to present their initiatives to the Provincial government. Provincial fisheries officers formed part of the field team whenever possible.

National level activities had the same goal of strengthening enabling platforms for CBRM, This was facilitated by MFMR being a partner in the project and included contributing to policy; making presentations, partnering with MFMR fisheries officers on field trips, regular meetings with the Permanent Secretary of MFMR to update on progress, making complementary presentations (WorldFish and MFMR) at regional fora and having a

common approach as project partners to CTI initiatives which are focused around CBRM based on MFMRs Inshore Fisheries Strategy (see Section 6, Objective 3, Activity 3.2).

5.3 Livelihoods

At the time the proposal was written it was recognized that sustainable management of fished stocks may mean reducing harvests, and therefore income, to fishers and other community members. The primary emphasis of this project was working with communities to secure the ecosystem services provided by marine resources for their future food security; however the participatory diagnosis component used to identify threats, vulnerabilities and strengths also provided an opportunity to identify realistic livelihood options that could be enhanced, strengthened or introduced. Activity 2.1 'Facilitate connection by the target communities to alternative livelihoods activities conducted under other projects' built on the outputs from such participatory exercises with at least one example of a possible supplementary livelihood activity identified and facilitated in each community / cluster.

5.4 Communication, partnerships and networks

During the **consolidation, communication and evaluation phase** (Phase 3), the focus was on the consolidation of the community management process based largely on lessons learned in phase 2 and on strengthening networks to other donor funded initiatives and national programmes. Lessons learned from the adaptive management process were documented and were then used to inform policy discussion at the national level with MFMR and MECDM.

The primary networks and programmes which the findings from the project were fed into were SILMMA which is the primary network for communities to interact with each other and government, the Coral Triangle Initiative (CTI) and the New Zealand funded Fisheries Sector Institutional Strengthening Programme (MSSIF). The early stages of planning for Coral Triangle Activities in Solomon Islands involved extensive input by WorldFish project scientists and FSPI staff to consultations on the Solomon Islands National Plan of Action (NPOA), led by the Ministries of Environment, Climate Change, Disaster Management and Meteorology (MECDM) and MFMR. WorldFish (Delvene Boso) and FSPI (Joanne Pita) staff members sit on the National co-ordinating committee (NCC) for the CTI (co-chaired by MECDM and MFMR) ensuring that lessons learned from this ACIAR funded project (and others) are effectively incorporated into the wider national planning for coastal and marine resource management under the CTI.

This phase also facilitated province level activities where project staff worked closely with MFMR partners and provincial fisheries officers with respect to consideration of drafting of ordinances and provincial fisheries development plans.

The communications component of phase 3 (associated with Objective 3) was carried out in accordance with a communications strategy agreed on at the project planning meeting (Table 2).

Table 2. Communication strategy for project developed at inception meeting.

	Target audience	Who is responsible?
Verbal presentations with PowerPoint and relevant DVD's when possible	All members of the community	WorldFish / MFMR / FSPI
Community Pamphlet	Community youth and adults	FSPI / WorldFish
Trade show pamphlet	Community Youth and adults	FSPI/WorldFish/MFMR

Posters	Community Youth and adults	MFMR / WorldFish
National Radio. At least one spot per year.	All members of Solomon Island community, rural and urban	WorldFish / FSPI / MFMR
DVD produced using community examples on CBM	Community Youth and adults	WorldFish
PFNet / Solomon Star Contribute at least one "press release" to each annually	All members of Solomon Island community, rural and urban	WorldFish/ MFMR/FSPI
School curriculum material. Engage with individual schools in the project communities and provide materials specific to the project in their area.	Community children and youth	WorldFish / MFMR / FSPI.
Train leaders, pastors, women's groups in disseminating marine resource management messages	Community leaders	WorldFish women's group training kit to be developed in Kia.
Notice boards	All community members visiting or living in Gizo	WorldFish to approach WWF about using their notice board in Gizo
Quarterly email newsletter	Project team	WorldFish
Annual project team meeting (approximately August)	Project team	WorldFish
At least two policy briefs	For use in guiding policy decisions at the national and regional levels	WorldFish
Adaptive management framework presented at a stakeholders' network (SILMMA) workshop	NGO's and other organisations working in marine resource management	WorldFish / FSPI / MFMR
Attend Fisheries Advisory Council (FAC) meetings.	National decision makers	WorldFish (Cletus)
Meet at least twice a year with PS-MFMR, and SIMROS	MFMR decision makers	WorldFish / MFMR
Presentation at a regional or international forum	Practitioners outside of Solomon Islands	WorldFish
Prepare annual reports of progress for ACIAR	Donor	WorldFish with input from MFMR / FSPI

5.4.1 The project team

The project was led by WorldFish-Solomon Islands with a team operating from each of the WorldFish offices in Honiara and Gizo. There was considerable interchange of scientists and technical aides between teams. Regular team meetings were held in Honiara or Gizo and a bi-monthly team newsletter produced. The Solomon Islands based team has been overseen by PL Dr Anne-Maree Schwarz with Ms Delvene Boso, Mr. Gregory Bennett (prior to starting his PhD see section 8.2) and Ms Zelda Hilly as field team leaders for the project duration. WorldFish scientists Drs Neil Andrew, Chris Béné Nireka Weeretunge and Tim Alexander have provided specialist input to various aspects of the work, being based in country for different periods depending on the activity.

The project had two explicit partners with WorldFish; MFMR and FSPI. Both were allocated separate budgets to manage. In the event, MFMR did not have the capacity to take on this task and WorldFish were requested by MFMR to disperse the funds on their behalf. To this end at every possible opportunity MFMR national and provincial fisheries officers were field team members and were involved in trainings. MFMR staff consistently participated in field work, particularly in Malaita province and committed assistance from the Malaita provincial fisheries officers has been a strength of the project.

This collaboration has helped to facilitate the active involvement of MFMR and provincial fisheries officers in the ongoing development of guidelines for the establishment of appropriate systems to assist communities to continue long term with their locally managed marine areas.

FSPI staff conducted some field activities separately as well as joining the WorldFish team on specific joint activities (FSPI activities are reported on separately in Appendix 1). A key component of the collaboration with FSPI was to support their Provincial networking activities in GERUSA (Central Province) and to analyse lessons learned from sites where both organisations have been working.

Community members have spent a lot of their own time participating in making decisions about the future utilisation of their marine resources through community meetings with leaders or as members of specific CBRM committees or survey teams. They have also participated in targeted trainings in monitoring, financial management and running of committees.

6 Achievements against activities and outputs/milestones

Objective 1: To identify the key threats and vulnerabilities and strengths underpinning the resilience of coastal communities and their small-scale fisheries activities.

no.	Activity	outputs/ milestones	completion date	Comments
1.1	Design a participatory diagnosis survey and train the project team in the participatory diagnosis approach	1.1.1. Project team completes training course in Solomon Islands in participatory diagnosis approach	Y1, M4	Survey designed with input from Solomon Island researchers and resilience and gender experts in WorldFish. Training in designing a questionnaire to answer resilience related questions held after inception workshop. Three day training workshop in participatory diagnosis and operationalising resilience held in Honiara for WorldFish staff and relevant stakeholders.
1.2	Carry out the participatory diagnosis including socio-economic and fisher's surveys.	1.2.2 Reports on the resilience analysis of two additional 'new' communities, including an analysis of alternative livelihoods.	Y2, M6 plus on additional report Yr 3 M 12	Three reports completed for 16 communities in two provinces. The reports are available from WorldFish and are made public only once communities sign off on them.
1.3	Undertake gender specific resilience analysis of data collected in resilience (socio-economic and fishers) surveys.	1.3.1 One peer reviewed publication	Y2,M12 SPC publication submitted Yr 3, M12	An international WorldFish gender specialist conducted a one-day workshop with national WorldFish staff on gender and value-chain analysis. Publication submitted to SPC Women in Fisheries Bulletin by National WorldFish graduate staff.

1.4	Conduct a 'Resilience workshop' in Solomon Islands for project partners, invited guests including representatives working in CBFM in Papua New Guinea and WorldFish experts.	1.4.1 Policy brief for MFMR 1.4.2 One peer reviewed publication	Workshop completed Year 1, M12.	Resilience workshop held in May 2009 in Honiara. 28 participants including PNG NFA rep, SIMROS (NZ AID Fisheries Institutional Strengthening Programme) advisor, three WorldFish resilience experts, regional CBM experts, national staff and partners. Outcomes informed partner contributions to Solomon Islands National Plan of Action for the CTI (MECDM/MFMR, 2010) Publication Schwarz et al (2011).
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Objective 2: To facilitate the successful establishment of strong community-based management of coastal marine resources in five fishery-dependent community clusters in Solomon Islands

no.	Activity	outputs/ milestones	completion date	comments
2.1	Identify the mechanisms and options for management actions that strengthen the resilience of those communities against the identified sources of threats and vulnerability.	2.1.1 One peer reviewed publication	Y2, M11	MS in draft form to be submitted 2011
2.2	Prepare and implement the management plans and actions that have been proposed and agreed by the communities.	2.2.1 An inshore resource management plan is formally agreed to by one community and agreed management rules are implemented by the community	Y3, M3	See 2.2.2
		2.2.2 Inshore resource management plans are formally agreed to by two communities and agreed management rules are implemented by the communities	Y3, M11	All 'new' community clusters have implemented their management plans to varying degrees (Table 4). Makwanu Adasulia and Toumoa are still to get to the stage of holding their first AGMs.
2.3	Strengthen the capacity of communities to independently implement their CBMPs.	2.3.1 One 'foundation' community survey group has conducted resource surveys of their reefs, according to their management plan, without the assistance of WorldFish.		Kia community are independently carrying out resource surveys on their reefs, using their own funding obtained through a community grant which runs for two years.
		2.3.2 A workshop has been held within the 'foundation' communities to discuss independently collected resource survey data and assess indicators	Y2, M2 Y3, M2	In September 2009, in a meeting facilitated by a WorldFish staff member, Kia sea cucumber fishery indicator thresholds were changed on basis of results of three years worth of monitoring results, and the committee have added on fish as an indicator species. CPUE training has been held in all foundation and new communities during the first half of 2011.
2.4	Facilitate connection by the target communities to alternative livelihoods activities conducted under other projects	2.4.1 A report has been provided to communities where alternative livelihoods analysis (outputs 1.2.1 and 1.2.2) suggest suitable conditions for one or more specific livelihoods options.	Y1, M12 Y2, M6	Livelihood analysis has been incorporated into reports and provided to communities

		2.4.2 Contact has been made between project communities and leaders of suitable livelihoods projects/initiatives.	Y2, M4 Y2, M10	See summary section 7.2.
2.5	Conduct two provincial awareness and training workshops introducing community groups with CBMP's	2.5.1 Provincial officers understand the implications of the new fisheries Act for CBFM	Y2, M12	<p>November 2008 FSPI held a Central Province workshop, a follow-up FSPI led workshop was conducted in late May 2009, where the Gella Russells Savo (GERUSA) Natural Resource Management Committee was formed and the GERUSA Action Plan was developed. This document has now been endorsed (February 2010) by the Central Islands Province government .</p> <p>The first Auki Environment Day was held in Malaita Province to highlight project activities as well as the activities of a range of other partners in the fisheries and environment sector.</p>
2.6	Host MFMR / provincial Fisheries Officer training workshop in conjunction with SILMMA	2.6.1 Provincial fisheries officers in at least three provinces have been trained and have the material resources required to prepare a CBFM plan that meets the requirements of MFMR's community strategy and the Fisheries Act.	Yr3, M6	<p>A consultation meeting between Malaita Provincial Fisheries officers, the Provincial Executive, the Ministry of Fisheries and Marine Resources and WorldFish was conducted in May 2010 at the Malaita Province office. Community representatives of Langalanga Lagoon were also present. Training and resources for PFOs were trialed in August 2011, this is as yet at an early stage of development.</p>

Objective 3: To influence the policy and planning of Solomon Islands government and other regional agencies on issues related to small-scale fisheries that have impact on the livelihood of rural communities and their fisheries.

no.	Activity	outputs/ milestones	completion date	comments
3.1	Develop a project communication strategy	3.1.1 A communication strategy document has been produced	Y1, M5	A communication strategy was developed in Y1, M3, and has guided communication at the community and partner level.

3.2	Produce reports and policy briefs and information sheets on the demographic, social and economic attributes of the communities, and perceived or anticipated threats to the sustainability of the fish resources and to the communities' food security	3.2.1 At least two policy briefs on key issues relating to sustainable resource use and food security in rural Solomon Island communities produced.	Y1, M12 Y2, M12	<p>The Solomon Islands National Strategy for the Management of Inshore Fisheries and Marine Resources has been prepared by project partners MFMR and WorldFish, for MFMR.</p> <p>The Malaita Provincial Fisheries Officers in partnership with MFMR and WorldFish outlined a Malaita Provincial Fisheries Development Plan 2010. Identified activities were reviewed (along with all Provincial Plans) at an MFMR and PFO meeting held in February 2011 hosted by MFMR and is expected to be revised further in early 2012.</p>
3.3	Present key findings and recommendations at (a) the national level: to the FAC, to the Ministry of Planning & Aid Coordination, national offices of the major donors, and at national workshops convened as part of this project; and (b) the regional level: through the Secretariat of the Pacific Community (Policy & Planning Unit), and biennial Pacific Heads of Fisheries meetings; and through regional environment meetings (SPREP: e.g., Pacific Islands Conference on Nature Conservation and Protected Areas).	3.3.1 Adaptive management framework presented at a stakeholders' network (SILMMA) workshop	Y3, M7	Presentation by D. Boso to annual SILMMA meeting 2010.

