



REPORT ON THE STATUS OF VILLAGE COMMUNITY & AGRICULTURAL PROJECTS IN PAPUA NEW GUINEA



Report prepared by Charlie Lynn
Director, Network Kokoda
Network Kokoda
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www.networkkokoda.org

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7 August 2013

Network Kokoda

Network Kokoda is a not-for-profit organisation established to honour the legacy of Papua New Guinean Wartime Carriers.

The organisation subscribes to the principles developed by the PNG Department of Community Development which, according to former Minister, Dame Carol Kidu, is based on local communities working together to develop sustainable initiatives which generate income to invest in their future.

Organisation

Network Kokoda is registered in Australia and Papua New Guinea.

The Australian body is chaired by Brigadier Phil McNamara AM (RL). The Executive is Lieutenant Colonel Rowan Tracey (RL). Both served as officers with the Pacific Islands Regiment during their army careers and are fluent in Tok Pisin.

The PNG body is chaired by Major Charlie Lynn (RL). The Board of Directors includes Dame Carol Kidu, former Minister for Community Development; Brigadier Ken Noga, former Chief of the PNG Defence Force and High Commissioner to Australia; and Marianna Ellingson, Secretary to the Office of Tourism, Arts and Culture.

Network Kokoda engaged the services of Mr Sandy Lawson BSc (Agric) as a consultant to engage local community leaders in the Sogeri area and report on the proposal to develop Agricultural Learning Development Centres in the area. Mr Lawson has more than 25 years experience in agriculture in PNG and is fluent in both Motu and Tok Pisin.

As a result of Mr Lawson's recommendation Network Kokoda engaged a recent graduate of the Popondetta

Agricultural College, Mr Oggie Erehe who was born in Kokoda and has a diploma in Tropical Agriculture from the University of Natural Resources and Environment in Popondetta.

A list of Directors is attached at Appendix 14.

Agricultural Learning Development Centres

The major challenge in bringing communities together is encouraging local people, clans and communities to work together. This is the most difficult phase and involves much discussion, many meetings, mutual obligations, partnerships and a path to local ownership.

Network Kokoda is therefore establishing a program of Integrated Community Agricultural Learning Centres on the Sogeri plateau. The program involves a series of carefully structured workshops and activities designed for high impact within chosen target production groups. Two experimental groups were initially selected to trial the process and fine-tune the techniques.

By such an integrated learning approach we sought to enhance the ability of participants to cooperate with each other for mutual benefit.

The aim of the project is to produce more knowledgeable and 'emancipated' farmers capable of making their own farming decisions about their own commercial activities. The learning is therefore sustainable and ongoing, and not dependent on a continuous intensive input from an agriculturalist.

Work with the schools is designed to awaken the students to the possibilities of agriculture as an enterprise and a means of making a good living, rather than something that grandparents and parents used to do, and not something that modern young people do.

Network Kokoda established its first partnership with the Sogeri National High School in 2011. The Headmaster, Mr Benny Rayappan, agreed to provide accommodation for the Network Kokoda Field Officer, Mr Oggie Erehe, and three hectares of land for a market garden.

The market garden has now been operating for 12 months and provides fresh produce for more than 400 boarding students. It also acts as a 'magnet' for the community who are also provided with fresh produce provided they agree to work in the garden on a voluntary basis.

We have since established a partnership with Iarowari High School. The Headmaster, Mr Andrew Moava, advised that the school's vision for agriculture is to *'Instil in students the appropriate knowledge and skills in agriculture so they become competent, productive and self-reliant citizens'*.

Mr Moava has developed a corporate plan to have Iarowari High School transformed into an agricultural college within five years. Network Kokoda will be a key partner in assisting with this transformation.

Reports on the development of the Network Kokoda community agricultural programs by Mr Sandy Lawson are attached at appendices 11, 12 and 13.

Following is a recent extract from Mr Oggie Erehe's report regarding the process he is using to engage the local community:

'In general there are some individual farmers who are intensively carrying out family projects which is a way forward for some members of a community to take as an example. With the input of Network Kokoda, people are realising the importance of a sustainable, self-reliant livelihood based on an integrated agriculture farming system.

'Our main focus within the next month is to monitor the progress of the actively involved community groups on how well they are performing; in this course they are able to identify their strengths and weaknesses, to understand the importance of decision making, know the different management practices involved and what risks are to be taken in order to be a successful farming community.

'It will be a slow process over time and hence will be effective only with patience and commitment towards each community due to the fact that everyone has different views and opinions. The difference will be made by those who had taken ownership of the available resource they possess and are willing to exploit.

'For communities such as Kailaki and Magere, they have set up their farming committee therefore we will be committing ourselves to assist them meet their objectives. We will be using them as examples toward the other communities. There will be a few recommendations for project assistance to the Network Kokoda management on behalf of necessary community groups'.

Agricultural Outreach Program

The Sogeri and Iarowari High School market gardens act as a 'showcase' to introduce local villagers to our outreach program.

Network Kokoda advises those who wish to develop gardens in their own villages of their outreach program to assist them. The Chief Field Officer, Mr Oggie Erehe, facilitates village meetings and advises that Network Kokoda will provide a seed nursery, seedlings and technical advice. The villagers must provide land and local labour.

Mr Erehe has developed the following calculations to inform villagers of the value of the first cycle of production for small village plots:

Plant Density calculation

Crop: - Pak Choi

- Length of Plots: 6m
- Width of Plots: 1.5m
- Area Per plot: 9m²
- Row Spacing- 30 cm
- Plant Spacing- 30 cm

Calculation for Length and Width of Plots:

1. Using the length of the plot to calculate the number of plants per row:
 - No. of plants = $(6\text{m} \times 100\text{cm}) / 30\text{cm}$
 - = $600\text{cm}/30\text{cm}$
 - = 20 plants per row
2. Using the width calculate the number of rows per plot.
 - No. of rows = $(1.5\text{m} \times 100\text{cm}) / 30\text{cm}$
 - = $150\text{cm} / 30\text{cm}$
 - = 5 rows per plot

Calculation for Plant Population:

1. Plant population = 20 plants per row x 5 rows per plot
 - = 100 plants per plot
 - Cycles = 100 plants x 1 cycles (depending on # of cycles farmers plan on)
 - = 100 plants
2. Total number of crops:
 - = 100 crops per plot x 5 plots
 - = 500 crops
3. Allowance for loss and damage (% loss = 10%)
 - Loss & damage= $500 \times (10/100)$
 - = 500×0.10
 - = 50
 - Total number of plants remaining:
 - $(500 - 50) = 450$ Plants
4. Estimated income for the farmer for the first cycle of production:
 - Total number of plants x average price (K2.00)
 - = 450 Plants x K2.00
 - = **K 900.00**

Village Community Centres

Village Centres are areas when local villagers can meet, learn and work together on projects for their local benefit. Network Kokoda assist in the development of these centres by providing building materials, furniture and items (sewing machines, material for clothing, etc) which they identify in workshops with our Chief Field Officer.

Partnerships

Network Kokoda has established partnerships with the PNG Department of Community Development; the Sogeri National High School; Iarowari High School and the Koiari Rugby League Association.

Current Projects

Agricultural Learning Development Centres

Agricultural Learning Development Centres have been established on the Sogeri Plateau at:

- Sogeri National High School – see Appendix 1
- Iarowari High School – see Appendix 2

Village Outreach Program

Village farming projects have been established at:

- Vesilogo Village – see Appendix 3
- Magere Village – see Appendix 4
- Agarodei Village – see Appendix 5
- Kailaki Village – see Appendix 6
- Doe Village – see Appendix 7
- Bisiatabu Community School – see Appendix 8

Village Community Centres

Network Kokoda has provided funding for villagers from Abuari to build a local Community Learning Development Centre. The centre has eight sewing machines which are used to make 'meri dresses' for use in the village and to sell at the local market in Kokoda. The centre also has a large range of cooking pots which are used to prepare meals for trekkers, guides and carriers. See Appendix 9

Community Sport

The Koiari Rugby League Association has recently been re-established to provide an opportunity for young people to participate in their national sport. Their objective is to create an organised entity to organise, facilitate and develop the game of rugby league in the Koiari community. The Association is affiliated with the PNGRL.

