

Boosting Traditional Approaches to Food Security in Papua New Guinea

Prepared for: Conservation International Foundation

Prepared by: The Foundation for Development Cooperation Ltd

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1 Introduction

As part of the Australian Government's International Climate Change Adaptation Initiative, AusAID commissioned Conservation International to prepare a report on Boosting Traditional Approaches to Food Security in Papua New Guinea.

The primary objective of the project is to improve the uptake of approaches that contribute to stability of food access by buffering vulnerable subsistence and cash-earning activities against climate variability and change. These approaches include:

- Increased community experimentation with crops and cropping practices matched against likely local climate change exposures;
- Increased community capacity for food preservation and storage; and
- Improved management of scarce cash resources at the household level.

The secondary objective is to demonstrate to the Milne Bay Provincial Administration and the Papua New Guinea National Government that improvements in food security in subsistence communities do not need to correspond to a proportional increase in environmental degradation.

This project builds on the experience from a range of agricultural support programs in the region and will be informed by culturally-specific methods of 'innovation diffusion' by drawing on the combined influence of village/hamlet leaders, women's church community groups, and youth groups.

As its contribution to this project, the Foundation for Development Cooperation (FDC) conducted desktop research and consulted with the Ware Island community to assist in the design of the project, and identified capacity development interventions for the communities in the target sites within Milne Bay, and more specifically Ware Island.

The terms of reference for the FDC project are included as Attachment 1.

Two main reports were produced as part of the project. The first "Analysis of Lessons Learned from Agricultural and Rural Development Projects" was submitted last year, and the second, "Four Pillars of Food Security Capacity Assessment for Ware Island" is included as Attachment 2.

The workshop report and interview notes with selected residents used to inform the Four Pillars Report are included as Attachment 3.

The final financial report for the project is included as Attachment 4.

2 Activities Undertaken

2.1 Agricultural and Rural Support Programs Assessment

The first component of the project was a comprehensive assessment of the major agricultural and rural support programs that have been undertaken in PNG in the last 20 years, based on desktop research of relevant case studies and articles relating to previous agriculture and rural support programs in PNG and other relevant programs in Melanesia, and interviews conducted with key relevant experts of the Milne Bay region, PNG agriculture, and food security.

The output of this assessment is a stand-alone report “Analysis of Lessons Learned from Agricultural and Rural Development Projects”, submitted in 2012.

2.2 Field Visit and Community Discussions

The second part of the project required FDC to present the results of the agricultural programs assessment at an integration workshop in Alotau in February 2013, consult with selected community representatives, and contribute to a project design session with Conservation International at the integration workshop in Alotau.

3 Key Outcomes

3.1 Agricultural and Rural Support Programs Assessment

A review of eight different agricultural and rural support programs, undertaken in PNG and the Solomon Islands in the last 20 years, highlighted several strengths and weaknesses in effective program design. There is potential to capitalise on these lessons and undertake a program specific to Milne Bay province to bring about more effective and sustainable development. This is particularly important in terms of food security given the context of small island communities which are increasingly vulnerable as a consequence of increased regularity in extreme climate events, a rapid increase in population growth and resulting environmental degradation.

Important factors for success include: simplicity, sustainability, community based implementation and management, and a strong gender awareness component. Based on this analysis, FDC has recommended the design of a program which incorporates a systems approach with an emphasis on sustainable and diversified livelihoods. This approach targets rural communities and engages key stakeholders such as youth groups, women’s community groups and church groups.

Specific Interventions

To identify the most appropriate agricultural systems interventions for the program, community consultations should be conducted through the Village Engagement Teams at Conservation International in Milne Bay, as well as canvassing local authorities and experts on their opinions. This should then be coupled with the expert opinions of local and international agronomists, horticulturalists, and foresters, to determine the most efficient and effective interventions.

Potential community development interventions will hinge largely upon the results of these community consultations. However, following on from the research conducted about Milne Bay, the following activities could be included within the suite of activities to take to consultations for testing with regard to demand and local level appropriateness:

- Grassroots women's empowerment: empowerment of women in Milne Bay, through knowledge development in governance, leadership and project management skills. An empowerment training and grant scheme, customised for the local context and in local language, could be considered for the community of Milne Bay (FDC has contacts with Women's empowerment trainers in Milne Bay);
- Conduct a market/value chain analysis: and feasibility assessment for selected products and services, e.g. for forestry and agricultural products that have potential for locally improved value adding, together with marketing and quality improvements;
- Household financial management: management of trade stores and the revenue derived from these stores is an issue in Milne Bay. These issues, together with the potential need for income diversification and livelihoods in and around the target sites, could prove to be a valuable foundation activity for further building resilience to climate change and strengthening the food security situation in Milne Bay;
- Development of small income generation based groups (social enterprises) in Milne Bay with microfinance and business development activities for their members;
- Development of grass-roots financial services (i.e. micro-loan products) for Milne Bay community members. This option could be implemented through, and in collaboration with, an existing community-based organisation;
- Sustainable livelihoods analysis and business development: exploration of business development potential in areas such as eco-tourism, and improvements to marketplaces; and
- Improved farming systems management: including home garden development for subsistence and sale, including feasibility of certification/green labelling.