		3.3.2 Submit policy brief and key project findings for the attention of the Minister for Fisheries & Marine Resources through the Fisheries Advisory Council (FAC).	Y3, M6	The FAC met in October 2009 and WorldFish staff member Mr Oengpepa attended.
		3.3.3 Meet at least twice a year over the three years of the project with PS-MFMR, and SIMROS	Y1, M12 Y2, M12 Y3, M12	Project Leader met with PS-MFMR and SIMROS in January 2009 and again in February/March 2009. In 2010 the new Institutional strengthening programme MSSIF was implemented. Meetings with PS MFMR have been held at least twice each year and the project team including Dr C Barlow from ACIAR met with the PS and MSSIF advisor in January 2011.
		3.3.4 One presentation at a regional or international forum	Y3, M6	The adaptive management framework was presented at the Pacific Regional Conference on Marine Managed Areas in Moorea, Tahiti in November 2009

Objective 4: To increase the capacity of Solomon Islands-based organisations so that they can provide support to communities with CBMPs.

no.	Activity	outputs/ milestones	completion date	comments
4.1	Train MFMR fisheries officers (in Honiara and in the provinces) in CBM and resource-monitoring techniques	4.1.1 MFMR staff have attended training in participatory diagnosis and are integral team members in at least one 'new' community project team.	Y2, M5	MFMR staff (including provincial fisheries officers) have joined all three field trips to the Lau communities on Malaita in Y2. MFMR, Western Province fisheries officers and WorldFish staff conducted a community based management awareness trip to Shortland Islands.
4.2	With FSPI analyse lessons learnt from both FSPI and WorldFish sites and within the forum of SILMMA, promote, test and refine the principles for CBRM in Solomon Islands.	4.2.1 Lessons learned document produced	Y2, M7	The lessons learned document has been produced by WorldFish and FSPI staff and widely circulated nationally and regionally (appended)

4.3	Develop suitable extension material to facilitate the process of extending the successes of the adaptive management approach widely throughout rural Solomon Islands	4.3.1 Extension materials developed according to the communications strategy.	Y3, M5	<p>A DVD on CBRM in highlighting one 'foundation' community has been produced. This DVD has been screened during the women's workshop in Gizo and in Toumoa and has been shown at public meetings in Jorio and Dovele .</p> <p>A 'train the trainers' workshop for village women similar to that held in Y1 was held by female WorldFish staff for the Jorio and Dovele communities, and for the Toumoa community.</p>
4.4	Through the WorldFish / FSPI / MFMR partnership, facilitate the establishment of culturally appropriate guidelines to facilitate MFMR and SILMMA in assisting communities to continue long term with their locally managed marine areas.	4.4.1 Updated CBM guidelines agreed upon at a SILMMA network workshop	Y3, M7	<p>In November 2009, SILMMA members including community reps from various communities (all WorldFish site representatives attended) attended a SILMMA Strategic Planning Meeting in Gizo. The SP was endorsed by the Advisory Council and now guides SILMMA activities. The project team have worked together to ensure that CBRM has moved to the top of the agenda in the NPoA through the Inshore Fisheries Strategy. Principles for CBRM were endorsed by the Solomon Islands NCC (CTI national co-ordinating committee) in June 2011.</p> <p>.</p>
4.5	Synthesise and disseminate lessons through workshops, reports and publications.	4.5.1 Prepare annual reports of progress for ACIAR	Y2, M2 Y3, M3 Y3, M12	<p>Annual progress reports prepared, presentations made by Schwarz to SPC Ecosystem Approach to community based fisheries management and Boso, Schwarz, Andrew (WorldFish) and Teri (MFMR) contributed to regional discussions on CBRM at this workshop.</p>

7 Key results and discussion

7.1 CBRM Implementation

7.1.1 Resilience concepts

At the time this research was initiated resilience was a concept that was just entering the vocabulary of government and NGO's working in the areas of resource management in Solomon Islands. To strengthen the resilience context of this research, prior to community activities a resilience workshop was held in Honiara in May 2009. Twenty eight participants including WorldFish resilience scientists, regional community based co-management specialists, national project staff and partners and a representative from PNG, NFA came together to discuss resilience concepts and theory and how some of this

theory might be tested and actioned by on the ground activities. The goal of the workshop was to have project stakeholders have robust discussions on several issues, including how resilience-in-practice fits with other more established frameworks for managing natural resources and local development.

The specific objectives of the workshop were:

1. To develop a common understanding of resilience in the context of small-scale fisheries and the Solomon Islands.
2. To discuss and understand approaches and frameworks for managing small-scale fisheries, including co-management, and how resilience-in-practice fits with these.
3. To discuss and understand tools that can support management of small-scale fisheries and in particular socio-economic assessment and monitoring in the context of both co-management and resilience-in-practice.

The workshop provided a component of training in participatory Diagnosis (Activity 1.1) and sharing of lessons at this workshop helped guide some of the on the ground activities that followed, in particular the designing of the resilience questionnaire and the presentation of management plans to the communities (e.g. considering the poster approach rather than just a written document).

7.1.2 Site descriptions and diagnosis in new community clusters

Community meetings, focal group discussions and household surveys were conducted in the 'new' communities/ clusters of Dovele, Toumoa and Lau Lagoon as part of the diagnosis phase of the PDAM framework. A resilience survey was designed which asked questions under five main headings: household information; livelihoods and assets self assessment; economic data; income and expenditure; social capital; resource use by fishers and governance (including institutions, local ecological knowledge, renewal and self-organisation). The findings from the surveys have been compiled into three project reports (Boso and Schwarz, 2009; Boso et al., 2011; Paul et al., 2010) and have been included in one peer reviewed publication (Schwarz et al., 2011).

The reports included an analysis of the management constituency (tribal structures, existing community groups, leaders, resource owners etc) in order to identify entry points for management and included an analysis of current livelihood options and possible opportunities for livelihood intervention within the scope of this project. While the majority of people in all clusters were gardeners and/ or fishers, the relative importance of marine resources to peoples livelihoods increased from Dovele < Toumoa < Lau and some key differences in threats, vulnerability and strengths were evident.

Dovele

Livelihood and income generating activities were diverse in Dovele with more than sixteen different categories being identified. Gardening was the primary occupation and gardening and other land based livelihood activities, along with remittance provided income to more people of Dovele than did marine resources. Nevertheless fishing, collection and sale of trochus and seaweed (*Caulerpa* sp.) were important components of the diverse livelihood strategies employed. Accordingly fisheries were viewed by community members as a potential area for development, particularly as access to land becomes more difficult as population increases.

Population increase, climate change and an inability to access markets were identified as key threats and limitations to the future livelihoods of the people of Dovele and areas of vulnerability were centered on social issues such as a lack of respect for leaders, alcohol, drugs and land disputes. A livelihoods analysis suggested that while human and natural assets were relatively strong, relatively low social, physical and financial capital may compromise the ability for natural capital to continue to provide in the future.

In the wake of the 2007 earthquake and tsunami the Dovele communities suggested that they now had better community organization and a general impression that they had

learned from the event and would be able to cope better in the future. The role that marine resources played in assisting the community to recover (food and cash) highlights that sustainable management of both terrestrial and marine resources is a critical component of maintaining the natural asset base.

Toumoa

The Toumoa community were dependent on fishing and gardening activities for their livelihood and for men, fishing was the predominant occupation. In Toumoa community governance structures exhibited a high level of organisation and unity with the Paramount Chief taking the highest chiefly role in the community; fishers had a high degree of understanding of their marine environment. Both of these factors are expected to contribute to uniting the community in effective management their marine resources. While the community considered self-management the most effective way to manage their marine environment, outside interventions that include advice and assistance from external organisations or institutions, including government and other NGOs were acknowledged as also being important to the process. While self-perception of fisheries knowledge was high, similar to other Solomon Islands communities (Boso et al 2010, Paul et al 2010, Ramofafia et al 2007) opinions differ between genders on whether this extended to an ability to manage their marine environment.

A shift towards a cash dependent society and an increasing population pressure were referred to by respondents as drivers that can put pressure on marine and land resources in order to satisfy cash needs (respondents mentioned increased food prices, poverty and a need to look for paid employment). The proximity of Bougainville proves an important marketplace for fishing products where most of the fishers' catch is reportedly sold with only a small portion being retained for household consumption. In addition to population pressures, key vulnerabilities identified by respondents included climate issues and declining reef resources. While the livelihoods analysis suggests that the human, natural and social assets of Toumoa remained strong, maintaining these assets is expected to be an important part of facilitating further improvements in the financial capital of community life.

The people of Toumoa have been forced to adapt to several external natural and human-induced events in recent years including the April 2007 earthquake and tsunami, the Bougainville crisis⁵ and the increased price of goods, such as food and fuel. While respondents generally felt that they had not coped well with these events, the majority felt that they will be better able to cope in the future having gone through the experience. The community has in fact exhibited a number of coping and adaptation strategies that have been previously identified for rural communities (Agrawal and Perrin, 2008). Mobility and livelihood diversification have increased within the community as evidenced by the movement of people to Honiara and other urban centres in the Province to seek employment and education. Within the village itself, livelihoods remain dominated by the activities of fishing and gardening for subsistence as well as for sale. Nearby Bougainville provides a somewhat unique (in Solomon Islands context) hub for marketing of goods from a remote rural area. In addition, traditional practices like the pooling of fish catches and sharing the returns of goods harvested from a 'community' reef for community benefit, have long been practiced. Rights for accessing land and reef assets are widely held by Toumoa community members, which can also be seen as a coping strategy as few are excluded from utilising resources in times of hardship. For example, cash income from trochus harvests from the community reef has helped the community raise funds for church activities and community events that would have otherwise been difficult for community members to contribute towards.

⁵ Between 1988 and 1990 internal conflict on the island of Bougainville caused around 20,000 lives to be lost and the destruction of infrastructure and law and order. With only a short distance separating Bougainville from the Shortland Islands in Western Province, many western Solomon Islanders were affected by the protracted emergence from that conflict.

The strength and importance of these traditional practices and knowledge have been incorporated into the process of implementing marine resource management within Toumoa community, not least by including some long held traditional tambu reef areas into the management plan.

Lau

The people of Funa'afou and Foueda artificial Island communities in Lau lagoon have historically been almost entirely dependent on marine resources. The movement of the first migrants from mainland Malaita to the artificial islands of Lau Lagoon began some 300 to 400 years ago. Among the causes of these out migrations were tribal fighting, headhunting and cannibalism as well as a desire to escape from mosquitoes on the mainland. Originally rafts were built as a form of transportation and used to carry reef stones and boulders to build the artificial islands. Unlike other artificial islands, which were built primarily by piling reef stones into mounds on the shallow reef flats, Funa'afou and Foueda have a pre-existing natural base made from coral knobs or rocky outcroppings that were on the reef flat before any people arrived. Early inhabitants created the islands by walling the submerged rocky knobs with limestone boulders gathered from the reefs at low tide or along the shore of the mainland (Molea and Vuki, 2008).

Today, the region constitutes one of the most densely populated areas in the country's most densely populated province and at 3.3%, with one of the highest population growth rates in Solomon Islands . Multiple internal and external pressures have exacerbated what is now considered by the people of the lagoon to be unsustainable pressure on their marine resources.

The diagnosis phase identified that the islanders remain dependent on marine resources for food and cash today and have limited access to terrestrial resources and land for cultivation. Population, sea level rise, climate change, disease and outsiders were identified by the islanders as key threats to their future livelihoods. Population pressures and an increasing need for cash has been driving families to move to Honiara or to the mainland of Malaita to search for livelihood opportunities, and the same drivers were also increasing pressure on the marine resources in the vicinity of the islands meaning the villagers that remain are experiencing a decrease in catch per unit effort (CPUE) and had seen little increase in cash income over the last 10 years (Boso and Schwarz, 2009).

The marine ecosystem is the asset base on which the future of more than 50% of the current livelihood options rest (Table 3, from Boso and Schwarz, 2009). Sustainable management of marine resources therefore appears to be a critical component of maintaining the natural asset base, in order to support development of other asset bases.

Table 3: Summary of livelihood options identified by the people of Funa'afou and Foueda communities. (Some livelihood options, like green coconuts and betelnut were not mentioned as a source of income during the household surveys but were indicated during informal community discussions).

Livelihood	Active	Men	Women	Local market cash /trade	Food	Auki or Honiara esky	Potential for value adding or development	Requires management consideration
Muu fishing	√	√		√	√	√		√
Reef fish	√	√	√	√		√	√	√
Deep sea fishing	√	√		√	√	√	√	
Mangrove fruit	√		√	√	√		√	√

Thorny oyster	√	√				√		
Trochus	√	√			√	√		
Shark fin	√	√				√		√
Sea cucumber (when no national bans)		√	√			√		√
Animals (pigs, chickens)	√	√	√	?				
Seaweed farming		√		√			√	
Shellfish	√		√	√	√			√
Gardening	√	√	√	√	√		√	
Green Coconut					√		√	
Betelnut	√	√		√				
Watermelons	√	√	√	√	√	√		
Baking (scones)	√	√	√	√	√			

The artificial island communities of the Solomon Islands are identified in the Solomon Islands National Adaptation Plan of Action of being at particular risk from climate change. The islands already exhibit a number of characteristics of being adaptable including, engaging in diverse livelihoods, undertaking bartering and exchange of goods, having a mobile population and having a strong desire to maintain the natural asset of their marine resources. In addition, the active participation of existing community management institutions in the adaptive management process was seen by resource management committee members as an opportunity to strengthen self-organization and to link with other stakeholders that can provide support for future activities.