Network Kokoda has recently provided a donation of K6400 to support their selection trials for Central Province. The Association has agreed that local players will work in the garden projects at Sogeri and Iarowari High Schools and attend one class per week conducted by the Chief Field Officer.

Network Kokoda has agreed to provide further support in upgrading facilities at their local field and to assist the eight local teams with sporting gear. This support will be conditional on their support to local agricultural projects.

See report at Appendix 10.

Summary

The recent expansion of the PNG economy has created significant opportunities for subsistence farmers on the Sogeri Plateau. It also provides an opportunity for students at the Sogeri and Iarowari High Schools to consider agriculture as a career rather than as a subsistence necessity. With the positive support of both headmasters, Mr Benny Rayappan and Mr Andrew Moava and our Chief Field Officer, Mr Oggie Erehe, Network Kokoda has been able to assist in developing 'showcase' Agricultural Learning Development Centres to encourage students and local villagers to improve their knowledge work together in this field.

We are grateful for the financial support we have received from the PNG Community Development Fund, our many Australian donors who have trekked across the Kokoda Trail and our foundation sponsor, Adventure Kokoda.



Charlie Lynn

Director

Attachments:

1. Report on Sogeri National High School Agricultural Learning Centre by Oggie Erehe
2. Report on Iarowari High School Agricultural Learning Centre by Oggie Erehe
3. Report on Vesilogo Village Farm by Oggie Erehe
4. Report on Magare Village Farm by Oggie Erehe
5. Report on Agarodei Village Farm by Oggie Erehe
6. Report on Kailake Village Farm by Oggie Erehe
7. Report on Doe Village Project by Oggie Erehe
8. Report on Bitsiatabu Community School by Oggie Erehe
9. Report on Abuari Community Centre
10. Report on Koiari Rugby League Association by Oggie Erehe
11. Report on Eight Week Fact Finding and Planning Trip by Sandy Lawson
12. Report on Agricultural Assignment based at Sogeri National High School by Sandy Lawson
13. Report on Community Agriculture by Sandy Lawson
14. Network Kokoda Board of Directors

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Report on the Sogeri National High School Agricultural Learning Centre

Oggie Erehetonz Dip Tropical Agric
Chief Field Officer
Network Kokoda



Network Kokoda established its first partnership with the Sogeri National High School in 2011. The Headmaster, Mr Benny Rayappan, agreed to provide accommodation for the Network Kokoda Field Officer, Mr Oggie Erehetonz, and three hectares of land for a market garden.

The market garden has been operational for 12 months and provides fresh produce (*pak choi (cabbage)*, *wongbok*, *saladeer*, *carrots*, *peanuts*, *snake beans*, *dwarf beans* and *aubika*) for more than 400 boarding students. It also acts as a showcase for the community who are also provided with fresh produce provided they agree to work in the garden on a voluntary basis.



A key objective of the project is to encourage students to study agriculture and create an awareness of the business and career opportunities in this field. Students are required to work in the garden one day per week.

Another objective is to provide an outreach program to assist villages on the Sogeri Plateau to develop their own gardens in partnership with Network Kokoda who provides a seed nursery, seedlings and technical assistance via the Chief Field Officer.



Report on the Iarowari High School Agricultural Learning Centre

Oggie Erehetonz Dip Tropical Agric
Chief Field Officer
Network Kokoda



Iarowari High School has four large land areas available for agriculture, a poultry house and two fish ponds. These have all been abandoned because of the difficulty in preventing pilferage from the local community. Network Kokoda has agreed to provide fencing at a cost of K12,000 for each area to protect each area and to conduct workshops aimed at involving the local community in the development of the various projects.

The school currently has three qualified agriculture teachers responsible for teaching eight classes in grades 9 and 10. Their aim is to 'instil in students the appropriate knowledge and skills in agriculture so they become competent, productive and self-reliant citizens'.

The immediate aim of our partnership with the Iarowari High School is to have a well established farm capable of providing fresh vegetables for boarding students in 2014 and to assist in the provision of resources to help them achieve their aims in agriculture.

Report by Oggie Erehe, Chief Field Officer:

The Iarowari high School project is underway with land clearing and preparation. The agriculture department is actively involving the students in this development as it is part of their assessment and so within the next month most of the land preparation will be completed. With this school terms goal "self-reliance through agriculture ", the new headmaster has implemented the plan and the school is kick starting their project. We are stepping in with the agriculture department to have it in place in the best interest of the students learning. The next phase will be planting of a variety of annual crops. The other two projects that will also be considered for development include Poultry and Fishpond establishment.



Poultry Production

The state of the poultry house is in a good condition, it only needs a little modification in regard to the temperature control as well as pan separation for the day old chicks when they are housed. Equipment and Materials for the poultry production include; day old chicks, feeding troughs, water troughs, lamps, feeds - poultry starter and finisher, and other necessities. The School will meet the cost of this equipment.

Fish Pond

With the existing fishpond in place, there is a great potential in the production of fresh talapia (Super Talapia). We had proposed for a separate breeding pond for the fingerlings to be placed in. An area has been marked out and in the process of establishing the ponds, they will need fencing. (Estimated Fencing Quote for Fish pond and Farming area has already been submitted by Mr Warren Bartlett)

Local Fish Farmer (Super tilapia)

I had identified a certified local fish farmer in Mr Jonah Oga. Mr Oga is one of the leading fish (Super Talapia) farmers in the Southern region and currently is the manager of his fish farming business up in the Sirinumu Dam. The National Fisheries Authority works alongside him in funding his project and has assisted him gain his qualifications as certified facilitator for workshops to individuals who want to venture into fish farming. As a certified person and the resource available with NFA, it will be more effective if the Iarowari High School and Network Kokoda approach him to be involved in this project development. He had approached the school administration last year proposing to run the fish pond project, utilizing the pond to supplement the school mess as well as a school project to generate some money as he knew most of the markets available, however, there was no response then.



Report on the Vesilogo Village Farm

Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



On Wednesday the 17th October, Dick, Abel and I took a visit to the proposed Project site at Vesilogo Village and did a general survey of the land area that the community members had allocated for their farming activity as well as a brief discussion with some of the leaders.

Summary

A General discussion regarding Project Scheduling and general community status was expressed pointing out the positive input of the project. Present were 3 of the community members namely;

1. Mr Benny Sisi,
2. Mr Simon Iavana,
3. Mrs Loloi Moumu, and
4. Mr Anderson Jacob.



Vesilogo under Ward 6 of the Koiari Local Level Government has a population of more than 400 people. There are about six (6) Villages which are distributed on different areas especially on small hills overlooking each other.

Cash crops from the late 90's

In terms of cash crops, in the 1990's the villagers earned most of their income from crops namely pineapple and ripe banana, also surplus vegetables such as kau kau and cassava were also marketed. However, during the period of farming most gardens were being continuously destroyed by wild pigs and it was such a hard work in terms of labour in constructing fences for the whole gardens. This meant that the mode of cash crop farming changed over time.

Ginger as the main Cash Crop today

In the early 2000, almost all villagers shifted their cash cropping to ginger as their main income crop until present as it had a very high income return to them. When demands are high a 50kg bag of ginger sold at the main market at Gordon can earn K600 – K800, the so called “one Kina bag” when sold earns about K400. Average income earned in a year depends on the size of the gardens; the bigger the garden one earns K5, 000 – K10, 000 annually, the smaller

the garden K4, 000 – K5, 000 annually. Apart from the damaged caused by pigs to other crops, the wild pigs do not eat ginger therefore; the farms are laid out openly without fencing. The work also requires more labour input.