3.2 Field Visit and Community Discussions

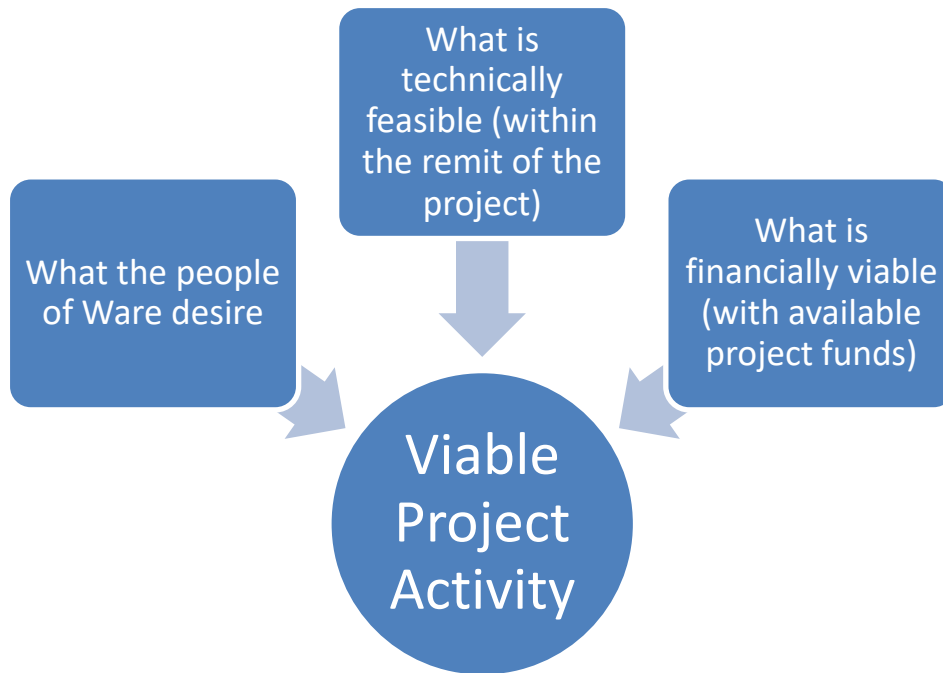
After completion of the agricultural and rural support programs assessment report, FDC undertook a field visit to Milne Bay and consultations with Ware Island community representatives. The result of these consultations is summarised in the report "Four Pillars of Food Security Capacity Assessment for Ware Island", included as Attachment 2.

The consultations were guided by the following questions developed by FDC in consultation with Conservation International:

- Where does Ware want to be in 10 years time? 20 years time? What is the vision for the community?
- What do the people of Ware Island need to help them achieve their vision?
- What does Ware have currently that can support moving towards the vision they have?

Using an assets-based approach, FDC identified what the island had to support itself in its vision.

Bearing in mind the limited remit of this project, it was important to focus on the intersection between desirability, technical feasibility and financial viability. Following this, potential project activity can be determined.



With this framework in mind, the results of the focus group discussions, interviews, informal discussions and review of the Ware Development Plan¹ were used to inform the following recommendations for action for capacity development on Ware Island.

Improved Gardening methods

There are many small but manageable enhancements that can be made to the methods of gardening on Ware Island, to improve the quality and quantity of garden outputs, and bolster food security on the island. The following are examples of issues which should be addressed by the forthcoming NARI activities of the project: soil fertility enhancement, improvement to garden bed construction, use of drought resistant and resilient cultivars, seedling protection, and natural compost/manure use for gardens.

Basics of financial literacy and budgeting

The Asian Development Bank (ADB) Microfinance Expansion Project has offered to conduct 1-2 training of trainer (TOT) sessions for a suitable selection of Ware Island people who are capable of being trainers in financial literacy (likely secondary level education attainment required). Within their budget, ADB can send two trainers for two weeks to cover Savings, Budgeting, and Debt Management.

Ideally there should be a gender balance in the trainings, and if possible have separate women's and men's trainings.

¹ Ware Island Five Year Development Plan, 2011 – 2015, Bwanabwana Rural Local Level Government, 2010.

ADB will need a commitment from Conservation International that those trainers will train the community and there will be a commitment to cover any further costs of those community trainings.

ADB would need details of the participants in the community training. Relevant ADB contacts are included in the main report (Attachment 2).

