



**WorldFish**  
C E N T E R

## Creating rural livelihoods in Solomon Islands through an environmentally-friendly trade of marine ornamentals for the aquarium trade: lessons learned

### KEY MESSAGES

- Implemented as part of a wider community diagnosis, supplementary marine livelihood activities can provide a new source of income and improved well being for rural Solomon Island communities. The integration of these activities within broader marine resource management efforts can also enhance conservation and management outcomes.
- Baseline information can help target appropriate communities and individuals for enhanced participant retention, however product feasibility studies (including value chain analysis and market demand) should also determine site selection and the mode of implementation.
- Income generating livelihood activities require appropriately targeted financial and business management training to be built into the project design. Training that is tailored to the knowledge level of participants and the activity in question can markedly improve understanding of wider business constraints as well as assist in their day to day financial management.
- Regular opportunities for interaction where advice, issues and opinions can be discussed and acted upon can increase participants motivation. The development of the farmers association provided a platform to promote: (i) a cohesive governing body, (ii) project ownership and (iii) a forum for sharing information. However, the viability of such a group depends on local constraints such as ease of transport and communication.
- The model of incorporating a privately operated depot as the central hub among clusters of farmers and the exporter was a successful model for rural, remote Solomon Island communities. Farmer clusters however require sufficient participants to ensure cost-effectiveness and to promote knowledge sharing.
- Subsidies can be an important catalyst for livelihood activities, particularly for those activities outside the realm of participants life experiences. However, the consequence of subsidy withdrawal, and integration of that withdrawal into a well planned, realistic and achievable exit strategy must be considered at the time of project design.
- Partnerships with the community and other conservation and development organisations can increase impact and scale of supplementary livelihood activities. A common understanding of the goals, strengths, weaknesses and capacity of partners is necessary for effective partnerships and beneficial outcomes.

## 1. BACKGROUND

The desire to introduce new ways of earning a livelihood to people in the least developed Pacific Island countries is widespread. It comes from a range of institutions and often relates to two overlapping concerns. Firstly, there is the development goal of sufficient cash to participate in and benefit from the modernising economy and secondly, the environmental/conservation fear that the need for cash is driving unsustainable exploitation of natural resources. Divides along this development-conservation axis blur as development agencies recognise that a healthy environment is essential to the maintenance of rural economies and conservationists recognize that communities lacking an adequate lifestyle are poorly motivated to conserve their environment.

While supplementary livelihoods are desirable, they are not easy to implement and there have been few success stories (Gillet et al., 2009). In 2007, a review of lessons learned from supplementary livelihood activities in the Pacific found that the Pacific region faces similar issues to elsewhere in the world, although social and cultural factors more frequently influence success (O’Gara, 2007). Recognising the fact that there is no ‘model’ to a successful supplementary livelihood activity, there were a number of features and determining factors identified likely to enhance the probability of success.

In brief, factors contributing to successful outcomes included:

- Baseline studies to assess feasibility
- Participatory project implementation
- Cohesive communities with strong leadership
- Provision of business training
- Established market for the service or product
- Appropriate transport linkages
- Involvement with the private sector
- Government support
- Unique products/services with few competitors
- Regular extension, monitoring and support

Additional lessons learned identified by Gillet et al., (2009) as part of an assessment of livelihood diversification as a means for marine resource management were:



- An ‘honest broker’ is required between community and commercial interest during implementation
- Private businesses are more successful in developing opportunities but have difficulty spreading benefits
- Long time frames are required to reach profitability and profits are generally modest
- Withdrawal of subsidies most often leads to the demise of an activity and a well planned and executed exit strategy is rare
- Focusing on other management efforts helps to reach desired goals

In 2005, a five-year project funded by the New Zealand Government was designed to facilitate the development of a small-scale ornamental trade industry in Solomon Islands. The overarching goal of this was “to provide enhanced well being of village communities within the Solomon Islands, through provision of new revenue sources based on the sustainable cultivation and sale of marine organisms”. Key lessons have been learnt on the development and initiation of a small-scale supplementary livelihood activity in the context of rural Solomon Island communities. In order to guide future projects in the region and within the mariculture field in general, this overview will focus on the lessons learned from this project, using the broad findings from O’Gara (2007) and Gillet et al., (2009) as the contextual basis.