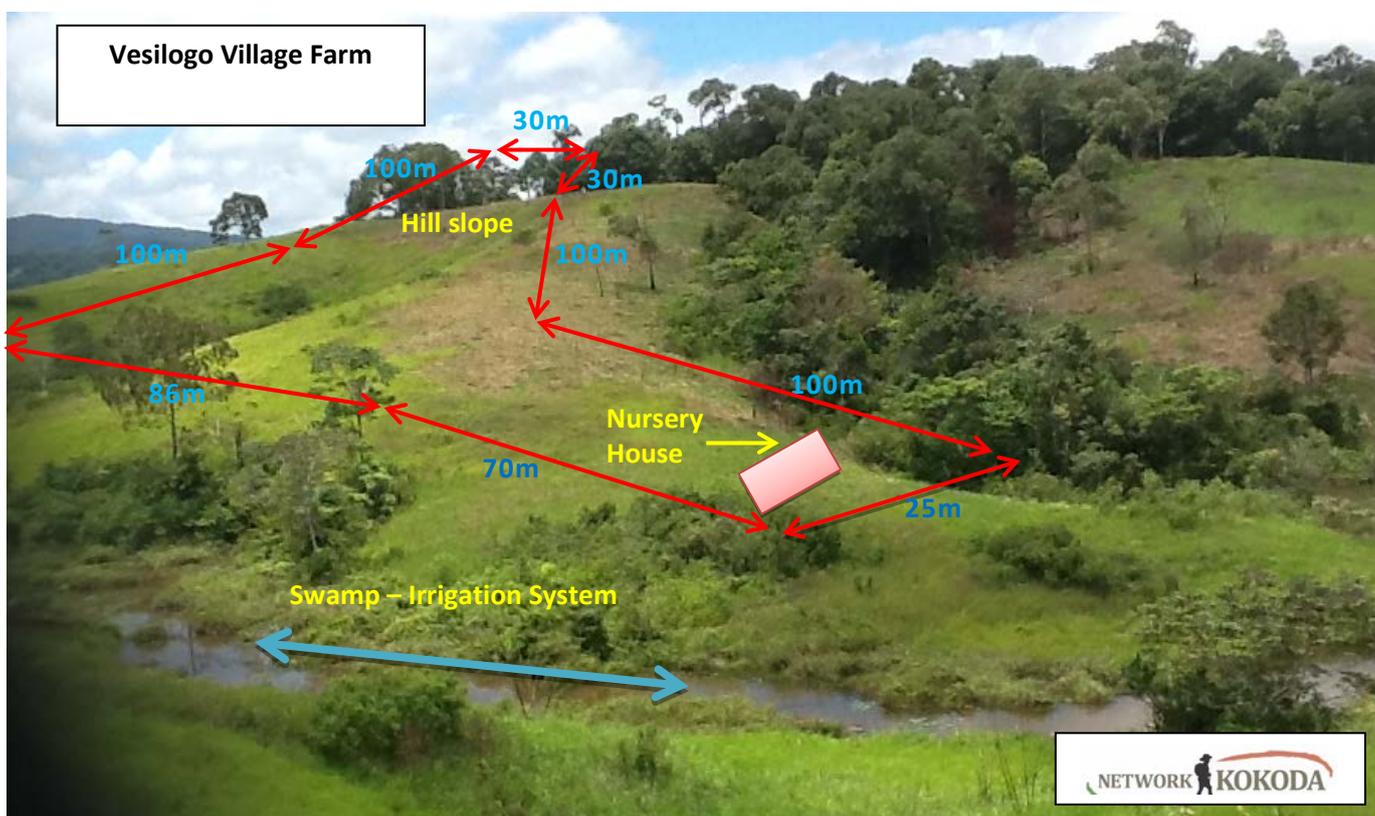
Network Kokoda Projects; a way forward

On behalf of the community the members acknowledged Network Kokoda and were grateful about the initiative and saw it as a way forward for sustainable development for their livelihood. This was stressed by Mrs Moumu. The interest and needs by individuals for such development is present within the community and so with continuous awareness and programming it is very likely that the whole of Ward 6 of the Koiari Local Level Government will actively partake with a sense of ownership with the fact that most members of the community are very cooperative. Therefore, the Community Learning Development Centre and Agriculture Farming were the way forward.

Site Survey - Agriculture Farming Project and Community Learning Development Centre (CLDC)

We were assisted by a local farmer and leader, Mr Benny. The thorough survey of the land area included general marking of the site with 1m sticks every 100m using a tape measure.

The photo below shows the view from a distant of the site which is on a sloping hill. Also are the labelled dimensions. I am yet to calculate and give an approximate total land area due to the fact that part of the area is on a small hill, thus a GPS machine should be handy for such in giving an accurate measurements and the total area. However an estimation of the arable land should be more than 2 hectares to start off with.



As the vegetation is partly savannah grassland, the soil is sand loamy and fair thus overtime the decaying grass and kunai had added humus to the soil layer. More to the advantage is the availability of water from the nearby swamp that can be utilized for the irrigating system.

A nursery site was also marked out with dimensions of 10m x 5m closer to the water source.

Project Programming Meeting

With the land survey been done and arable farming land marked out as well as nursery house area, the next immediate step that the leaders present planned out was for the community leaders to organise a meeting for the

Vesilogo community before the end of next week so with their discussion they would plan to make available their time for the project set up.

Farming schedule

It is planned that after the meeting with the community, work will kick start with the first phase of the farm project.

First Phase – LAND CLEARING AND PREPARATION

(After the First Phase we continue with the next Phases)

The Nursery house will be constructed utilizing bush materials with a design similar to the NARI Trial building. Other materials apart from the bush materials that will be needed are:

- Shade Cloth
- Nails (2, 4, & 5 inch)
- Tie wire
- Seed Trays
- Seeds
- Watering cans

Community Learning Development Centre

During the meeting the Community will decide to make available a land area for the CLDC. It is most likely that the CLDC will be in the central location of the Vesilogo village where an Elementary Classroom is been proposed to be built. We took a walk up to the village and had a chat with two of the community members and therefore they are looking forward to their meeting where they can discuss with rest of their members. This will be the ***First phase for the CLDC project for land allocation***. From a general view of mothers in community, this will be the answer to most of basic needs of women especially who play a major role in family upbringing and that they are eager to learn new training skills and broaden their knowledge that will be replicated to each other to sustain themselves in the long run.

Committees for the project

I suggested for the community to set up a committee for the Vesilogo Project so as to take the lead in the project establishment so every individual takes up responsibilities for a sense of ownership. In the process we will provide all basic technical advice to accomplish set goals.

The update of the community meeting regarding the Project will be submitted to you as soon as possible when the meeting is done and minutes handed over by next week.

Report on the Magere Village Farming Project

Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



25 July 2015

First Phase of Farming

The Magere Community are very eager to venture into green vegetable farming and are therefore working hard to establish the community garden. We had assisted with varieties of seeds, seed trays, gardening tools to help establish the garden. Further assistance involved the purchase of;

- Water drums - large (200L)& small 20L
- Watering can – 2 x 8 litres
- Buckets – 2 x 15 litres/1 x 20 litres
- Pesticide

Tasks that had been done include;

1. Nursery House

a nursery house has been built utilizing bush materials to have seeds grown in as soon as possible. With already four months gone, this means that if they are to fully establish the garden then there will be another two(20) cycles of fresh vegetables to be done consistently.

2. Seed sowing

a variety of seeds sown some two weeks ago include pack choir, Wong book, balladeer, green boy. Within the next 2 weeks they will be transplanted out on the field.

3. Seeds Planted

Apart from the seeds sown there had been some other crops planted such as pumpkin & watermelon. It all comes to the farmers to have the choice of what they want to grow as a sustainable crop for their family and the community as whole.

4. Plots

Most of the labour is done manually therefore the progress is at a slower pace. There was a brand new tractor with an implement, (plough) bought by one of the clans within Sogeri and was put on hire with a higher rate of K200.00/day. However, the community was late to hire it to plough the farming area up as it is been used outside of Sogeri at the moment.

5. Soil Type

With the aid of a simple soil tester, I was able to do some simple soil test just for further reference so later there could be a proper recommendation of particular crops (annual and perennial crops) to be established in the long term.

Mr Dick Lulu has been in charge for the Magere Community Garden for the past months and had seen an improvement with the outcome. Community leaders in Mr Rex and Momma Koori are doing their best to get their gardens improved for production. General participation is not to the level as mentioned due to the LLG elections. This has saw only Mr Momma Koori and a few members maintain their commitment. This paid off with some of the

produce brought into the local market for sale. An amount of about K100.00 was earned. The next thing is to increase production, thus group of boys will be engaged to manually plough up the soil.



A bag of NPK fertilizer was brought over to the garden to improve crop performance. Crops that are grown for the next cycle of production include balladeer, Pak choir, Wong book and ball cabbage.

Our assistance is present and thus it is rest of the community who have to take ownership of the project. With that I am continuing to encourage leaders such as Mr Momma to work hard so others will follow. With Momma's leadership other members are helping out in the garden and he has spoken about his next plan of establishing Poultry project should he be successful with the green vegetable project.