Gender

An international WorldFish gender specialist (Dr Nireka Weeretunge) conducted a one-day workshop with national WorldFish staff on gender and value-chain analysis in January 2010. This introduction has since been complemented by the collection of gender disaggregated data in focus group discussions and resilience questionnaires. While summarised in the reports referred to above, this data is yet to be published in a peer reviewed publication. A specific focus on gender and youth in discussions identified opportunities for engaging with both groups outside of the process of implementing management via the management committees. For women a 'train the trainers' workshop was developed by WorldFish staff for women in rural communities that are undertaking marine resource management. Initially developed in response to a request from the women of Kia, the workshops specifically targeted the role that women can play in supporting their communities' marine resource management initiatives and have been well received by the participants (Hilly et al., 2011).

Subsequent to the training workshops each of the groups have undertaken to put into practice what they learned by communicating concepts about marine resource management in formal or informal settings. In general there is evidence that this initiative has received support from the wider community resource management committees and some of the women that have been trained have joined some of the men who represent the committees or technical teams in conducting awareness to neighbouring communities.

Feedback on the trainings from the trainers and the participants themselves including; lessons on effective candidate selection, methods of delivery and location of workshops are being incorporated into training materials and protocols for community based marine resource management in Solomon Islands, particularly through the CTSP programme of CTI and within ACIAR project FIS/2010/056 (2011-2014). The lessons from these activities have been compiled by Solomon Islands national WorldFish graduate staff and published in the SPC Women in Fisheries Bulletin (Hilly et al., in press).

7.1.3 Facilitating community based management

In order to implement management and prepare management plans for the three 'new' community clusters and to strengthen management in the two 'foundation' community clusters the project team spent periods of up to 7 days at a time in the communities working with leaders, resource management committees and the members of the communities themselves. At the planning phase of this research and for budgetary purposes, ten visits were planned to each of the new communities. In the event seven to 10 formal (i.e. field trip report produced) visits were recorded, plus some additional trips if the team was passing for other projects to pick up management plans, assist with technical difficulties activities etc. In total approximately 40 formal community visits (Table 4) were made as part of planning and implementation of management during this study.

Table 4 Summary of formal field trips (for which field trip reports are available) for implementation and follow up of CBRM in two foundation and three new community clusters

Date	Management Activity	Number in team	Community / Cluster
5-Oct-08	Diagnosis	4	Dovele
24-Feb-09	Implementation (questionnaire)	4	Dovele
1-Jun-09	Implementation (workshop)	5	Dovele
22-Oct-09	Management plan	3	Dovele
8-Nov-09	Management plan	4	Dovele
25-Jul-10	Implementation	3	Dovele
5-Oct-10	Management plan	3	Dovele
21-Oct-10	Management plan	3	Dovele
22-Nov-10	Monitoring	2	Dovele
24-Nov-08	Monitoring	2	Jorio
3-Apr-09	Implementation	1	Jorio
1-Jun-09	Management plan	5	Jorio
12-Oct-09	Monitoring/Management plan	4	Jorio
16-Oct-09	Monitoring	4	Jorio
25-Feb-10	Implementation	4	Jorio
10-May-10	Management plan/FAD	5	Jorio

22-Sep-10	Implementation (workshops)	5	Jorio
22-Nov-10	Monitoring	3	Jorio
26-Nov-10	Implementation (training)	2	Jorio
28-Feb-11	Management plan/Monitoring	2	Jorio
10-Mar-09	Implementation (training – women’s workshop)	2	Kia
28-Sept-09	Kia AGM	1	Kia
21-Feb-10	Kia AGM	1	Kia
26-May-10	Implementation	2	Kia
8 August-10	Monitoring training	3	Kia
7-Oct-08	Diagnosis	1	Lau
16-Feb-09	Diagnosis	2	Lau
11-May-09	Management plan	5	Lau
4-Jul-09	Management plan / Implementation	3	Lau
12-Apr-10	Management plan	2	Lau
23-Aug-10	Implementation (workshop)		Lau
28-Mar-11	Management plan	2	Lau
14-Mar-11	Implementation	4	Auki
27-Oct-08	Diagnosis	4	Toumoa
9-Jan-09	Implementation (Questionnaire)	4	Toumoa
24-Mar-09	Implementation (questionnaire)	5	Toumoa
26-Mar-09	Implementation (training)	3	Toumoa
14-Jun-10	Management plans	4	Toumoa
13-Oct-10	Management plan / Implementation	4	Toumoa
14-Jun-11	Implementation	4	Toumoa

Facilitating and implementing community based management in the many remote islands of Solomon Islands presents challenges in terms of costs and time. National and provincial budgets available for implementation are low and are likely to remain so into the future. Given the widespread assumption that community-based approaches will be used for fisheries management there is an urgent need to find affordable implementation mechanisms. Leveraging off ACIAR project FIS/2007/116; a SPREP funded project titled ‘Towards Integrated Island Management’ was carried out by regional consultant Dr Hugh Govan in partnership with the WorldFish ACIAR team. Using the implementation of management in the Lau communities as a case study, all costs and input were recorded and summarised resulting in some design principles for a model of nation-wide implementation of CBRM. The principles incorporate broader social and ecological perspectives into community based management aiming for cost effectiveness and simplicity as strategies to ensure sustainability. The full report is available at http://www.worldfishcenter.org/resource_centre/media/pdfs/Towards_Integrated_Island_Management_Final.pdf

7.1.4 The management plan

All of the new (and foundation) communities now have management plans although some remain to be endorsed and launched by their respective committees (Table 5).

Table 5. Current status of management plans. For full description of clusters see Table 1.

Cluster name	Province	Management Plan	
		Draft	Implemented
Kia	Isabel	May 2008	2008
Makwanu Adasulia [Lau]	Malaita	August 2010	Partially pending final agreement on ownership of one reef and management that should be imposed there
Makwanu [Lau]	Malaita	October 2009	2009
Toumoa	Shortlands	October 2009	2010
Kariki	Shortlands	November 2010	Partially, pending final agreement by committee on content of MP
Jorio	Western	September 2008	2010
Dovele	Western	June 2009	2010

Both of the foundation communities have also drawn up constitutions and registered as community based organizations (see box 1). This gives them legitimacy in being able to apply for community targeted small grants from government and donors.

Consistent with the Revised Fisheries Bill, key requirements of a management plan include:

- Extent of ownership/management area
- Goals of management
- Rules and norms
- Map or description of tambu areas
- Mechanism for opening/closing or rotation if relevant
- Penalties and enforcement for rule-breakers
- Indicators and period for review

Communities may also choose to include a description of

- Resource ownership
- Tribal structure
- Demography
- Language
- Religion

Management plans are usually written as a short bound document (6-12 pages) and a summary form prepared as a poster (Figure 3) which can easily be displayed or distributed around the community.

MAKWANU ARTIFICIAL ISLANDS MARINE RESOURCE MANAGEMENT PLAN

Funa'afou - Niuleni - Foubebe - Foufiolo - Taroniara

Goal of the Makwanu Artificial Islands Marine Resource Management Plan

"To preserve the marine resources of the Makwanu Artificial Islands communities from overharvesting for future generations"

TAMBU RULES

1. Tribal leaders will decide what reef(s) to close and for what period
2. There is no fishing or diving for the purpose of collecting any marine resource on closed reef
3. Once a reef is closed, it is a NO-GO zone and is out of bounds to all people including reef owners until it is decided to be opened
4. All reefs governing open reefs shall apply to tambu areas when they are open
5. Lama and Baliaba are permanent storage sites. This means that the area is now a NO-GO zone.

OPEN REEF RULES

1. No harvesting of muu with eggs when they aggregate for spawning in Lama and Gounakou
2. No harvesting of juvenile muu (kara)
3. No dynamite fishing
4. No harvesting of trochus less than 8cm or over 12cm (National Fisheries Regulation)
5. Use of 'uka' poison leaf and root is banned
6. Gillnets less than 2.5 inches is banned
7. Nylon nets less than 1 inch is banned
8. Hookah (compressor) and SCUBA is allowed only for recreational diving
9. No foreign vessels are allowed without the permission of the Committee; fees may apply
10. All national fisheries laws apply

RUL STAP LO RIF WEA TAMBU

1. Oketa rif ouna an traebol lida na bae chusim wis rif or ples fo fising na fo tambu an fo hao long na bae hem tambu
2. Fising and daeva hem no alaod lo any tambu rif
3. Taem rif hem tambu, ples la no niwan alaod fo go lo hem nao
4. Oketa rul wea stap lo rif hem no tambu bae hem semsem lo oketa tambu rif taem hem open
5. Disfala eria lo Lama an Baliaba hem wanfala permanent tambu ples. Hem minim that disfala eria no niwan shud go lo hem nao

RULS WEA STAP LO RIF HEM NO TAMBU

1. No havestem muu taem oketa garem eg o taem oketa hip ap fo bonebone lo Lama an Gounakou
2. No havestim bebi muu (kara)
3. No usim daenamaet fo fising
4. No havestem trokas wea saes blo hem smol winim 8cm o bik winim 12cm. Dis wan hem nasinol lo blo kadere blo iumi.
5. No usim 'uka' o poesen lif and rut fo fising
6. Oketa gillnet smol winim 2.5 inches hem ban
7. Oketa naelon net smol winim 1 inch hem ban
8. Huka (compres) and SCUBA hem alaod onli fo recresonol daeying
9. Oketa foren slip mas tekem pemison blo Komiti bifo hem save kam; samfala fi hem maet aplae
10. Evri nasinol fisaris lo hem aplae lo hila tu

September 2010

Figure 3. Example of a poster version of a management plan from a community group in Malaita province.

7.1.5 Monitoring and indicators

A central part of the adaptive management process and the management plan is the identification and monitoring of indicators. Indicators provide a way to assess the current state of elements of the community and fishery that are important to the community and to measure the effect of the new management initiatives. In accordance with findings from previous work in the Pacific (e.g. Johannes and Hickey 2002, Clua et al. 2005, Govan et al. 2008), and elsewhere (e.g. Pomeroy et al. 2004, 2005), the goal was to develop both socio-economic and biological indicators. The intent is that the status of indicators will be assessed against committee-decided thresholds at annual (or sooner) management committee meetings and used as the basis for decisions regarding management. Discussions are expected to cover whether management actions are working towards the management goal or whether there is a need to modify components of the management plan or consider other complementary activities (e.g. awareness programs).

Socio-economic indicators

Socio-economic indicators reflect the impact or performance of the management plan in the community while biological indicators do the same for the ecological component of the fishery. Indicators in both of these categories were identified for Kia in ACIAR project FIS/2003/051. The social indicators in that instance were 'number of new gardens cultivated', 'the number of students sent back to the community due to lack of school fees' and 'the number of fishers deriving income from bêche-de-mer' with these specifically related to the sea cucumber fishery and the impact of the (at that time new) national sea cucumber fishery closure. As the identification process has evolved with new communities however, the social indicators have proven more difficult to define. Social indicators for Dovele, Makwanu, Makwanu Adasulia, and now Kia, management plans are currently focused around measuring the community acceptance and compliance with management rules. Specifically, these were usually stated as the number of illegal fishing offences and the proportion of these fishing offences receiving fines. The Jorio community cluster opted

to focus on compliance with management rules, along with community acceptance of the management plans, as measured by the responses from randomly interviewed people. The WorldFish team raised the idea of defining community indicators with the Toumoa committee on several occasions however they did not express interest in including these in their management approach.

Biological Indicators

Biological indicators are species or families of marine organisms that are important to the community for food or income (Figure 4). The communities in Western Province have usually selected indicators that include the invertebrate species trochus (*Trochus niloticus*, family: Trochidae) and/or the mudshell *Polymesoda spp.* (family: Corbiculidae) as well as several fish species. Rabbitfish (family: Siganidae) was identified as the main an indicator taxa in the two Malaitan clusters (Makwanu and Makwanu Adasulia). The humpback snapper (*Lutjanus gibbus*, family: Lutjanidae) was the most commonly identified indicator fish species across all communities and was important to Makwanu Adasulia, Toumoa and Kia, followed by the bumphead parrotfish (*Bulbometopon muricatum*, family: Scaridae) in Dovele and Kia. Other species and families selected in other communities are shown in Table 6.

As management and indicators were in ACIAR project FIS/2003/051 initially based around bêche-de-mer, the monitoring of invertebrate indicator species began with snorkel surveys carried out by a team from the community after receiving training from WorldFish. This proved to be a useful exercise to foster engagement in the management process in young fishermen that were generally not part of the management committee. Underwater surveys were however not considered to be viable in the long-term, due to the high costs required to run a boat and 6 divers for one or two days. As a result, the emphasis of monitoring was shifted towards collecting data on the catches of indicator species (Table 6). Catch monitoring does not require petrol to run a boat, requires less additional effort as it can be as part of normal fishing activities, does not require specialised equipment (e.g. transects, underwater clipboards, waterproof paper) and directly reflects what the community is taking from the sea rather than what they could potentially extract.

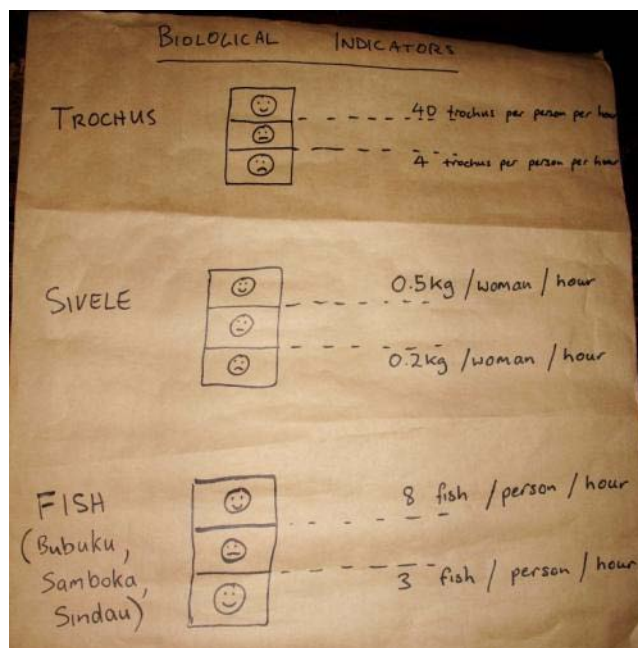


Figure 4: Biological indicators and CPUE-converted thresholds for Jorio

Jorio, Dovele, Toumoa and Kia have all received training in both reef snorkel surveys and catch monitoring. Makwanu and Makwanu Adasulia did not identify any invertebrate or reef-based indicator species and so have focussed on catch monitoring methods to inform their adaptive management. The selection of indicator species and methods of monitoring is dependent on the goals of the management plan, the target species of the fishers and / or the species or the elements of the fishery that fishers are most concerned to manage. Accordingly indicators and monitoring methods differ amongst communities.