Business Management and Enterprise Development Training

Value added options to the claypot making scheme – these pots have a well known reputation nationally and could fetch a much higher price than they are currently marketed and bartered for.

There is also a significant opportunity to export these pots, with the appropriate connections in the transport industry and improved marketing techniques. The development of an organised cooperative of women working together on this would greatly enhance its likelihood of success. A cooperative is being established for the fishery industry – a similar model could be considered for a claypot cooperative.

Women's empowerment and home skills development

During the field trip a specific gender audit and analysis was conducted, including interviews with women of the community to identify the particular issues and needs of the women of Ware Island. The need for specific women's empowerment training sessions was indicated as a need, as well as home skills development and enhancement of general life skills. Cheryl Perocco, a Milne Bay resident, has conducted several training sessions throughout Milne Bay, and would be worth involving in the forward program (Cheryl is a previous participant of FDC's Bottom Up Governance Leadership Program for Women in the Pacific).

Interviewees indicated that many women were lacking in motivation, and that skills enhancement training would be highly beneficial for them.

Fisheries development

The field visit group discussions and individual interviews indicated that there were many needs in the area of fisheries development: efficient storage methods, improved transport systems, improved fishing methods, and an organised sales system to ensure appropriate pricing is set for sale in Alotau.

The Ware Development Plan notes that a cooperative is being set up to address this need, however any support that can be provided to assist this would greatly enhance the livelihood potential of Ware islanders.

Attachment 1: Terms of Reference

The terms of reference for the FDC component of the project were as follows:

- 1.1 What are the main agricultural and rural support programs that have been undertaken in PNG in the last 20 years?
- 1.2 How has the natural resource management and conservation been addressed in these programs?
- 1.3 What are the strengths and weaknesses of these programs and the key lessons learned for future work in this area?
- 1.4 How can these lessons be applied to the detailed design on the Milne Bay project, including in the performance framework?

Required outputs included a short report.

The scope of work was revised subsequently to include:

- Delivery the results of Component 1 at an integration workshop in Alotau in February 2013;
- Contribution to the discussions on the design and delivery of the project;
- Co-facilitation of the specified integration workshop with CI PNG; and
- Participation in a site visit around the workshop timing.

Attachment 2: Four Pillars of Food Security Capacity Assessment for Ware Island

Food security is when:

‘All people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. **The four pillars of food security are availability, access, utilization and stability** (FAO, 1998).’

The objective of this document is to assess where Ware Island is situated with regards to the four pillars of food security: availability, access, utilisation and stability, and determine capacity for improvement in each of these areas.

A summary of recommended activities is also provided.

Assessment Tables

Pillar # 1	Availability Domestic production, food stocks
Objectives	<ul style="list-style-type: none"> • Conducive agricultural systems for sustainable food production • Livestock production options are present and appropriate • Management of food stocks is appropriate

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
Does Ware have agricultural systems conducive to a secure source of food for the population?	3	<p>Currently the agriculture on Ware is sufficient for families, as each have their own garden plots. However, the quality of the soil is degrading, and agricultural cultivation methods could be improved</p> <p>The population is relatively small, and does not require a highly developed agricultural system to service the population. At the moment, everyone is taken care of via clans and families.</p>
Does Ware have a good set of	2	The livestock sources on Ware Island consist

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
livestock options?		<p>of chickens (free range) and pigs, which are kept in pens close to family homes. Other than this, there is not much livestock kept.</p> <p>There is not a great diversity of livestock options, and as it is Ware people rarely eat chicken eggs as apparently they do not find the taste that appealing. They are also hard to collect due to their free range nature. Chicken eggs are a great source of protein and fat. Chickens could be kept in coops every so often to gather some of their eggs for cooking.</p>
Are food stocks managed appropriately?	3	<p>Food is hardly wasted, and shelf life extended by using methods such as smoking fish. Food storage options would be largely expanded if Ware had refrigeration options, which will only happen if electrification happens (it is too expensive to run on a generator).</p> <p>Indications are that more education on food storage may be needed (there may be better ways to store food that do not involved refrigeration).</p> <p>It appears that Ware people do not think that food is managed well when it comes to feasting – feedback is that they would rather that less food is used and more kept in storage.</p>

Pillar # 2	Access Purchasing power, income, transport and market infrastructure
Objectives	<ul style="list-style-type: none"> • Appropriate land management (soil fertility, land management, effective use of land/permaculture) • Reliable source of household income, to purchase food when needed – a diversified and secure set of livelihood options • Suitable knowledge of financial management

Pillar # 2	Access Purchasing power, income, transport and market infrastructure
	<p>(budgeting, saving, insurance)</p> <ul style="list-style-type: none"> • Reliable food stuff distribution in location (transport, accessible markets) • Engagement of stakeholders in the issue of food security: including youth groups, women’s groups, church, local level government • Healthy marine ecosystems – sustainable fishing and reef management.