Factors Affecting Production

Apart from other factors, those listed below are the main influence within the settings of the Magere community farm:

1. Soil

With Magere at the mid-altitude part of Sogeri, the vegetation is grassland and thus the management of the soil needs to be maintained to avoid the soil from becoming too dry. The farmers had made a request to assist them with some bags of poultry manure but so far we had not gone to the Poultry farm to pick up manure.

2. Irrigation

Over the last month there has been no rain and this has become the concern of the farmers. Our assistance with drums and watering cans has helped made the work lot easier for the farmers to irrigate the crops.

(Generally I am planning to seek some advice on NARI on the simple irrigation innovation that can be utilized in such mid-altitude areas where water source is present but the process of bringing it to farms for irrigation is not efficient.)

The community had no reports of insect attack on crops. We will continue our assistance with seed varieties that they want.

Report on the Agarodei Village Farming Project

Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



25 July 2013

Agarodei is a proposed farm site and is situated some 20 minutes drive from Sogeri station up towards the Sirianumu dam. The farm project is a family initiative spearheaded by Mr Fleming Toina who is a retired employee of Dekenai Construction. He has been employed by Dekenai Construction engaged with Ok Tedi Mining for about 13 years. He made up his mind and quit his job and is now back home in Sogeri with one thing in mind, "Work the available Land for a sustainable living". He has challenged the members of his community and is taking the step ahead by involving the members of his family. Mr Flemming meet me some three (3) weeks ago and was briefed about Network Kokoda; with that he shared his interest and plans he had in venturing into an agriculture farming project.

Through their request, I took a visit to the Farm site on the 21st June to check out their progress.

Without any delay they had progressed well doing most of the land preparations which is of course one of the difficult stage part of any project. They had taken the initiative by meeting most of the cost of establishing the project. The organised activities for the project preparation at this stage include clearing vegetation (by hired rugby league sporting club), ploughed field (by hired tractor).

Other tasks that are pending include plot allocation for different varieties of crops, nursery house.

The plan for the farmers is to have an integrated farming system that will produce a mixed variety of crops at a small scale where most will be for sale at various markets. As said, the flat area will be utilized for fast maturing and or green annual vegetables while the hills will cater for perennial crops.

The assistance of network Kokoda will be needed as much as possible as this was stressed by the farmers.



Fig 1: Farmers - Mr Fleming and Mr Kunia on site doing some vegetation clearing

Land clearing and preparation

The project site is on grassland land and has been fallowed for many years and thus is rich in organic matter (humus) and has the potential for a high yielding of crops in production. Vegetation clearing was done manually where the farmers engaged a local rugby league club (Donadabu Eels Rugby league Club) as a means of club fundraising where some amount of cash was paid to the club.

Tractor hire

A tractor and implement was used for ploughing the cleared land. The rate of tractor hire for the job was K25/m. The total cost for hire of the tractor was about K1600.00. Cost of hire was reduced with an understanding that they help the farmers so later when they are in production and need expansion of the farming area then a fixed amount for hire will be charged.

Farm setting

Irrigation

The farm is situated on an ideal spot where irrigation will not be a problem. A fresh stream flows just next to the farm site. To utilize for maximum production there will be a need for a water pump. A little hill stands adjacent to the garden and the stream therefore is a potential spot for a tufa tank (about 500L) to be erected for efficient irrigation.

Seed supply

We will be supplying most of the seeds for the establishment. Crops to be planted include green vegetables; pak choi, saladeer, wong bok, lettuce, aibika, ball cabbage, carrots, brown onion, sweet corn, tomatoes, cucumber, water

melon, capsicum, sweet potato, pineapple. The farmer has bought himself some seeds from Brian Bell Hardware but asked Network Kokoda for further assistance.

Planting of some crops is scheduled for the following week.

Nursery site

Farming area (about a Hectare)

Nursery House Establishment

At the moment a nursery house has not been erected. They had been advised on the type of nursery building to choose from; one using shade cloth or utilizing bush materials (sticks and kunai grass). As advised, materials for an advanced nursery house will include shade cloth, trays, and nails and even timbers to build which can add to some costs. On the other hand a simply built nursery house can be built using bush materials such as kunai grass, twines, bamboos and sticks and will not require any cost hence will be the same shelter as an advanced built nursery house. A site for the nursery house has been selected which is ideally next to the flowing stream and will be built this week.

Perennial Crops

Apart from annual crops, the farmers had planned to grow perennial crops such as fruit trees namely guava, citrus and other available trees on the slopes and hills. Citrus has never been tried out before. Therefore the farmers have requested if we (Network Kokoda) are able to assist them with quality hybrid citrus which can be utilized on the hills. (We will consult NARI for available fruit tree seeds etc...)

Crop management

Pest and disease control

With the nature of the farm which is a small scale intensive farming system, there is risk of disease or pest infestation on the crops. On the other hand it is a new site and therefore will be an advantage as some pests will take time to adapt to the farming system within the first few months whereas some such as rats and birds have the area as their habitat therefore an extra measure on management will be assessed. Network Kokoda will assist in providing insecticides and giving some advice on some management practices.

Summary

This farm project is very vital for community development. With the recent visit to a few communities along the Sirinumu Dam Road, there is a great potential for the people to develop such farming systems; however a careful plan has to be carried out to make known the importance to the people. Most communities have mini pineapple farms and are more confined to such production as it is a season crop that earns an income but can be integrated with other potential cash crops. As a respected leader, Mr Toina and his farmers are leading by example within their

community therefore it is important that Network Kokoda take the approach of assisting such initiatives intensively for the first phase of production so the farmers will have to evaluate themselves based on the outcomes. Believed

Update: 1 August 2013

Apart from other visits carried out on farmers, this particular farming project is well planned as a small scale intensive farming system as production gets underway. The assistance of Network Kokoda will do a difference for such community development initiatives therefore there will be some recommendations on various materials needed for assistance of the establishment of the

In regard to the last report that was submitted to you, the Agarodei farmers had gone ahead with planting annual crops such as sweet potato, corn, cassava and other annual crops. The farmers had not yet set up their nursery house therefore I had not given them their vegetables seeds that we purchased due to the fact that it is a large farm and therefore all necessary preparations be done before valuable cash crops are established in the farm.

Factors that may affect Project.

As a new farming project there may be downfalls and hardships faced. I had advised the farmers on the importance of proper planning and evaluation before coming into production and they were able to express some factors. With their initiative, they had spent almost K1700.00 on tractor hire and tools as well as labour. They had not gone ahead with the next phase of production.

1. **Irrigation** – Fresh flowing river is ideally available for irrigation; however a plan has to be worked on how best the water can be acquired from the nearby river to the farm to irrigate the crops. **(Same situation as Magere community farm)**. The farm has no basic irrigating materials such as buckets, watering cans, drums (44gallon). With that factor, only the other hard annual crops had been established on the farm.
2. **Fencing** – fencing is also a main concern to protect the crops from main animal pests such as pigs and wallabies. The only concerned area that needs to be fenced is only one part of the length and width which measures an approximate total of about 500m. The other length and width of the farm faces the river therefore is protected by the river.

(I had informed the farmers my willingness to assist them write up a proposal for a water pump and other necessary materials)

This particular farming community has the potential of producing quality and palatable fresh produce unless all necessary production resources are available (i.e. proper fencing and irrigation.)

As it is a customary land, in the process of establishing annuals, the sloping hill-sides can be utilized with other perennial crops. This will eventuate when all the annuals are established on the prepared land.

Report on the Kailake Village Farming Project

Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



25 July 2013

So far were three visits done to the Kailaki farmers comprising of five (5) individuals and their families. During the visits there was awareness's and open discussions about ways of improving their livelihood based on sustainable agriculture practices. The challenge was given to the people to take ownership and respect on what was best for them.

Unfortunately out of the five members, three of the farmers are not actively involved in their proposed plans. The two committed members had gone ahead in starting up there garden plots. They are in their second cycle of production with supplied crops such as pak choi, wongbok, saladeer, Capsicum, and tomatoes.

One reason for the drop in interest is due to lack of visitations that I carried out. As mentioned, I only carried out three fortnightly visits which was not adequate as most of the time they worked on their own. With the understanding that it is a first contact with such organisation, most people are eager to have us on site to supervise their progress.