## 2. INTRODUCTION

The marine ornamental trade became active in Solomon Islands in the mid-1980s, primarily through the wild harvest of corals and fish. The initiation of more sustainable techniques (cultured giant clams and farmed corals) did not occur until the late-1990's through projects initiated under the auspices of ICLARM (former WorldFish) (Kinch, 2004). Since that time the marine ornamental trade (still primarily through wild harvest) has provided a modest income for some rural coastal communities in Solomon Islands (with a reduced trade and a cessation of the production of giant clams during the 1999 – 2001 ethnic tension), and two exporting companies remain active.

From 2005 - 2010, through the NZ-funded project, “Creating rural livelihoods in Solomon Islands through environmentally-friendly aquaculture and trade of marine ornamentals” the WorldFish Center and WWF-SI worked with local villagers to establish marine ornamentals for the aquarium trade as a sustainable supplementary livelihood activity for rural coastal communities.

The project was initially designed to run for five years, and in two phases. Continuation of the project beyond product development phase (Phase I: 2005 – 2008) was dependent on review at the end of phase I. A bridging phase was implemented (2008-2009) while the review was completed. By the time the shortened phase II (May 2009 - June 2010) began, a network of clam and coral farmers had been established in the Western Province of Solomon Islands together with a newly established locally-run depot that was acting as the interface between the farmers and the exporter. A farmers association (Nusa Aquarium Farmers Association (NAFA)) was also operating. Products produced by the farmers, in decreasing order of importance, were giant clams, hard corals and soft corals. Phase II was focused on the implementation of the exit strategy. This comprised of establishing a viable commercial enterprise for Western Province farmers, to provide environmentally-friendly marine ornamentals to the international market with a realistic chance of persistence. To achieve this, phase II focused on the establishment and optimisation of the privately operated depot and on strengthening NAFA to work towards long-term industry sustainability.

At the end of five years this industry has not absorbed all the lessons that there are to be learned nor has it yet made all the ongoing adaptations that will need to be made. Nevertheless, a strong, trained, base of committed

practitioners (farmer and depot operators) has been established. If better prices can be obtained from the exporter and international market, and transport and marketing continue to be improved; it is expected that the industry will remain viable and grow as needed to meet market demand.