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
Is there appropriate land management on Ware? (soil fertility, land management, effective use of land/permaculture)	3	<p>There is a degree of permaculture close to houses, but there could be more advanced permaculture methods engaged for the food gardens (e.g. stacked gardens etc.)</p> <p>Depletion of soil fertility is a major issue, as land is not left to fallow, due to a lack of space directly related to population growth. Soil is not given regular injections of nutrients (e.g. fertiliser and compost).</p> <p>Soil is also increasing in salinity due to rising sea levels.</p> <p>There is also a lack of appropriate gardening tools.</p> <p>Magic is considered to be part of land management on Ware – used to increase productivity of gardens. Ware islanders sometimes cast spells to improve their yield, and this is also sometimes used to ‘spoil’ another’s yield.</p> <p>Heavy storms, wind and rain wash away seeds and topsoil in gardens – gardens are currently constructed in ‘mounds’ which can be easily destroyed by extreme weather. A raised garden bed with wooden barriers would help to protect seedlings and young plants.</p>

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
<p>Do Ware households have reliable income streams, to purchase food when needed?</p> <p>Is there a diversified and secure set of livelihood options?</p>	2-3	<p>There was a clear indication that in the past Ware islanders benefited massively from a significant injection of funds, from the Beche De Mer industry.</p> <p>However, the reduction in fishing of Beche De Mer (sea cucumbers) has put a significant strain on the earning capacity of Ware Islanders. It was a very large aspect of their livelihoods earnings.</p> <p>At the moment it appears that there are a number of reliable income streams, including:</p> <ul style="list-style-type: none"> - Baking - Carpentry - Boat building - Clay pot making - Canteen selling/trade stores <p>Ware Islanders both on and off the island are also employed as:</p> <ol style="list-style-type: none"> a) Teachers b) Health workers c) Carpenters d) Mechanics e) Seamen <p>However, there is room to diversify livelihood options, to ensure that there isn't as much reliance upon harvesting seafood, which is at the mercy of the weather and also a finite resource. This will definitely require some enterprise development and business management skills transfer.</p>
<p>Is there suitable knowledge of financial management on Ware? (budgeting, saving, insurance)</p>	2	<p>There was a clear indication that there is a serious lack of knowledge in this area on Ware Island.</p> <p>The focus group discussions, interviews and a review of the Ware Development Plan indicate that this is an area that needs to be addressed. It is also a crucial aspect of many other important areas in need of attention, including: business management, enterprise development skills, livelihood diversification strategies, and household welfare and security.</p>

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
Is there reliable food stuff distribution at Ware?	2-3	<p>Canteens, boats bring food from the mainland</p> <p>Adverse weather patterns affect the ability of Ware Islands to travel by boat to other islands to trade for food, and to travel to Alotau to buy food.</p> <p>Fuel is also extremely expensive for Ware Islanders and this serves as a significant barrier to distribution of food.</p> <p>There is currently no big jetty to accommodate a big boat to ensure regular and reliable shipments of food.</p>
Are all stakeholders on Ware engaged in the issue of food security?	2-3	It seems to generally be those who are connected to the families of those directly involved in the project who are engaged with the food security issues.
Is there a commitment to sustainable fishing and reef management on Ware Island?	4	There is a commitment which is also being held up by a complete ban on commercial fishing and export of beche de mer, which has been at dangerously low levels prior to the ban.

Pillar # 3	Utilisation Awareness of food security issues, and general health of the population (relating to dietary requirements).
Objectives	<ul style="list-style-type: none"> • Children and adults have no nutritional deficiencies • Dissemination of information concerning food and health issues to all stakeholders • Education of food security issues in schools • Education of food security issues to general population

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
Do children and adults have nutritional deficiencies and are they getting the help they need?	3	<p>It was hard to determine exact nutritional deficiencies during the field visit, but from a review of the typical Ware diet, it appears that there is certainly a lack of fat and protein in their diets.</p> <p>Illnesses that are reported on the island include:</p> <ul style="list-style-type: none"> • Diarrhoea • Malaria • Cough • Stomach aches <p>The aid/medical post has had a recent upgrade in facilities, which was outlined in the Ware development plan, and this may contribute to improved healthcare and health awareness on the island.</p>
Is there dissemination of information concerning food and health issues to the people of Ware?	2	<p>The CI project is helping to provide this information currently, and there is informal discussion amongst Ware people about food and health issues, but nothing formal in terms of dissemination.</p> <p>Although not directly related to nutrition rates, with HIV/AIDS being pandemic in PNG, it should be considered within the health context of Ware. At this stage, there have been attempts by local Ware people to raise awareness but this has not been formally arranged/organised or planned.</p> <p>It was noted in the field notes that there is very little common knowledge about sicknesses and diseases that affect the people by the general public in Ware.</p>
Is there any education of food security issues in the Ware primary school?	2-3	<p>During the field visit there was some initial discussion of incorporating the notions of food security at the primary school.</p> <p>Knowledge of food security issues would certainly be enhanced if NARI was to come and speak to the children, and help to create school nurseries for climate change resilient crops, and enhanced gardening lessons.</p>
Are the people of Ware given	3	Through this project, it is hoped that Ware's

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
general education of food security issues on their island?		general education capacity on the issues of food security will be enhanced.