All communities have received training on some basic analysis techniques for catch-based monitoring data including the calculation of catch per unit effort (CPUE) for each fishing trip, monthly averages and basic bar graphs (Table 7). A CPUE manual was produced to complement this data analysis training and remind participants of key concepts and techniques for analysis and graphing of their catch monitoring data. The Kia monitoring and management team have also been given training in the analysis of reef survey data.

Table 6: Summary of indicators and monitoring methods for communities

Community cluster	Invertebrates			Fish				
	Trochus	Mudshell	Beche-de-mer	Humpback snapper (Lutjanidae)	Bumphead parrotfish (Scaridae)	Coral trout (Serranidae)	Rabbitfish (Siganidae)	Other
Dovele	Catch rate				Catch rate			Acanthuridae
Jorio	Catch rate	Catch rate	Snorkel surveys			Catch rate		Blackspot triggerfish, Lutjanidae
Makwanu							Average length	Commercial reef fish
Makwanu Adasulia				Catch rate			Average length	Scaridae
Toumoa	Catch rate	Catch rate	Snorkel surveys	Catch rate				Scad spp, Haemulidae
Kia			Snorkel surveys	Catch rate	Catch rate	Catch rate		

Table 7: Summary of monitoring training and activities across communities

Community cluster	Reef surveys		Catch monitoring		
	Survey events	Current status	Catch training received	Data analysis training received	Current status
Dovele	3 surveys (2008, Jan 2010, Nov 2010)	Community is considering seeking funding for surveys	November 2010	December 2010	Liangai/Suantali/Boro: yes but unconfirmed, Motulu/Vese: no
Jorio	3 surveys (2008, Nov 2009, Nov 2010)	Community is considering seeking funding for surveys	September 2010	December 2010	Leona: collecting, analysing and graphing; Paramatta/Vatoro: collected a little data ; Tiberius: no
Makwanu	N/A	N/A	August 2010	July 2011	Currently collecting data
Makwanu Adasulia	N/A	N/A	August 2010	July 2011	Not currently collecting data
Toumoa	2 surveys (2009, Apr 2010)	Community is considering seeking funding for surveys	November 2010, June 2011	November 2010, June 2011	Unconfirmed
Kia	4 surveys (Nov 2006, Nov 2007, Nov 2008, Nov 2010)	Independently conducting surveys and received training in data analysis in Aug 2011	August 2011	August 2011	Currently collecting data

Although catch monitoring is less costly than reef surveys, and hence a more realistic option for long-term community monitoring of biological indicators, it requires a regular and on-going commitment of effort by the community and monitoring team. Currently, several communities in the Jorio cluster, as well as the communities of Makwanu and Kia are collecting catch data on a regular basis (usually one day per week). Other

communities have found it difficult to find time or motivation for catch monitoring. The community of Leona (Jorio) has been independently calculating and graphing the monthly average catch per unit effort for several indicator species for six months to date.

To date, no community has been quantitatively monitoring community-based indicators, however their presence in the management plan serve as a reminder and guide as to what the committee thinks that community-accepted and functioning management should look like. Despite this lack of quantitative data collection, there are several examples of where management initiatives have been modified based on community concerns other than the formal indicators. One such example is from the management committee of Iriqila, Vella Lavella who decided to implement a large tambu area in front of the village. After trying this for several months, it became clear that the tambu was not appropriate because it meant that the women and children of the community, who normally fished out the front of the village, now needed to paddle a long distance to be able to catch fish. The committee met on their own and made the decision to adapt the shape and position of the tambu area to accommodate the needs of the women.

A similar situation occurred on the biological side in Leona, Vella Lavella where the community felt that they weren't getting sufficient build-up of fish from open-closed tambu areas so opted to permanently close a reef. This modification to the management plan was following the principles of adaptive management but did not seem to be directly based on a formal assessment of indicators.

Jorio, Kia, Makwanu and the other communities will continue to collect catch monitoring data to compare against their committee-decided thresholds. The Kia committee has also secured funding for two years (Section 6, Objective 2 Activity 2.3), part of which will be devoted to independently carrying out reef snorkel surveys for bêche-de-mer on their widespread and relatively remote reefs. These various monitoring approaches form the basis of discussions around the evaluation of the current management activities and core of the adaptive management cycle.

The data analysis training provided by WorldFish and complementary CPUE manual both concluded with the presentation of a range of scenarios showing a full year of graphed CPUE data. These scenarios were used to encourage discussion with the committee on ways that they might interpret and react to each example scenario in terms of adaptive management (Figure 5). Members of the WorldFish team plan to attend at least one more annual committee meeting for each community to provide further assistance with data analysis and adaptation of management based on the results of the monitoring data.

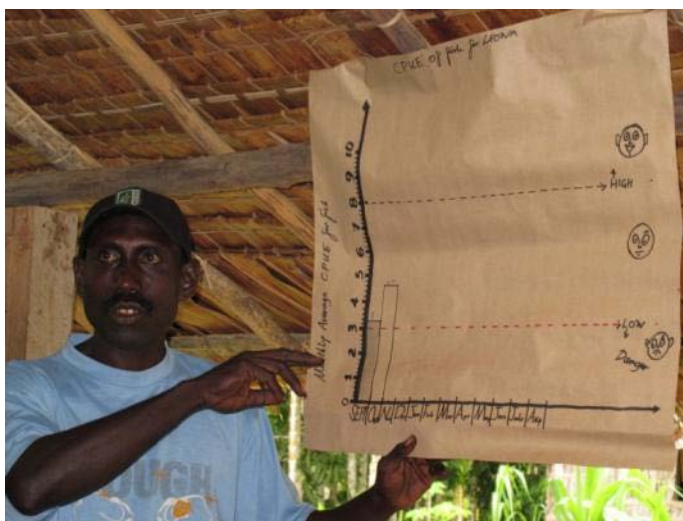


Figure 5: Member of Jorio management committee presents a preliminary graph with two months' worth of catch monitoring data collected by the community at the Jorio marine resource management committee annual general meeting.

BOX 1: KIA DISTRICT MARINE RESOURCE MANAGEMENT COMMITTEE



Kia District Marine Resource Management Organisation Trust Board (Incorporated)

The Kia District Marine Resource Management Plan was officially launched in 2008. In May 2009, a proposal was jointly written by WorldFish staff and the Kia technical and management committees and submitted to the GEF Small Grants Programme (SGP) for consideration for a Full Grant Award. The proposal aimed to assist the Kia District Marine Resource Management Committee to continue with its activities under their Management Plan following the completion of the ACIAR funded 'Sea cucumber fishery management project FIS/2003/051'.

In order to be eligible to apply for a GEF award a number of criteria had to be met

- 1) The community organisation must be a recognised body and
- 2) Management of project funds must be held by the project proponent (Kia District) or a local NGO.

WorldFish as an international NGO was not eligible under GEF rules to manage funds on behalf of the committee. In the absence of a local NGO willing to be the bank account holder and/ or that was acceptable to the Kia District community the Kia District Committee decided to open their own bank account. In order to do this the bank too required that the committee be recognised as a registered organisation. WorldFish staff then began to work with the committee in 2009 to prepare for registration under the Charitable Trusts Act. This was completed in February 2010 as the 'Kia District Marine Resource Management Organisation Trust Board (Incorporated)'. The organisation opened a bank account in May 2010 and the first GEF SGP instalment was received in October 2010. WorldFish remains a partner in the GEF project and through ACIAR project FIS/2007/116 has assisted with administration and financial management training; reporting to GEF and in implementing of some of the project activities where a need for technical expertise had been identified.

Sea cucumber monitoring

One of the key activities that the Kia District team were seeking funding to continue with was monitoring of their sea cucumber stocks. In 2006 under the 'Sea cucumber fishery management project FIS/2003/051', a group of eight local men, the Kia Technical Team, with WorldFish staff conducted the first benthic invertebrate reef survey at 18 indicator sites. The men had trained earlier using this method at Nusatupe, Gizo, Western Province. The survey aimed to assess the abundance of sea cucumber stocks at these sites. Since then, the Kia Technical Team has conducted annual reef surveys except in 2009 when the sea cucumber ban was open for half of the year and statistical analysis done for the 2006-08 period showed no significant difference in abundance. WorldFish staff assisted the team for the first two years, and since 2008, the Kia technical team have been conducting the reef surveys on their own. Sea cucumber monitoring from the Kia District has provided a long term data set that has shown that sea cucumber stocks need years rather than months to recover. It is the only known area from which annual data on sea cucumber has been collected since 2006. This has proven useful not only for the Kia District community to understand how their sea cucumber stocks are recovering, but also for the Ministry of Fisheries and Marine Resources (MFMR). Following a request, data from the district was recently provided to MFMR to contribute to the development of a national report on bêche-de-mer.

7.1.6 Adaptive management

A combination of structured learning and adjustment is the core of adaptive management. As time goes on the structured learning from the external organization (in this case WorldFish Center) is expected to decrease and the adaptive management process on the part of the community itself becomes the norm. In practice it is evident that this process can take a long time. The foundation communities are the only two in which real evidence of self sustaining adaptive management can be found suggesting that a period of up to five years can be necessary to embed such practices. Nevertheless the lessons that have been learned from this research have enabled the implementing team to learn skills that can speed up this process and in the new communities progress has been considerably more rapid. Some of the lessons were summarized by Boso et al., (2010) as part of this project and include:

- Initiatives in community resource management that develop from genuine requests for participation from entire communities, have realistic expectations, secure stakeholder access to land and sea, and compensate for language barriers can successfully identify risks and threats to communities in order to guide adaptation planning and the assessment of possible supplementary livelihoods.
- Good community management institutions must be created and/or strengthened, provincial and national fishery officers should be brought on board, and research-for-development partnerships should be sealed with formal agreements and facilitated with effective communication.
- Management plans and monitoring methods should be simple and straightforward, tailored to local conditions so that they build on existing community norms and are realistic and sustainable.
- Decision-making tools and skills for adaptive community resource management enhance stakeholder capacity in general, improving community governance, cooperation and cohesion.

In addition lessons are now being combined with those of other partners and organizations in country to inform the national model of CBRM+⁶ which is being developed through the Solomon Islands CTI National Plan of Action.

7.1.7 Challenges to independent implementation of CBRM in the target communities

There have been and remain many challenges to sustainable independent implementation of CBRM in the study communities. To date all have faced one or more hurdles that they have overcome with different degrees of success to date. The most commonly cited issues in field trip reports are enforcement, disputes over reef ownership, village disputes about unrelated issues have impacted on committee functioning, lack of time to commit / disinterest owing to competing demands (e.g. mining, logging other projects) and disagreements over committee membership or absentee office bearers.

7.1.8 Fisheries and resilience outcomes

Despite differences in the livelihood mix and utilisation of marine resources, commonalities amongst the communities regardless of location were that social processes such as community cohesion, good leadership, and individual support to collective action

⁶ CBRM+ is an NPoA definition intended to incorporate not only CBRM but also CCA, EAFM, disaster management etc into overall community planning

were critical factors influencing the perception that people had about their community's ability to build resilience and cope with change. Analyses from the diagnosis phase of the process also suggested a growing concern for a combination of local (internal) and more global (external) contingencies and shocks, such as the erosion of social values and fear of climate change.

The next challenge for case studies such as this one, which have the goal of operationalising resilience on the ground, is to be able to assess food security and resilience outcomes of CBRM. To start making such assessments a James Cook University PhD student Ms Phillipa Cohen has been conducting her field research in Solomon Islands with one of her research sites being the foundation cluster of Jorio in Western Province. At this site Ms Cohen has ensured close collaboration with the Western Province WorldFish ACIAR team and her research has addressed the overarching question; are locally managed marine areas contributing to the food security of Solomon Islands?

Her research asks the following specific questions;

- (1) Are agencies that are active in supporting reef management and conservation in Solomon Islands collaborating and coordinating effectively to advance national sustainable fisheries management?;
- (2) Is periodic harvesting of tambu areas contributing to food security?
- (3) How effective are locally implemented management measures in reducing the likelihood of overfishing of key subsistence and commercially exploited taxa (considering current populations, exploitation levels, biological sensitivities to overfishing and market factors)?
- (4) What are the shortcomings, successes and future roles of marine managed areas and national fisheries regulations in managing commercial and subsistence reef fisheries at local and national scales?

Initial findings have been published in "Cohen, P (2011) Social networks to support learning for improved governance of coastal ecosystems in Solomon Islands. CRISP/SPC/CoE-CRS -JCU, Noumea, 34pp.

7.1.9 Provincial government involvement

The need to link community initiatives with provincial and national level support is recognized as an essential component of successful CBRM in Solomon Islands (Solomon Islands National Plan of Action (MECDM/MFMR 2010). FSPI has extensive experience in Provincial networking in Central Islands Province (GERUSA Natural Resource Management Network) and strengthening this networking was a key component of their contribution to this project (Appendix 1). Two multi stakeholder meetings were held by FSPI to form the GERUSA MRM network, WorldFish involvement was supported by this project as was FSPI's and MFMR's in part, through contribution to costs.