Production

First cycle production.

The two farmers did their first cycle of crops and below is an evaluation of their production.

Mr Roy Kone produced five plots of fresh quality cabbages; this was his calculations for his estimated income if he was to market the crops at the local market at Sogeri.

The second farmer; Mrs Molua produced three plots of cabbages (pak choi); her plots were 1.5m x 3m therefore her estimated income from the sales would be K270.00.

Unfortunately, this did not eventuate and overall the farmer made a loss. One of the most important factors that contributed to the loss was the lack of communication with us. With the Local Level Government Elections on, their communication with us was interrupted as we were unable to assist organise transportation and marketing.

Therefore, the farmers took the initiative to sell the produce at a lower price (K1.00/crop) to the community. From the sales back at their village, Mr Roy Knoe was able to earn about K200.00 and Mrs Molua earned about K60.00. Some of the surpluses were consumed by the family members.

Second Cycle Production

From the first cycle, the two farmers are enthusiastic to improve their production and had somewhat evaluated the skills mainly in:

- Planning and scheduling their production
- Propagation practices
- Basic management practices regarding their garden production
- Understanding different crop physiology in order to maintain a consistent production

Apart from their daily chores, the farmers are working on their gardens mainly to increase their production. They have crops at their nursery houses ready for transplanting by next week.

At the moment one of the farmers; Mr Roy, has 3 plots of cabbages (pak choi & saladeer) ready for harvesting. To assist in his marketing, I had consulted the Sogeri National High School and the school will be buying the produce. I had organized to transport the produce to the school by today (2/08/2013) so he will be able to sell his produce to the school.

Factors Influencing Production

1. **Seeds** – with the nature of their production, we will continue to assist them with available seeds for the second cycle. Some of the seeds were not tried out at the first cycle therefore will be utilized in this cycle. Seeds that are available include pak choi, saladeer, tomatoes, capsicum, hybrid Chinese cabbage, and ball cabbage.
2. **Irrigation** – the location is ideally close to a flowing river thus makes irrigation a lot easier especially for the nursery crops during dry weathers. Buckets are used fetch water and then small tins are then used to water the crops. Drums (44gallons), plastic buckets and watering cans will be efficient and convenient for their work.
3. **Pest/insect Infestation** – during the first cycle, there was less infestation of insects therefore no form of insecticide was applied on the crops. Only a few especially grasshopper were noticed recently therefore will

be taken into consideration. The Knapsack using steps has been introduced to the farmers so they will be able to mix the right amount of insecticide to apply to their crops.

4. **Soil** – no soil -tests were carried out on the farming area. Generally, the soil is fertile and all crops are able to adapt. Only the kunai grass vegetation that was cleared is a bit drier for the rooting system of some crops. A few manure that was available from a poultry shed was applied to the soil to improve crop production; good initiative by the farmers.
5. **Nursery** – all farmers had mastered this stage and have the knowledge of basic steps involved in the nursery phase. In their own production, they will be able to develop different innovative ideas based on their day to day evaluations of how different crops are performing. Most nursery houses were built utilizing bush materials. A more complex roofing system using shade cloth (greenhouse) compared to kunai grass will be convenient as stated by farmers due to the heavy drops of rain into nursery house during wet seasons.

From these factors, farmers are able to evaluate the need for them to create their own expense budget to cater for their production. Materials and equipment such as seeds, watering cans, drums, are essential and thus their second cycle of production will aid in acquiring some of the materials.

The few committed farmers had done a great difference within their community. In the process of their production, the other villagers were surprised to see the outcome of how well their counterparts were going especially the quality of the crops was outstanding. This is a perfect example of replication within a community.

Report on the Doe Village Community

**Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda**



1 August 2013

From the last two visits (One with Mr Sandy Lawson) to Doe village there has been no form of progress. This was due to the fact that there was agreement that a central community project be done then later individuals can start off their own projects. The community was eager but however there wasn't good leadership towards the set up committee by the former councillor; as a community leader, he wasn't present in the village therefore the communication between us was broken for more than 5 months.

However, members of the community had individually come up to seek my advice on their interest in improving their farming practices especially for production. So far seven (7) farmers (4 women & 3 men) had sought my advice and assistance for seeds and insecticide.

With LLG elections in place Doe village in Ward 9 of the Koiari LLG has a new councillor in the form of Mr Oga Erehe. The councillor has had some time to talk to me on establishing a community project as in a farm project or setting up of a Community Learning Development Training Centre (CLDTC). He has expressed his interest in working closely with Network Kokoda to help develop the community sustainably.

Report on the Bisiatabu Community School

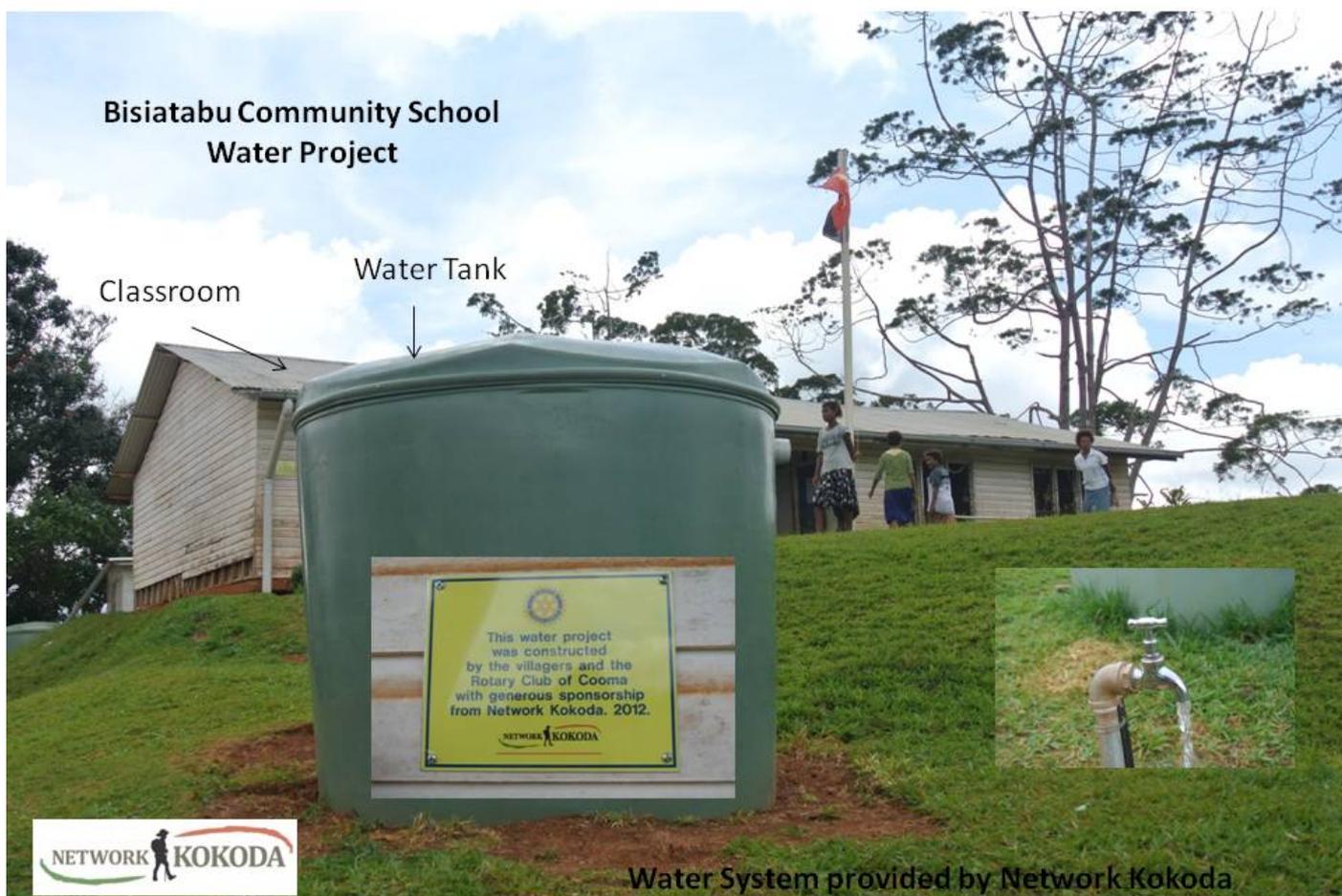
Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



Bisiatabu Community School Agricultural Project

Bisiatabu is the location of the first Seventh Day Adventist Church in Papua New Guinea. The community has a school which has received books and supplies from Network Kokoda.