Pillar # 4	Stability Weather variability, price fluctuations, political factors, economic factors, distance/isolation factors
Objectives	<ul style="list-style-type: none"> • Capturing and potentially improving traditional knowledge of weather patterns • Mapping of local weather and food production calendar • Capturing and potentially improving traditional food production and storage practices • Resilient to increasingly variable weather patterns (disaster risk management practices, safe storage houses, diversified crops)

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
Are the traditional knowledge of weather patterns and seasons on Ware Island being captured?	4	<p>This project aims to capture the traditional knowledge of weather patterns and seasons on Ware, and how these are changing due to climate variability/climate change.</p> <p>Resulting capacity will depend on how this product is effectively fed back in to the community, to help develop new communal knowledge on solutions.</p>
Is there a useful food	4	CI has completed a comprehensive food

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
production calendar for use on Ware?		<p>production calendar for use on Ware.</p> <p>Resulting capacity will depend on whether this is effectively fed back in to the community to become communal knowledge.</p>
Have traditional food production and storage practices been recorded? Can these be improved?	3	<p>Food production and storage methods have been recorded and are well known in the community. For details: see Field Notes in Attachment 3.</p> <p>Some examples include: Yams/sweet potato: stored in the yam houses or individual homes Fish: smoked and stored in the oven for several days Garden foods (other than root vegetables) are only able to be kept for a few days, so are only picked when needed. These are stored in the home.</p> <p>Storage capabilities would be significantly improved by refrigeration, which would entail electrification on the island. Worth looking in to potential solar options.</p> <p>However, there are significant areas for improvement, particularly in terms of food production and gardening methods. Soil depletion and increased salinity, as well as general gardening methods could all be improved with application of simple practices.</p> <p>This is a high priority area for the NARI activities which are planned for Ware.</p>
What is the level of resiliency to unpredictable weather patterns on Ware Island? (disaster risk management, safe storage houses, diversified crops)	2-3	<p>Ware Island people have proven to be quite resilient to unpredictable weather patterns so far, however there is certainly a significant amount of suffering and loss of food as a result of the increasing dry spells, hot sun (that burns crops), a prolonged rainy season which can wash seed away, and strong winds that can uproot crops.</p> <p>Planting resilient crop cultivars and improving</p>

Assessment Questions	Ranking 1=No evidence of relevant capacity 5=Fully developed capacity	Evidence (from field notes and Ware Development Plan)
		<p>methods of gardening that protect the crops (raised garden beds, stacked gardens, wind shields, shaded greenhouses, etc.) would help improve resiliency significantly.</p> <p>Disaster risk management (in a broader sense than just food security) would also be beneficial for the island</p>

Recommendations for Action

Upon commencing the field trip to Ware Island, the following questions were foremost in our mind:

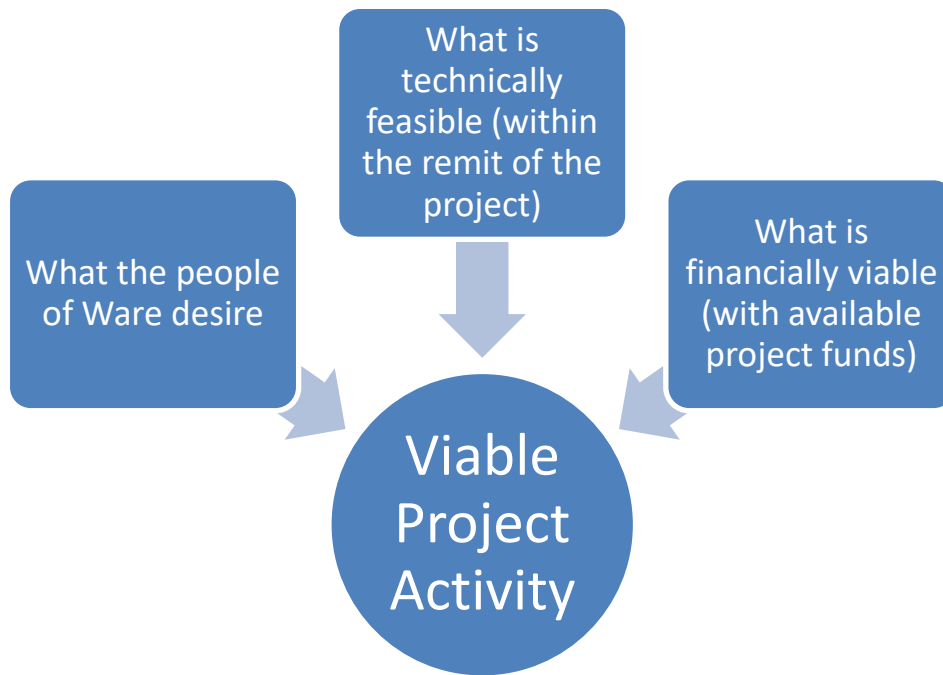
Where does Ware want to be in 10 years time? 20 years time? What is the vision for the community?