To date there are only two provinces in Solomon Islands that have any form of provincial networking for community based resource management initiatives (Choiseul Province under the guidance of The Nature Conservancy and Central Province under the guidance of FSPI and SILMMA partners) and the experience from these two sites highlights some critical steps that are needed to be in place before discussions can be had on the formation of a provincial level network.

These include

- A good understanding at the level of the provincial government executive of the goals of CBRM and an agreement on their part that this is appropriate for their province.
- Examples of successful implementation already underway at the community level to serve as case studies / examples of what other communities are aiming to do.

- Community members to be able to communicate their experiences to their provincial government and to articulate what sort of support they require / expect through a provincial network.
- Provincial fisheries (and eventually environment) officers to have hands on experience with community initiatives in order to be able to update the executive readily and frequently at times of government planning and decision making

These are areas in which this project has focused, with the expectation that a follow on ACIAR project FIS/2010/056 will be able to move toward the explicit development of provincial networks in new provinces as part of initiatives to work with the Solomon Islands Ministry of Fisheries to implement their inshore Fisheries Strategy.

The inclusion of provincial fisheries officer in all of the field trips to new sites in Malaita has resulted in an improved understanding and input at the Provincial Fisheries level. This has been instrumental in conveying feedback from the communities who are working on the ground to their provincial government representatives via the fisheries officers.

Briefing meetings were held with the Premier of Western Province in August 2010 and Malaita Province in October 2009. WorldFish and MFMR staff convened a Malaita province executive meeting to scope the Malaita Province Fisheries Development Plan and MFMR has the lead on finalizing these development plans with the provincial governments. The fisheries development plans were put on hold by MFMR until the newly implemented MSSIF programme (late 2010) could finalise its provincial fisheries development workplan. Nevertheless the input to the plan from the province highlighted the fisheries development aspirations of the province and via MFMR this has fed into the workplan of the MSSIF provincial development programme. Provincial Fisheries Officers met in Honiara in April 2011 and the Provincial Fisheries Development Plans are expected to be able to proceed from there over the next year.

Improved understanding by the Malaita provincial government resulted in a joint environment / information week being held in Auki in March 2011 to target the nearby communities of Langalanga lagoon who have been working with FSPI on marine resource management as well as to bring representatives of the Lau communities in to Auki to present their experiences of CBRM in a public forum. The details of the Auki Environment day are given in the FSPI project report (Appendix 1).

WorldFish staff member Mr Cletus Oengpepa is a member of the Western Province Fisheries Advisory Council and played a key role in working with Western Province Fisheries Officers, and a New Zealand Volunteer legal Advisor to the Western Province Government, to draft the Western Province Fisheries Ordinance which was approved by the Western Province executive in May 2011. Likely to undergo further revisions and yet to be gazetted, the ordinance begins to recognise community based initiatives with respect to fisheries management and will be instrumental in assisting communities to register management plans once the new national Fisheries Act comes in to law (expected in 2012).

7.1.10 National government policy and planning

A quarterly newsletter has been disseminated to project partners and key people in MFMR since September 2008, proving to be an effective means of keeping MFMR informed of project developments. In addition regular meetings have been held with PS-MFMR and NZAID, who are funding the second stage of the Fisheries Sector Institutional Strengthening Project (MSSIF). WorldFish staff member Mr Cletus Oengpepa was a member of (currently inactive) Fisheries Advisory Council of the Ministry of Fisheries and Marine Resources and attended national meetings in years 1 and 2 of this project.

In early 2009 project partners assisted MFMR to draft a Solomon Islands National Strategy for the Management of Inshore Fisheries and Marine Resources. This document was published for MFMR by the WorldFish Center in 2010. It has since been instrumental in guiding the development of work plans within the MSSIF Programme, has been used to

guide and plan partner activities and forms the core of MFMR's contribution to the CTI, NPOA.

WorldFish project staff, along with other stakeholders, had input to final consultations for the revised Fisheries Act, Solomon Islands. This Act is a long awaited piece of legislation that will formally recognise community fisheries management plans, such as those that have been developed through this ACIAR initiative, providing the legislative support that communities have long been requesting.

7.1.11 Networks

In the third quarter of 2009, WorldFish was contracted by FSPI to facilitate the production of a five-year Strategic Plan for the Solomon Islands Locally Managed Marine Area Network (SILMMA). The process was largely funded by USAID Coral Triangle Initiative funds, but was supplemented by funds from FIS 2007/116 for all three project partners (WorldFish, FSPI, MFMR) in particular to ensure the attendance of community representatives from project communities. The second of two strategic planning workshops was conducted in Gizo, Western Province, where community representatives from all SILMMA partner sites and all FIS 2007/116 project community clusters attended to share in the discussion and to exchange lessons. The strategic plan now guides the activities of SILMMA which remains a vitally important (Cohen, 2011) although structurally weak network of marine resource managers in the country. Over the life of this project SILMMA has moved from being housed within the NGO FSPI to being housed within MFMR. A full time administrative officer, funded by LMMA (the regional Locally Managed Marine Area Network) was employed in 2011 and an MFMR fisheries officer has the role of co-ordinator. At the time of writing the network was planning to become registered as an organisation meaning that it will soon be able to open a bank account and manage its own funds. For the last two years however SILMMA has not had this capacity and WorldFish Center has held the SILMMA funds from LMMA in a WorldFish bank account. This role was taken over from FSPI when they were no longer able to play this hosting role. Supported in part by this ACIAR project, WorldFish has provided the administrative support with respect to disbursement of funds to the network co-ordinator. This is expected to continue until registration is complete, a process that members hope to expedite.

7.2 Livelihoods

Lessons learned from experiences in implementing supplementary livelihoods in Solomon Islands are now many across a range of organizations. Compilation of lessons learned regarding small scale marine resource livelihood options have begun to be collated over recent years by WorldFish Solomon Islands staff in collaboration with WWF-Solomon Islands http://www.worldfishcenter.org/resource_centre/WF_2662.pdf and the following extract from an output from this project (Boso et al., 2010) succinctly captures some of these lessons.

3.1 Appropriate supplementary livelihoods should be considered only where/when necessary
A call for supplementary livelihoods to generate cash is a common request from communities who are managing their marine and coastal areas. There is no easy one-size fits all solution to supplementary livelihood requests and a preferred approach, in the initial stages of CBRM at least, is to ensure that management options agreed by the community do not result in undue hardship for the subsistence component of the community livelihood and therefore do not require 'alternatives' for obtaining food. Project partners and the community leaders must then consider if it is to the community's advantage to be involved in a particular supplementary or alternative livelihood, and if they have, or foresee they will have, the necessary capacity to manage such initiatives. Partners working with communities should carry out feasibility assessments of proposed

supplementary livelihoods, including environmental suitability, and the social and economic viability. Results should then be communicated back to the community so that they understand the implications of such assessments. It is important that implementers tread carefully until feasibility assessments are complete as communities can have unrealistic expectations when the possibility of generation of cash benefits is involved.

With this background the activities described in Table 8 were carried out as part of this project.

Table 8. Livelihood activities linked or implemented as part of this project.

Community cluster	Livelihood option	Outcome
Kia District	Seaweed (MFMR)	Trial farm continues under oversight of MFMR
Jorio	Youth project to deploy a near-shore FAD (WorldFish); Preparation of constitution and registration as a CBO to enable community to be eligible for national small grants programmes; support to the Leona Resource Center	FAD sunk with little intervention by community. Resource Center now equipped with text books on marine resources and locally built bookshelves and chairs.
Dovele	Youth project to deploy a near-shore FAD (WorldFish); Ministry of Agriculture visit arranged by WorldFish; WorldFish staff assisted in preparation of a Suantali community EU microprojects application to Ministry of Agriculture for reviving a dormant cocoa plantation.	FAD sunk with little intervention by community. Application success unknown but cocoa industry has revived under a Ministry of Agriculture Initiative
Toumoa	Seaweed (MFMR)	Trial farm continues under oversight of MFMR
Lau	Coral farming for lime and rabbitfish farming information sheets produced by project team; discussions with AusAID funded Enterprise Challenge Fund funded pelagic fisheries development project to highlight synergies with Community management plans; inshore FAD's identified as an option.	Coral farming for lime concepts have generated a lot of local interest; training likely to be required to provide momentum. Lau lagoon identified as a potential site for a FAD in MFMR's 2010-2012 inshore FAD programme

Although fisheries dependent communities often identify fisheries related livelihood options as their preference in discussions with a fisheries research organisation such as WorldFish, it is recognized that these may not necessarily always be the most feasible option. This specific example of learning is consistent with the recent Consultative Group on Agricultural Research (CGIAR) reform which has resulted in WorldFish's approach to Research in Development in Solomon Islands being encapsulated in a wider research programme from 2011 onward related to Aquatic Agricultural Systems (AAS).

“AAS have long been on the agenda of the Consultative Group on International Agricultural Research (CGIAR), with investments made to improve crop yields, sustain wild fisheries, develop aquaculture and increase benefits from livestock. Yet only rarely has this research been well integrated to reflect the multiple choices faced by the women

and men who live in these systems. Too often our investment has been targeted solely at component crops, fisheries, or other single dimensions of each system and so has failed to deliver its full benefits to the poor. As a result, stakeholders' integrated livelihoods have been marginalized by our agricultural research investments, and the opportunities they offer for reducing poverty have been missed. CRP 1.3 is designed to confront this weakness and change how the CGIAR engages with AAS. We will pursue a program of integrated research to identify key constraints faced by smallholder households, seek ways to overcome them, and pursue a research agenda to guide development investment along pathways to impact. We will bring together the combined knowledge of AAS users, governments and civil society organizations, integrating it with the capacities of the CGIAR and its partners. Together we will pursue improvements in system productivity, markets, resilience, gender equity, policies, and knowledge sharing.” (CGIAR Research Program 1.3 Harnessing the Development Potential of Aquatic Agricultural Systems for the Poor and Vulnerable, 2010)

In Solomon Islands this new programmatic approach, that is expected to be implemented from 2012 onward, will enable us to build on the lessons learned through projects such as FIS/2007/116. We will use that experience to create and nurture new partnerships to assess opportunities for effective fisheries management through also addressing the other aspects of livelihoods in the rural communities we are targeting.

8 Impacts

8.1 Scientific impacts – now and in 5 years

This project has been part of a broader research campaign on Resilient Small scale Fisheries being undertaken by WorldFish Center and partners in the developing countries of Africa, Asia and the Pacific.

The first international publications are now appearing from this work, making findings more widely available to an international audience. These and more popular publications of lessons learned mean that we are now receiving invitations to present the work we are doing at Regional (SPC, Noumea 2010) (e.g. see Table 10) and International (1st International Marine Conservation Think Tank on Improving the Effectiveness of Community Managed Marine Protected Areas for Biodiversity Conservation, Fisheries Management and Climate Change Adaptation, Auckland, December 2011) meetings and so the impact of our findings is finding a progressively wider audience.

At the national level the research has informed the MFMR Inshore Fisheries Strategy and is now informing national scale out of CBRM. The encapsulating of the CBRM concept for Fisheries management in the Inshore Fisheries Strategy has ensured that it has also been encapsulated in, and forms the core of the Solomon Islands CTI National Plan of Action. With a strong and effective National Co-ordinating Committee (NCC) for the CTI, Solomon Islands is setting an example of how the CTI can be implemented in country to focus and align donor efforts to implement the National Plan of Action.

The findings from this research project will now be built upon in the ACIAR funded project FIS/2010/056 which began on 1 July 2011. That ACIAR research project provides a unique opportunity to conduct action research around not only the initiatives that have been developed through this and previous ACIAR projects but also now through donor projects that have leveraged the CBRM approach through the CTI and outside of the CTI, for example through the MSSIF Institutional Strengthening Programme.

Through being part of a wider programmatic approach to improve the lives of rural people as part of the new CGIAR Research Programme CRP 1.3 Harnessing the Development Potential of Aquatic Agricultural Systems for the Poor and Vulnerable, scientific impacts in 5 years time are expected to include an improved understanding of how to do development better in agricultural systems in programme focal countries including large

Asian deltas, the Asia-Pacific Islands of the CTI and African freshwater systems. The work being conducted under ACIAR projects FIS 2007/116 and FIS 2010/056 will contribute to activities in each of the countries where we will identify commonalities and differences in the constraints faced and in the solutions to these, and distil a body of comparative learning and general principles from our research.

8.2 Capacity impacts – now and in 5 years

Significant capacity building has occurred from community members through to senior WorldFish national staff and Solomon Islands government staff.

Project staff One Solomon Islands WorldFish staff member has been conducting his PhD on governance considerations for CBRM in association with this project. A student at Waikato University in New Zealand but conducting his field work in partnership with WorldFish Center and specifically project FIS/2007/116, Mr Bennett spent 12 weeks in two of the 'new' communities as part of his research field work. He has since written up community summaries of his findings which he intends to present back to the communities in October 2011. Mr Bennett has contributed to the resilience reports and is a co-author on Schwarz et al., (2011). Mr Bennett expects to return to Solomon Islands and WorldFish Center in 2012 where he will play a leading role in research associated with the spread of CBRM as planned through FIS/2010/056.

Initial training in participatory diagnosis techniques and resilience analysis was begun by Dr Chris Béné for all project partner team members (WorldFish, FSPI and MFMR) immediately after the Gizo Inception meeting at the WorldFish Nusa Tupe research station. The second phase of training was a component of the resilience workshop held in Honiara in 2009.