Last year Network Kokoda paid for three water tanks, pipes and taps to be provided for the school. The tanks, pipes and taps were installed by Peter Davis from Adventure Kokoda. The school had been without running water for six years before this.



There was a meeting held on the 9th April regarding the school agriculture project meeting. The new headmaster is happy about the project and has proposed to do a budget for the school agriculture project. Their discussion included, construction of a nursery house-materials necessary for the building (shade cloth, seed trays, seeds and other necessary tool. The headmaster has said to bring this specially the budget allocation as one of the important agendas in the next school meeting and hence will call Network Kokoda to attend the meeting.



Abuari Community Centre

Abuari village is located on the Western side of the Eora Valley in Oro Province. Few trekkers visit the village because of the rugged nature of the terrain and the distance from the village of Alola which is located on the main trail. The area is significant because the Australian 53rd Militia Battalion and the 2/16th AIF Battalion fought to prevent the Japanese advance from Kokoda.

Network Kokoda agreed to a request from villagers to assist them to build a Community Centre as they had received sewing machines and cooking pots from AusAID but did not have an area to set them up.

Network Kokoda provided building materials, desks, chairs and dress-making material and flew them into Kokoda. The villagers then carried up the mountain and built the centre which was opened in April 2012.



Official Opening – April 2012

Abuari Community Centre



Abuari Community Centre



Report on the Koiari Rugby League Association

Oggie Erehe Dip Tropical Agric
Chief Field Officer
Network Kokoda



2 August 2013

The Koiari Rugby League Association is an affiliate of the Papua New Guinea Rugby Football League Inc. and is a recognised sporting body within the Koiari constituency for the people of Koiari in Central Province. The aim of the association is to create an organised entity to organise, facilitate and develop the game in the Sogeri area and to market local talent within the Koiari community.

The Koiari Rugby League was first established in the early 1980s but declined over the years and was wound up in 2006. It was revived again in 2010 but was wound up again in 2011.

The league has been reformed in 2013 and the official office bearers are:

- President: Mr Kaiva Warina
- Secretary: Mr Aaron Jonathon Peyikyu
- Treasurer: Mr Walo Benson Auda

According to local officials the former association was not formally registered and did not affiliate with the PNG Rugby League. It did not have any financial support and was organised by volunteers as a local recreational activity. Despite this two local players, Benjamin John and Joshia Abavu are playing for the PNG Kumuls and a number of others, Bein Abavu, Anthony Avbavu, Steve Joe and Junior Belo are playing in the Port Moresby Digical Inter-City competition.

The following clubs are now affiliated with the Koiari Rugby League Association:

1. Fasi Dunas (Eagles)
2. Hooks Tigers
3. Hydro Sharks
4. I.C.F. Panthers
5. Sirinumu Pukpuks
6. Donadabu Minas (Eels)
7. Country Choice
8. Adventure Park Keras

Competition games are currently organised at the Iarowari Sports Oval at Sogeri.

Network Kokoda has been approached to assist with the following support:

- Grand Final and Player Awards
- Two Grand Final Shields and Medals
- Match Payments for Games Officials (Referees and Touch Judges)
- Administration Funds
- Office equipment (laptop, printer, camera, etc)
- Four pair of uniforms for four referees and two linesmen
- Six official uniforms
- Water coolers
- Six whistles

- Four stop-watches
- Ten rugby league balls
- One loud hailer
- A Public Address System
- Four guard post mattresses
- Two lawn mowers and two slashers
- Official Grandstand and Shelter
- Field up-grading and maintenance
- Representative jumpers for three divisions

On 16 July a delegation comprising the President, Secretary and Treasurer met with Charlie Lynn at the Sogeri Lodge to request support for a three week training camp for local selection trials. Mr Lynn later held a meeting with the coach of the team at Iarowari High School and met the team at the oval.

The league officials and players agreed that if Network Kokoda provided food for their training camp the players would assist Oggie Erehe in the gardens at Sogeri and Iarowari. Mr Lynn then agreed to provide meals for the three week camp at a cost of K12,000. The food was then purchased by Mr Warren Bartlett in Port Moresby and delivered to the league at the oval.

Mr Erehe will maintain a roster and record the names, and times/dates that players report for work. The level of further support from Network Kokoda will be conditional on their attendance.

Network Kokoda will seek to establish a partnership with the PNG Rugby League to assist the development of the game in the Sogeri area.

As at 2 August 2013 the Koiari Rugby League is in Kwikila for the Southern Region Championships and had won their preliminary final.



Report on Eight Week Fact Finding and Planning Trip

Sandy Lawson BSc (Agriculture) Sydney
Consultant for Network Kokoda



December 2011

The fact finding trip I have just completed in the Sogeri area has been extremely valuable, and has enabled me to see the way forward pretty confidently.

Origins of Project

The Principal of Sogeri National High School, Mr Benny Rayappan, spoke with Charlie Lynn and Rowan Tracey during their second visit to the school in August. During this visit, he presented them with a plan for an agricultural project based at the school, developed by the Governing Council.

Rationale

There are three main points to note in justifying the project.

1. The Department of Education is aiming for ***schools to become self-reliant*** and to generate income from resources available to the school. The school has about 6 hectares of land available for agriculture.
2. An agricultural venture based at the school would provide much concrete material which could ***enhance the learning opportunities*** required by the new curriculum, in areas such as biology, agriculture, business studies, geography and economics. It will enhance the life skills of the students through practical learning, and show them that agriculture is not a dead-end occupation, down there with sweeping the streets, but can be highly productive and profitable.
3. Such a project is of great interest to ***local communities***. With their input, we will aim to set up a good marketing structure for Sogeri produce once again. Ultimately, the success of the venture will hinge upon the marketing structures established. Not only will such a venture employ perhaps 20 or 30 people in the future, but the whole project will be executed so as to draw the community and the school closer together.

Beneficiaries

1. The school and the students will benefit through *'live' teaching materials, enhanced learning activities, generation of income.*
2. The *Sogeri Plateau community* will benefit, as the project can connect them to a marketing structure, and help them identify labour saving, effective techniques for small scale, portable agricultural production.
3. Once operating, the project will *create local employment* for perhaps 20 or 30 people.

Department of Family and Community Development

The Department of Family and Community Development has established a framework for the setting up of

Community Learning and Development Centres (CLDC). These centres:

- are organized by the community for the benefit of the community;
- will establish places of learning and development activities which meet the identified needs of community members; and
- will develop self-reliance among communities.

Network Kokoda

With its core values of partnership and facilitation, Network Kokoda has signed an agreement with the Department for Family and Community Development for the setting up of a CLDC based at the National High School at Sogeri.

The scheme as it matures will bring about self-reliant development based on local resources in the local communities, reduce unemployment (especially among young people) and start to generate cash for families.

The Sogeri Community

The majority of the Sogeri community comprises the traditional Koiari population. The remainder comprise 'outsiders' – people left over from the plantation days, public servants, private employees and the extended families of these groups.

Most of the population at Sogeri belong to the Seventh Day Adventist Church. The church and the schools (Sogeri Elementary, Sogeri Primary, Iarowari High and Sogeri National High) are the primary bodies with a semblance of cohesive structures.

Conversations with various people here suggest this is the case, and this is confirmed by the level of petty crime in the community.

A large number of outsiders reside in and around Sogeri. Some of these are left over from the rubber plantation days, some are more recent, having come for employment reasons while others are just 'hangers on', extended family members of any of the outsiders.

The churches are the only group which could be said to be well implanted into the local community, and local 'elders' and powerful people within the community largely support their activities. The church is a very important social institution (rather than simply a religious one), and in concert with community leaders, exerts considerable influence in local affairs.

Sogeri National High School, together with Iarowari, share a school chaplain, who lives in a house at Sogeri High.

All the schools are at the moment somewhat peripheral to the community, although the elementary and primary schools are less so. The principal of the primary school is probably the most skilled at working with the local community, and he appears to have a fair level of respect.