What do the people of Ware Island need to help them achieve their vision?

We then asked, what does Ware have currently that can support moving towards the vision they have? Using an assets-based approach, we identified what the island had to support itself in its vision.

Through focus group discussions, interviews, informal discussions and reviewing the Ware Development plan, we have been able to identify some initial priorities for capacity development on Ware.

Bearing in mind that this project has a limited remit, it was important to focus on the intersection between desirability, technical feasibility and financial viability. Following this, we can then determine what can potentially be completed as a project activity:



With this in mind, the following areas of significant need have been identified.

Improved Gardening methods

There are many small but manageable improvements that can be made to the methods of gardening at Ware, to improve the quality and quantity of garden outputs, and bolster food security on the island. The following issues are some which should be addressed by the forthcoming NARI activities of the project: soil fertility enhancement, improvement to garden bed construction, use of drought resistant and resilient cultivars, seedling protection, natural compost/manure use for gardens.

Basics of financial literacy and budgeting

The ADB Microfinance Expansion Project has offered to conduct 1-2 training of trainer (TOT) sessions for a suitable selection of Ware people who are capable of being trainers in financial literacy (likely secondary level education attainment required). Within their budget, ADB can send two trainers for two weeks to cover Savings, Budgeting, and Debt Management.

It would be great if we could ensure there was a good gender balance in the trainings, and if possible have separate women's and men's trainings.

ADB will need a commitment from CI that those trainers will train the community and there will be a commitment to cover any further costs of those community trainings.

ADB would need details of the participants in the community training, so that we can report the numbers to ADB.

The contacts for ADB are:

Madhurantika Moulick, Microfinance and Lead Specialist, Microfinance Expansion Project.

First Floor, Town Post Office, Port Moresby

Ph:+675-3434789 Mb: +675-71952630

Email: madhu@microsave.net

Business Management and Enterprise Development Training

Value added options to the claypot making scheme – these pots have a well-known reputation nationally and could fetch a much higher price than they are currently marketed and bartered for.

There is also a significant opportunity to export these pots, with the right connections in the transport industry and improved marketing techniques. The development of an organised cooperative of women that seeks to cooperate on this would greatly enhance its likelihood of success. I understand that a cooperative is being set up for the fishery industry, so perhaps a similar model can be adopted for the claypot cooperative.

Women's empowerment and home skills development

During the field trip a specific gender audit and analysis was conducted, including interviews with women of the community to identify the particular issues and needs of the women of Ware. The need for specific women's empowerment training sessions was indicated as a need, as well as home skills development and enhancement of general life skills. Cheryl Perocco has conducted several training sessions throughout Milne Bay, and would be worth speaking to. Cheryl is a previous participant of FDC's Bottom Up Governance Leadership Program for Women in the Pacific, and is based in Alotau. Cheryl's email address is: cheryl.perocco@gmail.com

Interviewees indicated that many women were lacking in motivation, and that skills enhancement training would be highly beneficial for them.

Fisheries development

The field visit group discussions and individual interviews indicated that there were many needs in the area of fisheries development: Efficient storage methods, improved transport systems, improved fishing methods, organised sales system to ensure appropriate pricing is set for sale in Alotau.

There was an indication from the Ware development plan that a cooperative is being set up to address this need, however any support that can be provided to assist this would greatly enhance the livelihood potential of Ware islanders.

Attachment 3: Ware Island Group and Individual Interview Notes

Ware Island Group Work Notes

FOOD SECURITY AND FOOD ISSUES FOR WARE

FOOD ISSUES

A: Food Production

a) Agriculture Systems

1: What different types of farming are there/What different types of gardens are there?

Because the island is small, with a large population and little knowledge about farming to meet every day needs, Ware people are dependent upon gardening for subsistence. Farming wise, there is chicken farming and pig farming.