WorldFish Center Solomon Islands national staff, FSPI national project staff and MFMR staff all completed the SILMMA report writing course held in September 2008 in Honiara. The course costs were funded by SILMMA, travel and associated costs were covered by FIS 2007/116. Subsequent to that course all have gained considerable experience in data collection, analysis and report writing. This is evidenced by the list of publications with Solomon Islands graduates as lead and co-authors (see list of project publications).

Female WorldFish staff have developed training material for women's workshops and are well versed in conducting the 'train-the-trainer' workshops. Staff from all three partner organisations (WorldFish, MFMR and FSPI) participate fully in SILMMA and in all relevant national fora. Six national WorldFish staff and one FSPI staff who have been trained in Adobe Illustrator are now using the software to design awareness material. By assisting the Kia District Marine Resource Management Committee and the Jorio Marine Resource Management committee to register as community based organisations, WorldFish Center staff now have knowledge of processes required for registering Community Based Organisations and of assisting CBOs to open bank accounts.

National and Provincial Fisheries Officers. At least one national MFMR staff and/ or one provincial fisheries staff have joined WorldFish on all field trips to Malaitan communities. In Kia (Isabel Province) the local fisheries officer is a member of the marine resource management committee. In August 2009 the Western Province Chief Fisheries Officer, the SILMMA co-ordinator and WorldFish staff conducted an awareness trip to Shortland Islands on Community Based Fisheries Management. WorldFish Center has a seconded provincial fisheries officer on staff at the Western Province field station and he has also been involved in CBRM activities, particularly at the diagnosis phase of conducting questionnaires and focal group discussions. Provincial Fisheries staff have therefore received on the ground training in implementation of CBRM and have contributed to the development of a model of spread that has built on the ACIAR work through USAID funding to the CTI (CTSP).

Mr Cletus Pita (WorldFish) and Mr Francis Tofuakalo, Chief Fisheries Officer Western province worked closely together to support the development and drafting of the Western Province Fisheries Ordinance.

Four staff from MFMR and one PFO (Malaita) participated in the resilience training workshop in 2009 along with 17 Solomon Islands staff from MECDM and NGOs plus one participant from PNG National Fisheries

Since 2010 Ms Philippa Cohen, a PhD student from James Cook University has undertaken her field studies in the Jorio “foundation” communities as well as FSPI’s communities in Central Islands Province. Ms Cohen has assessed environmental and food security impacts of community based adaptive as well as undertaking social network analysis of how information about marine resource management spreads in Solomon Islands. WorldFish, provincial fisheries and FSPI staff at all levels have had opportunities to assist and advise Ms Cohen and to learn from her findings.

The leverage that this project provided to the SPREP funded governance project Towards Integrated Island Management: Lessons from Lau, Malaita, for the implementation of a national approach to resource management in Solomon Islands has vastly increased the capacity of the NCC to work with partners to design the spread model for CBRM.

Communities Six women from Toumoa, three from neighbouring Kariki (not an original project site); six from Dovele and one from Supato (not an original project site), ten from Jorio and 20 from Lau lagoon have been trained in techniques for teaching fellow women and children about marine resource management. The teaching material has been partially translated into the local language of Shortland Islands, Lau Lagoon Malaita and Vella Lavella language for their ongoing use.

With the support of this project the committees of Dovele, Jorio and Kia have all received financial management training provided by the Melanesian Small Business Training Center, Honiara.

Youth in Toumoa, Dovele and Jorio were trained in making anchors for simple inshore FADs and in rope preparation and splicing as well as FAD deployment. Youth also made up the monitoring teams trained in benthic invertebrate survey techniques (see section 7.1.5).

8.3 Community impacts – now and in 5 years

8.3.1 Economic impacts

Improved management of marine resources will secure the supply of fish and associated ecosystem goods and services for rural Solomon Islanders. The economic benefits of this supply will provide the foundation for developing export-oriented economic development.

CBRM now has wide acceptance as an appropriate management approach to promote and support sustainable livelihood development for coastal communities. Recognised economic benefits from sustainable marine resource management include: improved food security in subsistence fisheries, continued access to ecosystem goods and services that would otherwise need to be met by cash (e.g., and improved opportunities to manage resources for sustainable exploitation for cash. Examples of such opportunities are well managed small scale commercial fisheries for supply to national urban markets through provincial fisheries centres and incorporation of near-shore FAD’s into community management plans (Prange et al., 2009), sustainable culture of high value corals for the international aquarium trade and improved tourism prospects. An expected consequence of more efficient use of resources and value adding through livelihood diversification is an increased disposable income.

There are no regular surveys of fish consumption in Solomon Islands and so the direct value of fish and fish consumed is poorly quantified. Some data are available from the

HIES and more have recently been collected as part of the 2009 census (as yet unavailable). An estimated 64% of fish consumed are from subsistence fishing, the remainder being traded domestically (the majority being domestically canned tuna). In a recent survey of four sites in Solomon Islands, per capita consumption of fresh fish ranged from 99 to 111 kg per year (Pinca et al., 2009). The HIES indicated that fish (including shellfish and canned fish) accounted for about 14.5% of household food expenditure, or approximately 73.5% of total household expenditures on meat, but fish consumption varies considerably between urban and rural people and among regions (SI-NSO, 2006). Valuing the additional ecosystem services attributable to coral reefs, mangroves and seagrass that are not readily bought or sold in a market is in its infancy in Solomon Islands, however recent research focused on mangrove ecosystems has shown that the additional ecosystem services provided by these habitats are likely to be at least as valuable as the fish caught and sold (Warren-Rhodes et al., in press) The same study highlighted an example of the hardships created from the loss of ecosystem services. Fishers in a western Province village who had lost their mangrove fisheries after their island (and mangroves) was uplifted in a 2007 earthquake were estimated to have each been deprived of the cash equivalent of ~SBD 5,200 per year (Warren-Rhodes et al., in press).

On average, more than 60% of the households in the target communities in FIS 2007/116 had a cash income of <SBD 1000/month (ca. AUD 122) (Paul et al. 2009; Boso and Schwarz, 2009, Boso et al., 2011) and in the Malaitan target communities, the households had seen no substantial change in that income over the last 10 years.

In addition to measureable positive benefits of CBRM it is instructive to consider the counterfactual argument - the consequences of not managing marine resources are that with continuing overharvesting, mismanagement and population growth; habitats and fisheries will degrade to the stage where they can no longer provide ecosystem services. Equivalent cash income from new livelihoods would need to be made available to every community to at least maintain the current standard of living.

8.3.2 Social impacts

Immediate benefits have accrued to the communities where the work has been done through empowerment to make effective decisions about the future management of their marine resources. Social benefits have resulted from capacity building through (i) the implementation of the marine resource management plans; (ii) the establishment or strengthening of marine resource management committees; and (iii) increased visibility at provincial and national government levels as well as with donors targeting the community level - thereby improving ease of access to support for community level initiatives.

Specific examples include registration of Marine Resource Management Committees as a way for them to strengthen activities related to CBRM. With the subsequent award of a GEF-SGP full grant to the Kia community, the committee have seen increased support for CBRM work within the community. This has been supported in part by an increased participation by the women, who have had specific opportunities for them to conduct awareness for other women, funded by the grant.

In the Jorio region, one of the five participating communities had struggled to maintain the implementation of their management plan owing to unrelated community disputes as well as some unresolved issues around reef ownership. The community remained committed to achieving successful marine resource management and accordingly took steps to begin to resolve community / tribal issues through the church and with community leaders. The project team took on the approach that we were there to re-engage with this community once they had agreed on a way forward and that we were happy to arrange outside facilitators if necessary. In the event the community resolved the issues on their own and in early 2011, rejoined the regional management committee.

Our approach to CBRM draws strongly on traditional ecological knowledge within the target communities and, where desirable, often incorporates traditional management

regimes that the people are familiar and comfortable with such as ‘tambus’ (rotationally opened and closed fishing areas) alongside other fisheries management tools such as gear restrictions. The production of fish identification books in local language and awareness materials for the women’s workshop in local languages has provided resources that are not only more accessible to the rural communities where we work but is also felt by community people to assist in retaining language.

Indicators of uptake of CBRM concepts can be extracted from various events. (1) In late 2009, independent film makers shot a short film on CBRM in Jorio. The film showed that community members in the area had a high degree of understanding and acceptance of CBRM; (2) the November SILMMA Strategic Planning workshop provided an opportunity for community representatives to exchange ideas and support each other through sharing their experiences within the CBRM arena. Representatives from five of the nine provinces of Solomon Islands (Western, Central, Isabel, Malaita and Guadalcanal) and from as far west as Shortland Islands attended, making this the widest geographical range of communities actively undertaking community based management to ever be represented at a forum on this topic; (3) through the women’s workshops, participants gave formal feedback that they now have greater confidence to speak to other community members in a general meeting and with women and children separately to spread the message of resource management.

8.3.3 Environmental impacts

Improved management and governance of coastal resources has broad and positive environmental impacts. In Solomon Islands durable gains in social development will not be possible without better stewardship of coastal ecosystems. The creation of exclusive no-take marine reserves has not proven to be a sustainable strategy in the Melanesian context – the best hope of biodiversity conservation outcomes rests with improved management and use of resources.

With greater awareness of their management plans and on why the rules within the plan are important, negative environmental impacts may be able to be reduced or avoided. In the words of the women from the two Vella Lavella communities and in Toumoa “I will now take great care when diving not to spoil the corals and when harvesting, take only the bigger and non-breeding individuals”. This is further shown in the decision most Kia people decided to make when the *bêche-de-mer* national ban was temporarily lifted in the period October 2009 to February 2010. When the ban was temporarily lifted, most Kia sea cucumber fishers decided not to harvest the resource in support of the Kia District Marine Resource Management Plan and because of the awareness from resource surveys that the fishery was in decline.

Lau communities have freely offered the information to other donors that they have a marine resource management plan that they would like to see acknowledged and accounted for in the development of a commercial fisheries operation.

CBRM and Integrated Island management that incorporates community based fisheries management (Govan et al., 2010) are the agreed mechanisms to underpin not only inshore fisheries management but also biodiversity conservation in Solomon Islands, thereby contributing to the country’s wider commitments to the Coral Triangle Initiative (MECDM/ MFMR, 2010).

8.4 Communication and dissemination activities

Communication and dissemination activities have occurred at community, province and national level. Most communication activities identified in the communication strategy have been utilised in one form or another and some have proved more effective than others. At the community level communication and dissemination have been targeted for different audiences. These are summarised in Table 9.

Table 9. Communication media and techniques used in communities

Target audience	Media / approach
Youth	Powerpoint presentations
	Games
	Posters
	DVDs
	Field trips (look and learn)
	Presentations made to schools in Dovele, Shortlands, Niuleni
Women's groups	Posters developed by the project team were dominated by pictures rather than words with one key messages encapsulated in each. Translations of these posters to local language was able to support local language literacy programmes
	Drama, acting out concepts. In this case the participants themselves developed dramas to explain new concepts they had learned to other women and children in the community. We have not utilised professional drama groups but these are available in some parts of the country, should funds be available for their transport, accommodation and fees.
Community	Management plans as short documents
	Management plans summarised as a one page poster. Translations to pidgin or to the local language as preferred by the individual community.
	DVD Jorio and Lau made through this project plus other natural history DVDs made independently from this project. DVD's showing the people themselves have proved popular
	Collation of local fish names into a colour document with pictures for Lau and for Vella Lavella.
Provincial and National	Quarterly project team newsletters
	Formal meetings with MFMR
	Publications of lessons learned documents in a readable and accessible form. These are available at WorldFish offices, on WorldFish website, and widely disseminated to SILMMA partners
	Regular presentations at SILMMA fora hosted by partners and at SILMMA AGMs
	Pamphlets on CBRM produced and disseminated each year at premiers conferences, Trade shows, open days, National and provincial (Western and Malaita) environment days / weeks etc.
	Formal presentations by D. Boso / J. Pita: (GERUSA meetings 2008/2009) Schwarz: Malaita Economic Development Conference October 2010; Provincial Fisheries Officers meeting February 2011.
	Press releases Lau trainings, Auki Environment Day, FAD's in Vella

	Input to educational materials including Solomon Islands Marine Life (Simon Albert University of Queensland)
Regional/ International	Ms Delvene Boso made two presentations at the Pacific Regional Conference on Marine Managed Areas at Moorea, Tahiti.
	Mr James Teri, MFMR and Dr A. Schwarz WorldFish presentations at SPC Ecosystem Approach to community based fisheries management Regional meeting in Noumea, November 2010.
	Dr Tim Alexander presentation on indicator based monitoring to an SPC workshop on monitoring held in Fiji in April 2011.
	Lessons learned and women's training materials have been linked to the WorldFish website and a Solomon Islands website developed by WorldFish through a CRISP funded project and providing a portal for SILMMA www.solomonseasustainables.com
	A project brief has been developed and is available on the WorldFish Center website http://www.worldfishcenter.org/wfcms/HQ/article.aspx?ID=100 .

The only media options that were originally identified in the communication strategy (section 5.2.4) that were not widely used were radio, PFNet and the Gizo noticeboard. The media chosen reflect the target audience and the messages that were 'ready' to be conveyed. Radio is likely to be more widely used now that the 'roll-out' phase of CBRM is upon the country and this will be done in close consultation with the NCC and Ministries of Environment and Fisheries to ensure that consistent messages are being conveyed to the general public. PFNet has not been a functioning and/ or widely used means of communication in the communities in which we are working and so was subsequently not assessed as being a particularly effective means of communication.

The rapid expansion of mobile phone networks in the last two years and expected increased access to the internet in rural areas will open up new opportunities for information exchange and dissemination in Solomon Islands.