When theft and petty crime is discussed in the in the community, people all say that the criminals come from the 'outsider' group. Some say, e.g. the principal of SNHS, that the Koiari are not involved in criminal activity. From the actual cases I have been told about, the outsiders seem to be the main offenders; not so much the adults, but the youth (youth unemployment seems to be about 85%), many of whom are just wandering or sitting about with nothing to do. (Some of the garden theft has been school students themselves, who have not had enough to eat in the school mess). Certainly the extended family of school staff have been implicated in petty crime.

(An important point to recognize concerning the youth is that for the most part, they want to contribute and be seen to contribute to their family wellbeing as a matter of pride. Thieving is the 'bottom of the barrel' option for them. If there are viable options available, they will tend to choose these - it is a mistake to see them as simply lazy and dissolute).

The Sogeri Police appear to do very little and people don't even bother reporting crime any more.

So, to summarize the situation, we face the following issues:

- Community very loosely cohesive and somewhat dysfunctional.
- Very high youth unemployment
- Agriculture & farming seen as very low status activities
- Alienated youth
- Few earning opportunities for most adults and youth
- Schools not highly valued as part of the community
- No marketing chain currently exists between (potential) suppliers and consumers.

Port Moresby is growing at a rapid rate, and food supplies are increasingly imported due to inability or difficulty of supply within PNG.

Sogeri was once a vegetable garden/salad bowl area for Port Moresby, and is ideally situated to take up this role again. A Community Learning Development Centre located on the Sogeri plateau must start to open up these opportunities again for residents.

The recent opening of the Central Province Market at Boroko (provided it can remain free of the problems that beset Gordons), provides an excellent opportunity for sales of produce from the Sogeri area.

Accompanying the decline in community cohesion is a lack of respect for others in the community. This in turn leads to less internal community self-reliance, and an outward looking expectation that 'officials' and government should solve all the problems. For example, law and order is not a significant problem in a cohesive community. In a community such as Sogeri, it is a problem, and most people see the solution as being found outside the community itself, i.e. in more and better policing. The existence of a CLDC at Sogeri will open up a number of opportunities and new networks allowing for more focused introspection, and proactive movement rather than an ongoing inability to recognize a problem.

Youth unemployment is very high, leading to much the same problems as it does in Australia. The agricultural focus of the main CLDC program will provide an expanding number of opportunities for young people to appreciate the true value of farming work, and to become involved in both production and marketing of vegetables and animals. As the program grows, there will be opportunities for value adding, such as the manufacture of jams, pickles and peanut butter; and possibly a cosmetic range as well.

Currently, agriculture and farm work are seen as low status and undesirable by the young. This is largely because of traditional and '*pasin bilong bipo*' connotations, and a failure on the part of the education system to show people that food production can be a very rewarding and financially worthwhile activity. The demonstration farm being set up in conjunction with the CLDC project will be a major part of changing these attitudes, and will help the young and the not so young to a better appreciation of what agriculture has to offer in the modern Papua New Guinea.

While the youth see themselves as having little value to their community, and the adults are all too ready to back this up, not much will change. Drugs, violence and sex remain as diversions, as not much else is on the horizon. This will be a critical role for the CLDC, to offer some worthwhile possibilities to alienated young people, so that their estimation of themselves can begin to move on up, and their families can see them as contributing members, rather than burdens.

A key objective is to provide an outreach program to assist villages on the Sogeri Plateau to develop their own gardens in partnership with Network Kokoda who provides a seed nursery, seedlings and technical assistance via the Chief Field Officer.

So what are the next steps which must be taken to make this plan a reality?

- Establish a demonstration plot at Sogeri National High School
- Establish a small scale demonstration of an aquaponics system (fish and plants) to demonstrate the power and productivity of this technique (one easily accessible to small village producers)
- Find buildings that can be used as a base for some indoor teaching & learning activities
- Liaise with nearby communities, interested farmers and local youth, inviting them into the program
- Ask the local communities what they would like to learn more about, e.g. agriculture, jam making, cooking, sewing, literacy, business management etc., and arrange suitable people to help.
- Support those who wish to start small enterprises.
- Make sure the schools and the churches are part of the whole community learning experience
- Explore, with the schools and community, ways of setting up a marketing chain selling produce into the capital.

The schools are a special case. Extensive failure over time on the part of the authorities to provide adequate funding for the maintenance of infrastructure has meant that the schools are critically in need of help. I believe Network Kokoda can help by providing some funding to assist, up to 50% of the total.

An area of perhaps greater benefit in the long run would be to assist in the preparation of submissions to whichever body is appropriate to provide funding.

The use of local contractors or parents wherever possible will also help to integrate the schools better into the local community.

Such a program will require careful planning and carefully attuned community work, but will have the best chance of success in helping the Sogeri community to improve the lives of its members.

REPORT ON THE AGRICULTURAL ASSIGNMENT BASED AT SOGERI NATIONAL HIGH SCHOOL

(period 22 October – 4 November 2011)

Sandy Lawson BSc (Agriculture) Sydney
Consultant for Network Kokoda



Summary Remarks

I have had the opportunity to meet some significant people over the last two weeks at school functions to which I had been invited.

The first occasion was the fundraising dinner, held at the Port Moresby Country Club at Waigani on the evening of Thursday, 27th October. I sat with Mr Bagua Wati, Chairman of Iarowari High School Governing Council and recently appointed a member of the Sogeri National High School Governing Council. On my other side was Pastor Daro Heagi, School Chaplain to both Sogeri and Iarowari High Schools. At the table were also Mr Gogobe Mairi, Chairman of Sogeri High School Governing Council. Mr Roger Hau'ofa the talkback host for FM was also at the function. We know each other well, and he is keen to do a program on the project in the future.

The second was the graduation for final year students, held on Monday 31st October at the Dynasty Restaurant, Vision City, Waigani. Once again, Bagua chose to sit with me, but it was a great opportunity to meet some other Governing Council members and get to know many of the teachers better.

The problems (mentioned in first report) fall into the **short term**, of which water is the most significant everywhere but at Iarowari. This is an area where Network Kokoda, with a modest outlay, could make a very substantial difference. It also has the advantage that it could be a very visible difference.

There was a complete failure of the water supply to the elementary school, and so to some primary teachers housing. They approached me for help. As the sum involved for effective repairs was but K150, I got some materials for them, and the matter was fixed within 2 days. This was an important matter, as the property backs on to the National High School garden area, and so I can count on the support of these teachers as regards security later in the project.

Termites are a **medium term**, (but in some cases very severe) problem. Quotes have been obtained from a reliable firm for each of the schools for a comprehensive treatment:

- Sogeri National High School K38,500.00
- Sogeri Primary School K27,500.00
- Iarowari High School K60,500.00

The **longer term** problems of course are school infrastructure and maintenance.

But by far the most significant issue for the running of the two high schools is food for the boarders, and I want to focus this report on this issue, as it has implications far beyond the borders of the schools, and hits at the very core of this project.

Gardens

The first task will be the establishment at Sogeri High School of a demonstration food garden. The gardens will be established on gently sloping ground behind the staff houses, which will be fenced next year. This work has begun

with the ordering of some superior planting material from NARI (National Agricultural Research Institute) at Laloki. The aim at this point in time is to establish the material, and make plenty available for rapid replication at the commencement of the new school year.

I have suggested to the headmaster that each student could be responsible for the maintenance of one garden bed. This will mean a total of some 500 garden beds in the school area, each one about 20 square metres. (In fact there will be more, but these will consist of shelter belts and green manure beds).

Apart from the labour of establishing the beds and shaping them in the first place, the work required for maintenance should be quite minimal. I have noticed that current garden work at the school seems to concentrate on neatness rather than practicality, which means that much effort goes into weeding and cultivating the soil. Sogeri is a fairly high rainfall area. Water penetrates cultivated soil far less quickly than uncultivated soil, where natural processes (e.g. earthworms, ants) open many pores in the soil. As well, bare soil heats up quickly in the sun. There is evidence of root damage due temperature in some of the plantings.

The project will aim at a minimal tillage approach, and emphasize the importance of maintaining a complete soil cover at all times, so as to even out soil temperature, maintain a better soil structure and increase the organic matter content of the soil.

Few soil improvement techniques are employed by the Koiari traditionally, and I believe that many of these practices could prove of considerable interest to them as they will both reduce labour and increase yield. Heavy mulching of sweet potato beds will extend the season considerably into the dry season, as the mulch and soil moisture will prevent the invasion of the sweet potato weevil.