2: Roles of Men and Roles of Women in the different farming systems/different gardens

Garden Type/Name	Roles of women
Yam Garden	Helping to clear the garden, removing unwanted objects or twigs (Men will do more difficult clearing). Women do planting of seeds after the men have dug the mounds. Women do the weeding. Women harvest the crops
Cassava Garden	As above
Banana Garden	Mostly done by men

Farming: Women will feed the animals

b) Food

1: What types of food is produced on the island

Yams, Bananas, Cassava, Tapioca, Native potato, fish, pig, chicken, coconut, sweet potato.

2: What types of food comes from outside (specify source is applicable)

Sago, taro, rice, flour, tea

3: During what time of the year are these foods available?

Yams – April to June

Other foods – planted any time of the year and harvested when it's ready.

4: What do people do with these foods?

Eating, feasting, marketing for sale, bartering.

c) Challenges in Food production

1: What are some of the challenges in food production?

- Edible shells are becoming much more scarce
- Soil quality is reducing due to the use of the same soil over and over again with putting nutrients back in to the soil
- Lack of compost for soil
- Long spells of dry season, shortages of seeds
- Higher tides (sea level rising) are washing soil away, soil erosion
- Seeds and soil are washed away by heavy rain, due to the 'mound' style of garden.
- Winds are destroying food crops
- The hot sun can burn the crops
- Salt (salinity) content in the soil is increasing
- Bush fires are frequent, during dry season, and this can destroy gardens
- Soil layers are getting thinner

B: FOOD MANAGEMENT

a) Management Ways/Strategies

1: How is food managed (right throughout the year)?

2: List ways in which food is managed. Think of the different types of food and how they are managed

Type of food	Ways of Management
Yams	Stored in the yam house, cook when needed, also saved for special occasions.
Banana	Get a handful when needed as they cannot be stored for long (go off quickly)
Tapioca	Taken as needed (2-3 to cook), and cooked immediately.
Sweet Potato	Stored in the yam house
Fish	Dried and smoked over the fire to preserve and only small quantities are cooked.
Shells	

b) Challenges in Food Management

1: What are the challenges of food management on Ware

Garden food cannot be kept for long, so lack of storage is an issue for Ware. Garden foods can only really be kept for two-three days. Ware Island is very reliant on weather. Other challenges include: Feasting time, stealing of foods, population of the household (high), laziness, and insects affecting the food, poisonous roots and nets for fishing.

2: Are these challenges same every year? Or is there any particular time of the year that you face these challenges? Yes, every year.

3: How do you solve these challenges/problems?

Cut down on feasting, everyone must have a garden, family planning should be a focus, look to make garden 'smoky' to keep away the insects, stop using nets and poisonous roots.

Challenges are mainly natural weather challenges and the community must flow with it. To prevent the seeds from dying, we cover the garden with coconut leaves to give them shade and protect them from wild birds.

4: Does/Do these still work? Yes

5: How could it be done better?

Improving management and continuing to take care of the gardens.

C: LIVELIHOODS

A: Livelihood Activities

1: List all the livelihood activities and/or options on Ware

2: Indicate gender roles and participation in each activity/option

Livelihood activity/option	Male	Female
Fishing	Yes	Some
Farming	Yes	Yes
Gardening	Yes	Yes
Cooking	Less so (but yes in absence of women)	Yes
Baking	Less so	Yes
Carpentry	Yes	
Boat building	Yes	
Clay pot making		Yes
Canteen selling	Yes	Yes

D: FINANCIAL MANAGEMENT

A: General Questions on Financial Management

a) Savings

Savings are generally kept at home – in boxes, containers, or buried in the ground.

b) Budgeting

There is little knowledge of budgeting, short of spending money on the food and items needed for everyday living (kerosene, soap etc.).

c) Loans

Little loan taking as it is very hard to pay it back.

(Note: For the above Financial Management Issues, refer to the individual interviews)

E: EDUCATION

A: General Questions

a) Challenges/Problems

In General, at schools: Poor English speaking, leaving school early, lack of books for school children, lack of modern technology

For families: Finding money for school project fees (education in PNG is free, but the school charges a 50 Kina 'projects' fee for certain project related items).

b) Strengths/opportunities

Opportunity: Look in to the options of the \$100 Laptop program for Ware Island Primary School

F: VISION

A: Successes

a) What makes you like your island?/Why do you want to live on Ware?

The surroundings and general environment of Ware, the customs, the culture. It is our Motherland.

b) What do you want Ware to be like in the future (10, 20 years' time)

We want more children to be educated, improved human resources on the island. We would like development on Ware Island.

B: Asset Mapping (see Ware Ward development plan and individual interviews for responses following)

a) What Does Ware have that can support moving towards the vision?

b) What is needed to support in getting there

c) What can be done to get there?