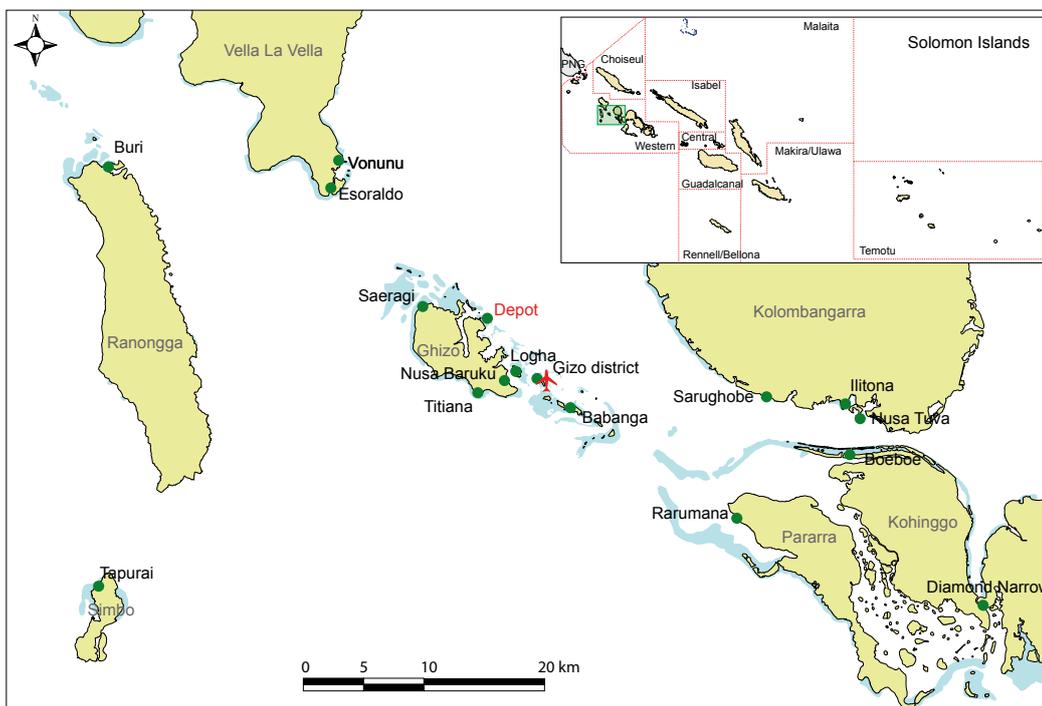
Project monitoring and evaluation suggests that there has been significant progress made toward the targeted goal of this five year project of “enhanced well being of village communities within the Solomon Islands, through the provision of new revenue sources based on the sustainable cultivation and sale of marine organisms”. Farmers and their families reported that the overriding benefits of this project have been the provision of a cash income, an increased standard of living, improved children’s education and increased knowledge of, and care for, the marine environment by individuals, families and communities.

## 3. LESSONS LEARNED

Lessons learned through this five year project are discussed in relation to the cumulative wisdom of other livelihood interventions on the basis of the three main components of the project: Initiation, Implementation and Extension and Exit Strategy. Each of these are explored for aspects pertaining to the project participants; the product itself and the underlying processes that WorldFish and WWF-SI undertook for the duration of the project.



Giant clams in grow-out phase at one of the farms



Map showing the distribution of farmers across Western Province, Solomon Islands in relation to the private depot and airport.

## Project Initiation

Strong community support and leadership have previously been identified as key factors for success at the community level. It has been recommended that formal baseline assessment studies provide the basis for the early identification of appropriate communities, family groups and individual involvement as well as determining the ecological and economic feasibility of the products.

The initial project communities selected were those who already had substantial community involvement in marine conservation through WWF-SI, however no formal community/household baseline studies were undertaken that were specific to the intended product.

The first suite of trainings on how to farm the product lines involved elected representatives from the participating communities who planned to introduce marine ornamentals as a community livelihood activity (as requested by those communities). Of the initial 27 community representatives trained, none have managed to sustain marine ornamental farming as a community activity and only one individual from that group remains an active (individual) farmer.

Interviews with community groups who started and dropped out all indicated that conflict over who does the work and who gets the money, undermined the effort. This suggests that only cohesive groups can operate well where

cash incomes are involved and the experience during this project was that individual and family groups were more effective.

In the absence of community baseline studies outside the WWF-SI communities; and constraints on the ability to tackle community capacity-building activities, the strategy adopted was to accept only people who applied to join the project, and to develop only products for which an economic case could be made. This strategy proved



Farmed corals ready for export for the aquarium trade



effective and retention rates increased from <5% in year one to 95% in year three.

Baseline assessments of remote rural communities in Solomon Islands are neither easy nor cheap. If a targeted livelihood approach is the chosen mechanism of delivery of development assistance, then to be effective, donors need to be prepared to fund baseline and feasibility studies in the certain knowledge that this will raise community expectations that may not be fulfilled. Since this project began, WorldFish and others have moved towards a model whereby the analysis and introduction of suitable supplementary livelihoods are embedded within a diagnosis of the wider components (social, economic and ecological) of community based marine resource management. This ensures that baseline assessments and identification of bottlenecks, such as the need for an evaluation of economic feasibility, are an integral part of the assessment of suitable interventions for targeted development impact.