9 Conclusions and recommendations

9.1 Conclusions

Resilience concepts are increasingly widespread in the academic literature and in retrospective analyses of social and ecological systems, but remain largely detached from attempts to change lives and improve ecosystems. This project represents an attempt to ground resilience thinking in Solomon Islands small-scale fisheries. The case studies describe a participatory diagnosis leading to the development of community based management plans, including management indicators. Mapping the activities undertaken (Boso et al 2010) to the PDAM framework (Andrews et al 2007) has proven an effective way for us to organise our thinking and to structure lessons learned. It has also enabled us to start to consider how to incorporate the broader vulnerability of people's lives rather than just fisheries. Learning how to effectively incorporate that broader vulnerability into management planning is an ongoing challenge that we will start to tackle within the new CGIAR Research Programme CRP 1.3 Harnessing the Development Potential of Aquatic Agricultural Systems for the Poor and Vulnerable.

Project activities were conducted at national and provincial levels and in five community clusters in Western, Isabel and Malaita Provinces. At the community level research into

socio-economic conditions and a participatory analysis of the status of the fishery informed development of community management plans. Community members participated in trainings that included resource management, financial and committee management and resource monitoring and participated in national fora to exchange ideas with other communities through the Solomon Islands Locally Managed Marine Area Network. Through ACIAR projects FIS/2003/051 and FIS 2007/ 116 there are now six community clusters comprising of 37 communities that have implemented adaptive management to varying degrees. While implementation in the foundation communities took up to five years, more recently implementation has started within less than two years as we have learned how to facilitate more effective participatory processes.

Provincial level strengthening to support CBRM implementation is in its infancy and while this project has been inclusive of provincial fisheries officers in implementation and training, it has also identified significant areas of strengthening and staff development that will be required at the provincial level in order to support a wider rollout of CBRM (Govan et al 2010). Similarly at the national level, while there is now widespread support for CBRM and it is starting to be encapsulated in policy; the necessary structures, including a revised Fisheries Act, an independent SILMMA and unit that has responsibility for CBRM in MFMR are yet to be in place.

Successful management of socio-ecological systems not only requires the development and field-testing of management actions and indicators but also improved understanding of the contextual factors that influence societal capacity to adapt to change. In the study communities social processes such as community cohesion, good leadership, and individual support to collective action were critical factors influencing the perception that people had about their community's ability to build resilience and cope with change. The outcomes from this research have made a significant contribution to the implementation of the Solomon Islands NPOA by underpinning the development of a model for spread. A follow on ACIAR project (FIS 2010/056) will explicitly address research questions around the progress made to date on community based resource management (CBRM) including what is the most effective model of CBRM for Solomon Islands and learning how to scale-out innovations in CBRM to new areas.

Within the project we have taken an adaptive learning approach to undertake a process to arrive at agreed management indicators and describe the context and scale at which management operates. The result has been a significant step forward to an adaptive process resulting in community-based management plans with wide acceptance amongst practitioners on the ground. Nevertheless there is much work to be done to ensure that adaptive community based management plans are able to be sustained into the future in a large number of communities and to understand if and how management regimes are providing expected fisheries benefits. There is still significant work required to be able to understand and evaluate how the processes being implemented actually contribute to resilience, nevertheless the management plans and indicators that have been developed, are important steps toward operationalising resilience thinking. This is one of the few case studies that we are aware of where research questions around the feasibility and mechanisms for operationalising resilience concepts have been addressed through action research in small scale fisheries.

9.2 Recommendations

The following recommendations have now been encapsulated in ACIAR project FIS 2010/056. The project will build on ACIAR projects FIS/2003/051 and FIS 2007/116 which have established methods and management plans in clusters of more than 30 villages in three provinces in Solomon Islands to develop the structures, processes and capacity to implement and sustain a national programme of community-based marine resource management in Solomon Islands.

Some lessons for the implementation of CBRM in Solomon Islands include:

- Initiatives that develop from genuine requests for participation from entire communities, have realistic expectations, and secure stakeholder access to land and sea will have a greater chance of success
- Good community management institutions must be created and/or strengthened
- Provincial and national fishery officers should be brought on board if initiatives are being led by NGOs, and research-for-development partnerships should be sealed with formal agreements and facilitated with effective communication.
- Management plans and monitoring methods should be simple and straightforward, tailored to local conditions so that they build on existing community norms and are realistic and sustainable.
- Decision-making tools and skills for adaptive community resource management enhance stakeholder capacity in general, improving community governance, cooperation and cohesion.

Some key research questions that have evolved out of ACIAR project FIS 2007/116 include:

- (1) What is the most effective model of CBRM for Solomon Islands (including processes of engagement, institutions and indicators of success)?
- (2) What is the most effective model to scale-out innovations in CBRM to new areas to ensure development impact beyond the direct beneficiaries of the project?
- (3) How do innovations spread among local and larger scale formal and informal social networks (including an analysis of barriers and successes)?
- (4) What are appropriate indicators of success for national CBRM programmes and what does an impact assessment programme 'look like'?
- (5) How can a successful programme in Solomon Islands be transferred to other contexts?

Recommended activities to address these research questions that are also encapsulated in ACIAR project FIS 2010/056 include:

- (1) Designing and implementing processes for scale-out of CBRM in Solomon Islands coastal communities in collaboration with provincial and national agencies.
- (2) Improve understanding of the spread of innovation among communities and provinces and use that understanding to accelerate the spread of CBRM
- (3) Strengthen capacity of Solomon Islands MFMR to implement community based marine resource management Design and implement an impact assessment programme
- (4) Design and implement an impact assessment programme
- (5) Capture lessons learned from Solomon Islands and make available to practitioners in countries with similar governance and tenure arrangements e.g. Kiribati and Vanuatu.

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11 Appendices

11.1 Appendix 1: FSPI Report

Grantee Name	 The Foundation of the People of the South Pacific International Communities and Coast Program.		
Direct Grant Co-operatively implementing partner	FSPI/Solomon Island Development Trust. 		
Project national partners for implementing activities	Ministry of Fisheries and Marine Resources, WorldFish Centre.		
Project #	FIS/2007/116		
Grant contractor	World Fish Centre (Project Lead Organisation)		
Funders	Australian Centre for International Agricultural Research (ACIAR)		
Donor Report:	ACIAR Project Narrative report		
Reporting Period	Final grant reporting period : Jul 2010-Jun2011	Date report submitted :11 Aug 2011	compiled by FSPI/ SIDT team : Joanne Pita & Zaidy Khan / Collin
Project Title	Improving resilience and adaptive capacity of small-scale fisheries in Solomon Islands. (ACIAR)		
Project Goal	To strengthen livelihood resilience of fisheries-dependent communities of Solomon Islands through the development and adoption participatory adaptive frameworks that facilitates the establishment of effective community base management.		

Specific objective of the project

- Identify the key threats, vulnerabilities and strengths underpinning the resilience of coastal communities and their resource-bases; facilitate the successful establishment of strong community based management of coastal resources, in the five fishery-dependent community clusters
- influence the policy and planning of the Solomon Islands government and other regional agencies on issues related to small scale fisheries that have impact of the livelihood of rural communities and their fisheries;
- and increase the capacity of Solomon Islands organisations to support communities in coastal resource management.

About this report

This report is the final grant report for the period of August 2008 and June 21. 2011. This report comprises only the sections of this project that was contracted to be implemented by FSPI (regionally) and nationally by SIDT. The report also provides details of activities in annex for the period of July 2010 – 2011.

FSPI Communities and Coast program approaches in Policy and advocacy

The Communities and Coast Programme (CCP) works to improve resource management policy by ensuring community based approaches are incorporated into national, regional and international policy frameworks. The CCP facilitates and coordinates the project activities with its affiliate, SIDT with the focus on enhancing environmental governance skills to enable communities to interact more effectively with government. Currently FSPI coastal program is being integrated with SIDT.

The ACIAR project is supplemented by the former FSPI regional project and years of FSPI and SIDT work in three provinces in Solomon's islands on piloting Solomon island community based fisheries resource management interventions. Today the programme strongly advocates for the reorganisation that community-based coastal resource management is a powerful development tool for reducing poverty, implementing biodiversity conservation and promoting sustainable economic development in the Pacific. The project used adaptive management framework approach in developing effective community –based management plans (CBMP) s

Below is the summary of project outputs, key indicators and outcomes of this project.

Project Output / Deliverables	Key Indicators	Outcomes	Comments
<p>Identify the key threats, vulnerabilities and strengths underpinning the resilience of coastal communities and their resource-bases; facilitate the successful establishment of strong community based management of coastal resources, in the five fishery-dependent community clusters.</p>	<p>Kia, Jorio, Liangai, Toumoa and Funaafou/Foueda were selected as pilot site for this project. <u>List of the means for verifications.</u> Livelihoods and Resilience Analysis in Two Community Clusters: Makwanu and Foueda Artificial Island communities, Lau lagoon, Malaita Province, Solomon Islands (May 2009) Report.</p>	<p>FSPI/SIDT VDW participated in a resilience analysis of fisheries depended communities conducted at Funa’afou community.</p> <p>In this analysis a Participatory Diagnosis and Adaptive Management (PDAM) framework to small-scale fisheries management in developing countries was tested.</p>	<p>Efforts will continue to strength CBMPs and seek recognition at national level.</p>
<p>Influence the policy and planning of the Solomon Islands government and other regional agencies on issues related to small scale fisheries that have impact of the livelihood of rural communities and their fisheries.</p>	<p>Solomon Islands Government Inshore Fisheries Strategy supported by this project. MOV)Lessons Learn document produced entitled ‘ Community-based adaptive resource management in Solomon Islands: lessons learned produced by WorldFish, FSPI and Ministry of Fisheries and Marine Resources</p>	<p>The Solomon Islands Government Inshore Fisheries Strategy has support for implementation of CBRM, as stated in pillar 4 of the strategy.</p> <p>Community based adaptive resource management in Solomon Islands: lessons learned, is a policy brief that has been used as a guideline for informed policy decision making. This has also been used in refining the principles of CBRM that was developed in a Ministry of Fisheries forum in 2007.</p>	<p>Policy process to be continue with inkind support from other grants</p>
<p>Increase the capacity of Solomon Islands organisations to support communities with CBMPs.</p>	<p>List all Means of verifications . FSPI/SIDT Joint Lau trip with WorldFish report. Langalanga VDW May 2010 report Malaita Environment Awareness Week report</p>	<p>Capacity enhancement on coastal governance ,policy process and approaches , advocacy and formulation process of ,FSPI/ SIDT project staffs and village development workers ,Local communities on understanding the key governance constrains of effective community management plans and what governance dialogue and processes are critical. Capacity building for Other partners : SILMMA / Ministry of Fisheries and Marine Resources and Provincial Fisheries officials</p>	<p>Capacity building to continue under the ccp program with in kind support from other grants.</p>

Annex 1: Details of Assessment of results of activities/tasks

Activity/Task	Details of activities conducted during project activities
1. Allocation of Solomon Islands staff with responsibility for completing FSPI contribution to project by inception meeting	Joanne Pita was assigned with the responsibility to contribute to this project on behalf of FSPI during projects inception meeting held in Gizo, August 2008.
2. Attend inception meeting	In August 2008 3 FSPI attended Inception meeting in Gizo and contributed to communications strategy, assigned Joanne Pita as FSPI focal person for this project and share lessons from existing sites of Gela, Marau and Langalanga with project partners WorldFish and Ministry of Fisheries and Marine Resources, as well as WorldFish community sites in Western and Ysabel provinces.
3.Continue with activities in existing FSPI sites supplemented	<p>Prior to this project, FSPI/SIDT CCP has been working with 6 communities in Sandfly (Gela, Central Islands Province) to manage their marine and coastal areas. In recent years initiatives and approaches had been taken to initiate and strengthen community based resource management networking through provincial governments. Gela, Russells and Savo GERUSA Natural Resource Management Network and district /island group based action plans had been developed (in 2009 to 2010)</p> <p>Marau FSPI/SIDT CCP have been assisting 4 main community clusters to establish 9 locally managed marine areas (LMMAs).There have been support from this project to the facilitation of a meeting for Marau people living and working in Honiara to re-establish Marau Leaders Council and formation of a Marau Community Association.</p> <p>In Malaita Province, prior to this project FSPI has worked with 3 community clusters in Langalanga to manage their marine and coastal resources. It was ensured that project planning and activities was facilitated and implemented in joint collaboration with WorldFish, the Malaita Provincial government (, Ministry of Fisheries and Marine Resources, Ministry of Environment, Climate Change, Disaster Management and Meteorology, The Nature Conservancy; Kastom Gaden Solomons, to convene a three day awareness for Auki provincial town residents, a mangrove cooking completion for women and a kids poster competition. This opportunity has exposed residents in Auki and broader Malaita region, daily commuters to Auki, school children and mothers some first-hand knowledge and information on basic science principles and concepts as well as principles related to CBRM.</p>
3. Between 2009 and 2010, FSPI staff to join WorldFish Center on at least two field trips to WorldFish Malaita sites to work with WorldFish and MFMR on resilience analysis, and to facilitated production of lessons learned document	<p>In 2009 Andrew Toritelia/FSPI VDW for Langalanga Lagoon travelled with WorldFish team to Lau Lagoon in Malaita and participated in focus group discussions (FGD) and household interview exercises carried out by WorldFish. This trip has broaden his knowledge on resource use patterns by other communities in Malaita , as well as gave him the opportunity to learn WorldFish approaches and compare these to FSPI approaches and see similarities that contribute to community base resource management (CBRM).</p> <p>In August 2010, Joanne Pita joined with WorldFish staff and co facilitated in a 'Women in Fisheries Training of Trainers workshop for 21 women in Funa'afou (project community). This training increase skills and knowledge of rural based women to</p>

	train other women and people in their communities on importance and linkage between healthy marine ecosystems and habitats to their health and well being(see report attached)
4. Meet with WorldFish staff in Honiara to draft lessons learned document	A meeting was convened in October 2009, in Honiara by 2 WorldFish staff and 1 FSPI staff to plan and design the scope of lessons learned document.
5. Identify common elements of successful adoption of CBM from both FSPI and WorldFish sites and produce lessons learned document with WorldFish	Lessons learned document was drafted by WorldFish and FSPI/SIDT CCP in November 2009, and was published in February 2010 by WorldFish. This document comprise of key lessons learned from WorldFish sites and FSPI / SIDT CCP sites of Gela, Marau and Langalanga lagoon.
6. Within the forum of SILMMA promote, test, and refine the principles for CBM in Solomon Islands. Communicate lessons learned and successful elements of CBM to all stakeholders by organising stakeholder SILMMA workshop/meeting	In November 2009, SILMMA Strategic Planning was held at Gizo. FSPI/ SIDT CCP contributed to this meeting in sharing lessons learned with other SILMMA partners, which was integrated into SILMMA Action Plan.
7. With partners produce generic pamphlets related CBM in 2009 and 2010,suitable for communities in time and in time for the Solomon Islands trade show	This activity was not conducted due to time constraints
8. Meet with WorldFish staff by December 2008 to facilitate national radio broadcast related to CBM.	There were discussions held with WorldFish regarding using current radio programs facilitated by WWF SI, however this did not happen during the project phase . A quarterly newsletter developed by WorldFish, which was circulated amongst partners was instead the medium to communicate updates and progress and also provide fora for CBRM related discussions.
9. Provide six monthly financial reports according to schedule, and a format provided by WorldFish	4 financial reports have been submitted to WorldFish, and comprise of the following; Aug08 to Nov 08;Dec08 to Nov09;Dec09 to Dec10; and Jan11 to Jul11
10. Contribute to annual reports to ACIAR, via WorldFish(June 2009,2010 and April 2011)	FSPI has contributed to annual reports to ACIAR, via WorldFish by submitted summary progress reports and narrative reports to WorldFish.