Interview questions and responses

Gender Interview with two residents (female)

Roles and Activities (what do men and women do, and how and where do they do it?) E.g. Who does what?

What roles do men and women typically play in the community?

Women do most of the housework, child care, cooking, laundry, gardening and cleaning. Men tend to take on what is considered the 'harder' jobs, e.g. cutting and clearing the bush and vegetation for gardens, digging the mounds for gardens. A few men do housework, and some cook, but often in the absence of the woman, if she is off travelling to sell pots etc.

Who works for pay?

Men typically work for pay, particularly fishing, diving for trochus shells, beche de mere (now only subsistence due to ban on export). Women do some work for money, namely crafting and selling the Ware clay pots to other islands and towns. If there is any excess in the garden, it is likely to be used for bartering, or perhaps sent to family on the mainland.

Who cares for children and covers other family work?

Women but men are involved in absence of women.

How many hours a day are spent on home and family care?

All day for women.

What number of hours are spent doing unpaid, underpaid or undervalued work?

Many do unpaid work all day, but it is not considered undervalued work.

Is there a family member involved in a community organisation or volunteer work? Who? For how many hours a week?

Most of the community does a degree of volunteering and community work.

Access and Control (who has access to and control of knowledge, resources, services and decision-making?) E.g. Who has what?

How many households are headed by women?

Single mothers head up the household (perhaps around 5% of the community), otherwise men head the household (despite matrilineal inheritance of land).

Who owns property and homes?

Land and properties are owned by clans, through the woman's line (matrilineal)

Who controls the household income?

Women manage the household finances but men still control the income of the household. Most men and women keep their money separate.

Which decisions in the home do men and women typically make?

Women make requests, but men tend to have the final say on all decisions.

Which decisions in the community do men and women typically make?

Committees in the community tend to make the decisions, so depending on who is involved in the committee (whether it's men or women), is who makes the decisions.

What level of education and/or training do men and women have?

Usually to grade eight or so (up to secondary). Mostly it's men who go on to tertiary education. Today many girls stop at grade ten to help their mothers at home.

Influencing Factors (what are the social, political and/or economic situations that explain the answers to the above questions? What are cross-cutting issues?) E.g. Why?

How does distance from the mainland affect the above said issues, particularly in relation to travel?

Transportation is expensive due to fuel and dinghy costs, so to sell wares and send children to school off the island is an expensive exercise.

Interview with an individual resident (female)

Health

Are there any dietary issues relating to health on the Island, as far as you are aware?

Not aware of any.

What is the typical daily meal (breakfast, lunch, dinner?)

Breakfast: Grilled banana, tea, biscuits from the store. Lunch: Tapioca, potatoes, yams, Ibica greens, chilli leaves. For dinner it is usually the leftovers from lunch.

What is child bearing age on the island?

Over 18, however it used to be over 30 + because women were not engaged until 25 or so, and then there was a lengthy courting periods before marriage. Nowadays mobile phones are causing children to be out of control, and they fall pregnant and get married earlier.

How many children are there on average in every family?

Mostly 4-5

Education

What is the general level of education reached on the island?

Grade 10, although some go to 11 and 12

Livelihoods

What are the livelihoods of Ware people who are living off the island?

Teachers, technicians, sea men (employed by Star ships and other big shipping companies), medical nurses, some are in the mining industry.

Are there any skills that the island really needs?

Carpentry, boat builders, plumbers

What type of training would men and women of Ware benefit from?

Fisheries and marine training, for proper export. Human resources training and general motivation of people, managing small businesses and cooperatives.

What percentage of Ware families receive remittances from relatives living away from home?

About 20%

Financial Management

What is the average earning level of people in Ware?

300-400 kina per year (this seems extremely low, cross check). During Beche de Mere times, people could earn upwards of 2000-3000 kina in one day.

Major sources of income (generally)?

- Baking goods and selling them
- Mustard, beetlenut, lime
- Cigarettes
- Clay pots
- Fishing

What are your major expenditures?

Rice, sugar, tea, kerosene (people own their houses)

What are the sources of finances (as a community)

Some Ware families have savings, which they need to use to pay for school project fees. If there are no savings, people will look to sell pots, bake food to sell, go and fish for crayfish etc. Sometimes these items can be directly sold to the school, in exchange for school project fees paid.

Mothers keep control over the money, and also control the surplus food of the household.

Food Production

What is the most common type of garden on Ware? Why?

Mounds, tapioca, banana, yams. The type is according to what can be done on the land, in accordance with the way it is divided up by the clan.

Staple foods?

Yams, bananas, tapioca

What is the average garden size?

Approximately 10 x 10 metres, but this depends on the clan

What is the major source of food for the household? E.g. gardens, store food etc.

Definitely the gardens.