At the inception of this project, product baseline information was available in terms of there being an established export route (there was a pre-existing exporter based in Honiara), there was a known market for the product and previous studies had, to a limited degree investigated the feasibility of the industry for Solomon Islands (Kinch, 2004; Kinch and Lal, 2005). Transport (local and international flights) and market trends were identified as the key potential constraints that needed to be addressed and understood. In the early stages of the project, while the products were being developed, the price that the exporter would eventually pay for all products was not known, nor was there an in-depth understanding of the particular ornamental species with the greatest market demand.

Despite the recognition of these constraints, with the goal of ensuring widespread benefits of this project, the donor encouraged a wide dispersal of participants across the Western Province, Solomon Islands. Accordingly, participants were distributed across eight islands, up to 50 km away from the depot and airport from where

products were transported to the exporter based in the capital, Honiara. Although this was an effective method to source motivated farmers, the distance between farmers resulted in longer and more complicated transport routes and communication and hence a reduction in cost-effectiveness.

The transport strategy adopted was to utilise domestic flights to transport products from the Western Province depot to the exporter, with farmer to depot transport (to meet orders placed by the exporter) in the first instance being undertaken by project implementation team using outboard motor boats (specifically to collect and transport the aquarium products). Through the project several transport challenges were encountered including unreliable flight schedules and the management of farmer expectations during the transition from the subsidised transport (farmer to depot) during the exit phase. A better understanding of the market chain, market demand and likely profitability at an early stage would have better informed discussions and decisions about site selection.

Overall, a total of 93 people received training from this project. Of those, 24% did not implement the activity, 36% started but eventually dropped out and 40% remain active. In 2007, a survey was undertaken of the 28 active farmers at the time and 11 farmers that had dropped out. Reasons to drop out fell into three categories, community conflict (14%), other priorities (43%) and loss of interest (43%).

An analysis of the income received by farmers from marine ornamentals showed that on average farmers earned an income of SBD\$500 - SBD\$2600 (US\$60 – US\$320) per year, contributing between 20% - 80% of their household cash needs (WorldFish, 2010). Despite the relatively modest return, 95% of active farmers interviewed at the end of the project stated that their marine ornamental business was a very important source of cash for their families.

## Project implementation and extension

Implementation of an activity where recipients have no prior knowledge of either the activity itself or the use and value of the final product requires a great deal of extension support. These extension and support services are demanding on project resources and staff; yet are an integral component for long-term success. What became clear was that, despite careful training, many farmers required regular interactions with project staff to understand the basics of

husbandry and what makes a desirable commodity. The stringent requirements of consumers from this 'luxury' market have been difficult for some project participants to grasp. This is not surprising and is presumably more pronounced the further the product or market is removed from every-day life experience.

Financial and business management training was initially intended only for the depot operator, but was extended to include all farmers towards the end of Phase I. Outcomes from a monitoring and evaluation survey undertaken at the end of the five year project indicated that the business training was a pivotal component of the project, not only for farmers to be able to improve their business and manage their farms more effectively, but also as a means to understand the operational capacity of the depot and the consequences of the removal of donor support. Although, two one-day small business trainings were provided, for the majority of the farmers it was the first time that they had received any knowledge about financial management. Given this limited knowledge base, it would have been valuable to have had additional business training at earlier stages of the project. It is recommended that for similar income generating supplementary livelihood projects, specifically targeted (to both the participants' knowledge level and the livelihood activity in question) small business training should be integrated into the project design.

Interaction between the project team and farmers was a successful component of the project. The more the farmers interacted with each other, the greater their motivation. Regular farmers meetings, where advice, issues and opinions could be discussed and acted upon were well received. Likewise the formation of the farmer association (NAFA) as the governing body for the industry, was successful and, by allowing farmers to understand and

take more part in decision making, resulting in increased cohesiveness.