TELLING THE STORY: ANNEX 2: FSPI/SIDT LAU TRIP WITH WORLD FISH REPORT LAU FIELDTRIP WITH WORLD FISH, PROGRESSIVE REPORT, SEPTEMBER 2010

·TASK 4: MOV # 1 FSPI staff to join WorldFish Center staff on at least two fieldtrips to World Fish Center's Malaita field site to work with WorldFish and MFMR on resilience analysis and to facilitate production of lessons learned document'

1 Introduction; Lau Malaita

The Lau Lagoon area of Malaita is located off the northern tip of Malaita. The Lau realm generally stretches from Suava Bay in the north to Ata Cove on the northeast (Molea et al; 2008) WorldFish has been working with community clusters of Foueda and Funa'afou, a total of 10 individual communities, 8 of which are artificial island communities, and 2 other communities that are located on the mainland. This region is one of the densely populated regions in Malaita, those constituents a population of 2456 (1999 Census). Having 'so-called the 'saltwater pipol' or 'people of the sea'; these people through generations have entirely depended on marine resources or the sea for their livelihoods.

As livelihoods are dependent on marine resources, the population has limited access to the mainland to involve in agricultural activities. However, historically a 'barter system' that was established between the saltwater people and bush people of mainland Malaita have provide opportunities for them to trade for garden produce (Molea et al; 2008, Boso et al; 2009).

Joint fieldtrip with WorldFish

A joint fieldtrip was undertaken in August 2010 by FSPI staff with WorldFish Solomon Islands team to Lau in Malaita. The team consisted of Anne-Maree Schwarz, Delvene Boso, Janet Oeta, Ronnie Posala from, WorldFish and Joanne Pita, FSPI. The trip had the purpose to conduct 3 workshops: Women in Fisheries Training of Trainers workshop; Mens' awareness workshop; and a youth workshop.

I cofacilitated the 'women in fisheries workshop alongside Delvene Boso of WorldFish.

Although there were three concurrent workshops conducted during this field visit, I report only on the outcomes for the women's workshop as this was the only workshop that I attended and participated in.

2 Women's workshop goal and objectives

Goal

Women to have the knowledge and confidence and give talks to educate other women and children within their communities

Objectives

1. To train a group of women involved in community based resource management in key messages in marine resource management
2. To increase the active participation of women in community based resource management
3. To increase the knowledge and awareness of the women of their community based marine resource management plans

4. To make women involved in community based resource management realize that their own understanding of the marine environment and not discount the knowledge

3 Summary of Outcomes

The women's workshop was focussed on 6 key messages, and this includes; importance of marine resources for family and community health; the need for healthy habitats by marine resources; coral is a live animal; marine have a life cycle; and importance of management for community well being. Women also did mock presentations in which demonstrated their understanding of key messages and concepts taught. This workshop has increased the level of knowledge on basic science on marine resources and environment for women. The impact for the women is that after the training they have demonstrated ability and knowledge on marine resources, such as importance of coral reef and mangrove habitats, functions of different marine resources, linkage between coral reefs and fisheries, threats to marine resources and habitats, life cycle of key marine resources important to them and the need for protection, overfishing have also provided ways in, which women or their families can contribute to reverse overfishing and destruction of mangrove and coral reef habitats such as establishment of management controls and engaging in supplementary or alternative livelihoods.

The women were also divided into 3 groups (Funaafou, Niuleni and Foueda) and have developed action plans to carry out awareness within their respective communities. While Niuleni and Foueda plan to integrate awareness into their church activities, Funaafou group planned to conduct a day awareness for women and youth in their community.

4 Conclusion and Way forward

The women's workshop was a great success. This has been executed by their understanding of key messages they were taught through the 3 days workshop. Key messages 1 and 2, 4, 5 which is focused on marine resources and habitats has been best captured by the women. While key messages 3 and 6 was not fully understood by women, however have developed a generic understanding of the concepts after repeated explanations by facilitators. Furthermore, it is recommended that there should be more emphasis on the management aspect, as this concept could be quite new to community groups, hence the need to understand this concept will aid in community based resource management that includes women.

MOV # 2 ANNEX 3: AUKI ENVIRONMENT WEEK REPORT

***TASK 3: Continue with activities in existing FSPI sites supplemented , Auki Environment Week
Report ,15th – 17th March 2011***



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International/Solomon Islands Development Trust(
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Introduction

Malaita is most populated province in Solomon Islands. This has a major impact on the island's natural resources especially the introduction of destructive fishing practises and indiscriminate harvesting of resources. Currently, the province is engaging in two major development projects in the provincial capital Auki. The current situation of impending development and the potential for greater marine resource extraction has prompted concerned groups, particularly through the Provincial government to request assistance from FSPI and WorldFish Center to inform the Malaita local populace about natural resource management and conservation.

With collaborative support from the Ministry of Fisheries and Marines resources (MFMR), Ministry of Environment Conservation Disaster management and Meteorology (MECDM), The Nature Conservancy (TNC), Kastom garden, the Israeli Consular to Solomon Islands and the Malaita provincial government; FSPI and WorldFish Center organised an Environment week which lasted for three days from the 15th to the 17th of March 2011 in the Malaita provincial capital, Auki. The three day long environment program enabled the mentioned ministries and NGOs to showcase their work and two communities from Langalanga lagoon (FSPI mangrove) and Lau lagoon (WorldFish center LMMA) were also invited to share their experiences with local population of Auki. A lot of activities were conducted throughout the program.

Aim

The aim of the program was for the relevant ministries and NGOs to showcase their work in the country and inform the local people of Malaita of the importance of natural resource management and conservation. Addition to that, this three day program was also to let the provincial government aware of activities undertaken by WorldFish Center and FSPI in Malaita and to pave way for a consultation meeting that will be convened later to establish a network with the Malaita provincial government.

Objectives

- Educate people of the importance of natural resource management and conservation.
- Let the Provincial government and local people know where we work in Solomon Islands and our sites in Malaita.
- Let the Provincial government and local people know our activities (what we do) in Solomon Islands and in Malaita.
- Courtesy visit to Malaita provincial government

Expected outcomes

- People aware of the importance of natural resource management and conservation.
- The provincial government and local people know where we are working in Solomon Islands and our sites in Malaita.
- The provincial government and local people know our activities in Solomon Islands and in Malaita.
- Initial consultation to convene to establish a network with the provincial government.

Outcomes

Day one

Theme: Governance

The Environment program started on the 15th of March 2011 at around 12:30pm with a welcome speech from the Malaita provincial Chief Administration officer and words of prayer from a provincial executive representative. This was followed by speeches from an NGO representative, the Israeli consular to Solomon Islands and the Malaita provincial Premier.

Collin Gereniu from FSPI represented the NGOs in the speech. Following that, the Israeli consular Mr. Leliana Firisua talked mainly about Malaita development aspirations and the provinces' relationship with the Israeli government. In his speech he also thanked FSPI and WorldFish Center for organising the 3 days program and encouraged the local people that NGOs such as FSPI, World fish center and TNC have technical people that can really support them in resource management and capacity building.



Figure 1: A Picture showing the Malaita Provincial Premier making his speech during the official opening of the three days Environment Program in Auki.

After the Israeli consular's speech, the Malaita provincial Premier Mr. Suibaea presented his speech. In his speech, the premier thanked the Israeli government for development assistance and thanked FSPI and WorldFish Center for organising the environment week. He was really happy that NGOs chose Auki for the Environment program which was the very first of its kind and he suggested to NGO representatives, the MFMR representative and the MECDM representative that this program should be made an annual program for Auki. This is a good start and the people of his province really need to be informed about resource management as major developments continue. He also encouraged local people and high school students to make use of the opportunity that NGOs were able to come down to the provincial level.

After the speeches, there were presentation of talks from FSPI, WorldFish Center and the community that WorldFish Center is working with in Lau lagoon. In their presentations, representatives from the two NGOs, Collin Gereniu and Chris Paul basically talked about FSPI and WorldFish Center's work in the country, areas of focus, project sites, activities, approaches and the Community base resource management (CBRM) approach. A community representative from Lau lagoon shared their experiences of marine resource management after they set up an LMMA in their area.

The stalls were also opened at 12:30pm when the official program started and registration of names for a poster and a mangrove cooking competition also began after the official opening. The poster competition was organised by WorldFish and the Mangrove cooking competition was organised by FSPI. The stalls closed for the day at around 5.00pm.

Day two

Theme: Conservation and Auki clean up day

On the second day, the stalls were opened at around 9.00am and many more people came as compared to the first day to look at the materials on display and asked questions. There was also a general clean up in Auki town by locals who are friends of Israel. This was organised by the Israeli Consular to the Solomon Islands.

After the clean up when everybody started to settle down, there were presentations of talks from TNC, MECD, MFMR and APSD, an agricultural NGO working in Auki. The talks were really informative and several people asked questions. There was also a video show about conservation in Marovo lagoon, Western province in the tent and it also attracted a number of people.

Towards the afternoon when high school students started coming out of class, the facilitators started asking Quiz questions. There were a total of twenty one questions, 5 questions from MECDM, another 5 questions from WorldFish, the next 5 questions from FSPI, three questions from TNC and 3 questions from MFMR. The general public including students (both Primary and Secondary schools) really enjoyed this quiz time because the winners got T-shirts for prizes.

The second day ended successfully at around 5.00pm.

Day three

Theme: Sustainable Farming

On the third and final day, the stalls were open to the public also at around 9.00am and the number of people who came was even more than the last two days. There was suppose to be a presentation from a representative from Kastom gaden, an agricultural NGO working in Solomon Islands but since no representative attended, the facilitators invited two community representatives from the FSPI Loa Mangrove site in Langalanga lagoon to come and share their experiences.

Their talks attracted a lot of people who came to listen and ask questions and this session took up almost the whole morning until around 11.30 am. People were really curious about mangrove replanting because it is quite a new initiative in Malaita and by listening to how the two community representatives answer the questions, it indicated that the capacity building programs organised for them during the Loa mangrove implementation period is working really well.

After the Mangrove presentation from FSPI Loa mangrove, there was a presentation from the Israeli Consular to Solomons Islands about Israeli-Malaita agricultural plans. It was a 15 minutes presentation.

After the talk, the poster and mangrove cooking competition began. Posters and mangrove dishes were brought in for judgement. There were four judges; Anna Schwarz from WorldFish, Joanne Pita from FSPI, Louise from Malaita provincial office and Leliana Firisua, the Israeli consular. After the judging, prizes were given out for both competitions. For the poster competition, four prizes were given to the students for the 1st, 2nd, 3rd and 4th places. For the mangrove competition, there were also four prizes for the 1st, 2nd, 3rd and 4th places plus consolation prizes for all competitors.

The competitions ended successfully and after that, Joanna Pita from FSPI made a closing speech to end all the activities for the three days program.

Other outcomes

From observations and feedback from Malaita provincial officers and community members, the three days program was really helpful especially for students and the rural people who use the resources for their livelihood. Some community members even requested that such programs should be extended to the Malaita sub stations like Malu'u in the North, Atori in the East and Afio in the Southern tip of Malaita. Most people really want the program to be held annually to educate people and at the same time to build their capacity in resource management and conservation.

We did not have any chance to meet with the Malaita provincial Premier and his executive because they were also busy with their planning meeting in preparation for the deputy Israeli ambassador's visit in April 2011. Nevertheless, they are now aware of our activities in Malaita and hopefully we will make a break through to establish a network with the province.

Recommendations

- Communication between the Province and NGOs is very important. This is to prepare things like the stage and tents before the actual program starts.
- The province should include such educational activities in their annual budget to help out with facilitation and to make it an annual event.
- Such programs should also go down to sub-stations to reach the people in the rural areas. Again it depends if the provincial government includes it in their budget.
- From the program, we have learnt that inviting communities to share their experiences of conservation is very effective to catch local peoples' attention and interest.



Figure 2: Pictures showing different activities and different people who participated in the Auki Environment week.