Although farmers have expressed a keen interest to ensure the future of the association; the distance between individual farmers may undermine the ability of the association to operate without financial support. The demise of the association however is unlikely to result in failure of the industry, with the role that the association plays, largely being able to be picked up by the depot.

### Exit strategy

Historically many supplementary livelihood projects in the Pacific have not had realistic exit strategies in the project design. While there were elements of an exit strategy in this project, in particular devolving some activities and functions to national or private agents, (such as the depot - and development of that as a small -scale business), there were gaps in the definition of the elements required for this to happen effectively. Ultimately, it was not realistic to expect that agencies, over which the project had no control (e.g. exporter, government), would form part of the final business model without resources being explicitly allocated to ensure this could happen; exit strategies should be confined to acts that the project partners can accept responsibility for putting in place.

The establishment of the depot and self-sustaining business was originally intended to take place over a > two year period - after the product development stage. In reality, donor priorities changed and it became necessary to make the full transfer to private hands within 12 months. As a result, there was a relatively rapid shift from a partially subsidised model to a fully independent business model. The project participants felt that the timeframe for establishing their farms - free of project subsidy - was too short.



Farmers come together to share information and knowledge at a farmers association meeting



**Environmentally-friendly supplementary livelihoods can provide a source of income, improved human well-being and resource management outcomes**

The privately operated depot was established through an application based process within the existing farmer network. Although there was initial farmer jealousy towards the operators who were awarded the depot role, the depot model has proved successful to date. Crucially, the depot requires operators with the aptitude and ability to communicate effectively with the exporter for product sales.

During the project development phase, subsidies were afforded to farmers through the provision of farm equipment. Once farmers began exporting and were receiving payment for products, they were required to contribute to the cost of transporting products, but this was not under a full cost recovery model. The advantage of the subsidies was that it afforded farmers an enhanced income as they built up their farm and expertise, it motivated participants to become involved in a livelihood that was outside of their experiential knowledge and it enabled some flexibility for adaptive learning as the industry model was developed. A disadvantage was that when it came to transition to the private depot operator, the subsidies received by the farmers was reduced, resulting in a lower product price for the farmers to cover the costs incurred by the depot (transport, communication and labour).

An economic feasibility assessment undertaken towards the end of Phase I indicated that a 30% deduction in the price for products would be sufficient to cover the costs of the depot to collect product from the farmer gate. Once the private model was implemented, it became clear that due to increased fuel costs and the unstable nature of product

sales, this was insufficient to ensure that the collection and transport costs could be met by the depot. In order to increase profitability, transport costs needed to be reduced. This was achieved by shifting from using private motor boat (farm gate collection by the depot) to other transport options available to the farmers (village-based market boats and regional transport boats), in conjunction with a price increase for the farmers to cover their transporting costs.

Although, this resulted in a more profitable business for both the farmers and the depot, the majority of farmers remained adamant that their products needed to be collected at the farm gate. Nevertheless, for most farmers adequate transport avenues exist and this insistence likely arose from the fact that farmers became 'used to' the original arrangement. Despite this apparent dissatisfaction, to date there has not been a significant loss of farmers as a result of this changed modality. Rather, it would appear that the majority of participants have gained sufficient knowledge and experience of the industry to understand the economic basis for the change.

#### 4. CONCLUSION

This project has shown that supplementary livelihood activities can enhance the well being of rural communities through the provision of new revenue sources, in this case through the sale of sustainable cultured marine ornamentals for the aquarium trade.

The degree to which livelihood interventions will be

successful depends on a myriad of factors including an in depth understanding of the social, economic and ecological context within which the activity is operating.

Supplementary livelihood activities do not only provide a new source of income, but depending on the process used for implementation they can provide an avenue for increased individual, family and community knowledge, awareness and respect for the environment. In this regard the lessons learned from this project support Gillet et al., (2009), that it is important to integrate supplementary livelihood activities within broader natural resource management efforts.

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