Issues for Project

Help for my project given by the school in the person of a young Vudal graduate has temporarily disappeared. He won't be around again until next year, and this is impacting the speed at which we are getting ahead with mulching and planting of parent stock. I am currently coopting the school farmer, a highlander who has worked at PAU (whence he learnt his ideas of manicured gardening!).

Security. This is an issue over most of Papua New Guinea, and Sogeri is not much different. However the fact remains that theft of project crops and materials remains a concern. A detailed plan is being developed with community leaders for coping with this matter.

The chickens at Sogeri High School have not been raided, and are now being harvested.

Next year all project livestock (chickens, ducks, fish) must be properly secured at night.

A security fence is being constructed around the school garden boundary early next year.

I have secured the aid of the primary/elementary school teachers to act as security, in addition to the high school's own people.

I am exploring with the school principals the possibilities of involving the local communities much more in work needing to be done at the schools.

Proposed action

1. Plant all new materials we are given by NARI, when they arrive.
2. Complete garden design so as to allow a rapid start of operations next year.

3. Keep working on a demonstration plot at Sogeri National High School.
4. Establish a small scale demonstration of an aquaponics system (fish and plants) to demonstrate the power and productivity of this technique (one easily accessible to small village producers).
5. Find a building that can be used as a base for some indoor teaching & learning activities.
6. Continue to liaise with nearby communities, interested farmers and local youth, inviting them into the program.
7. Ask the local communities what they would like to learn more about, e.g. cooking, sewing, literacy, business management etc., and arrange suitable people to help.
8. Support those who wish to start small enterprises.
9. Make sure the schools are part of the whole community learning experience
10. Explore, with the community, ways of setting up a marketing chain into the capital.

REPORT ON INTEGRATED COMMUNITY AGRICULTURAL LEARNING CENTRES

Sandy Lawson BSc (Agriculture) Sydney
Consultant for Network Kokoda



16 September 2012

Preamble

Network Kokoda is setting up a program of Integrated Community Agricultural Learning Centres on the Sogeri plateau. The program will involve a series of carefully structured workshops and activities designed for high impact within the chosen target production groups. Two experimental groups will be selected in the first place to trial the process and fine-tune the techniques.

By such an integrated learning approach we aim to enhance the ability of participants to cooperate with each other for mutual benefit.

The aim of the project is to produce more knowledgeable and 'emancipated' farmers more capable of making their own farming decisions about their own commercial activities.

The learning is therefore sustainable and ongoing, and not dependent on a continuous intensive input from an agriculturalist.

Work with the schools is designed to awaken the students to the possibilities of agriculture as an enterprise and a means of making a good living, rather than something that grandparents and parents used to do, and not something that modern young people do.

Consequently work with four schools is planned for the coming year, from primary to high school level, and will be designed in consultation with the respective heads of the schools involved.

UNDERSTANDING THE ISSUES.

Working with small-scale and often resource-poor farmers in Papua New Guinea requires a particular type of approach that allows them to develop their farming and working skills as they develop their farms in accord with the demands of the market. This kind of approach has been pioneered successfully with rice farming among smallholders in Indonesia. Many such farmers are used to producing food for their own subsistence. Creating product specifically for market is for many a new and different experience, and requires a different set of learning approaches and skills.

Rarely in a position to take many risks, small scale farmers stick to tried and true old ways. For change to occur, they must **convince themselves** of the value to them of the new ways they are being shown. This is a very important issue, the crux of the whole project. The consequence of what we see as expedient short cuts, is frequently the giving of ownership to an outside agency. (i.e. if things go awry, it is the fault of the outsiders).

Without **ownership** of the work resting firmly in the hands of the farmers, (as perceived by them), the project will fail.

Traditionally, agricultural extension and learning has been handled something like this: technology packages are developed at research institutions, and these are then 'promoted' by extension staff, who go out into the field and tell the farmers what to do. Farmers are not supposed to deviate too much from the recommendations, nor is it thought necessary they understand the reasons behind the recommendations being promoted by the extension service. All they need to do is to follow the instructions. This time-honoured approach to agriculture is a reason why so much of the work with so many smallholders is stillborn.

The issue is not in the main how to grow the crop, but rather the question of ownership, and consequently who makes the decisions.

PART 1 - THE COMMUNITY

WHAT WE ARE DOING AND HOW WE'RE DOING IT.

Creating a learning experience in an encouraging learning environment

Over the course of the period of our engagement with a farmer group, we are passing into the farmers' hands new techniques of working with crops, the ability to make judgments about their own particular farming circumstances, and the ability to make useful commercial decisions about their cropping possibilities. They will be learning how to do this from their own experience on their own farms. Our job is to engineer and guide the learning environment for maximum quality impact. In short, we are facilitators.

Integrated agricultural learning centres for sustainable farmer livelihoods.

The city of Port Moresby is growing at a very rapid rate. The Koiari people of the Sogeri plateau are ideally placed to take advantage of this situation by the production and marketing of high quality food for the Port Moresby markets.

The Sogeri Integrated Agricultural Learning project set up by Network Kokoda will engage the local people in a production process which they control, and which will aim to supply high quality agricultural products for this expanding Port Moresby market.

A solid content of quality learning activities.

Our task, as facilitators, is to make this learning as engaging and inspiring as possible. By carefully preparing structured activities which cover all phases of crop supply and cultivation, we aim to engage the farmers in a

seasonally relevant series of workshops and on-site activities which will rapidly advance their knowledge and understanding of the crops and animals they are producing.

Effective and attractive learning methods and mechanisms enhancing knowledge and skills.

An encouraging, interesting and sometimes challenging environment and facilitation sets up a stimulating environment in which adults can continuously learn and maintain enthusiasm. Farmers may thus expand their learning in a safe and interesting way in order to develop their capabilities and operational sophistication.

As facilitators, we are continuously working for learning with impact.

Farmers must themselves own and control the process.

Without farmer ownership the process will never be free of the need for ongoing outside professional input, and so as a learning process, it must be regarded as a failure.

Farmers need to feel they have control over their own work and their own learning, and can comfortably ask the professionals for help. This is not an invitation for outsiders to take control, but a request for a specific input to enhance the local farmers' understanding and perception.

A 'toolkit' of materials and techniques.

The job of the facilitator is rarely to tell others what to do. Rather it is to seek to create and enhance a learning environment for farmers so they can discover what to do for themselves. The difficult task of the facilitator then becomes one of finding materials and methods to enhance and encourage the learning and understanding experience.

Successful facilitators have at their disposal a 'toolkit' of materials and methods to enhance and make compelling farmers' understanding of their crops and the agro-environment within which they operate.

Why is this so important in extension work in Papua New Guinea?

The history of colonial development in PNG has been modelled on foreign 'experts' telling locals what to do, either the result of local fieldwork on research institutions, or research done overseas. It was also assumed that farmers had no real 'knowledge' of their crops and their requirements. It is not that such station research produced incorrect results, but that it was used out of context.

Farmers' fields rarely match research conditions. Especially in the tropics, a wider variation in conditions is likely to occur than in more temperate climates, where western scientific research methods were originally developed. Labour supply and availability of resources was also likely to be markedly different.

So for local farmers to be convinced of the relevance of our project work, it is important that they have a major input into its design and execution.

Achievement of real impact will only be attained when local farmers are self-starters, and so the agricultural learning projects will be looking to apply more emancipatory ways to agricultural learning among farmers than has often been the case in the past.

PART 2 - THE NEXT 2 MONTHS

We will choose two experimental villages which are eager to let us trial the vegetable and small livestock program.

The beginning of the program will be the planning and delivery of introductory workshops with the chosen participating farmers in their villages.

The building up of a kit of materials will be a priority for intensive learning in the future.

(An example would be a soil thermometer which can be used to show temperature of the soil in the root zone. Many people are keen to remove any growth other than the chosen plant, which exposes the root zone to intense heat in the sun, in turn significantly affecting plant growth. A soil thermometer would allow us to demonstrate the very significant effect of such heat in the root zone.)

A school program with appropriate teachers/heads will also be planned at an appropriate level for the various participating grades.

It is difficult to overestimate the potential significance of the Sogeri Agricultural Community Learning Project. Properly designed, the flow-on benefits are huge; every bit as significant on a smaller scale as the rice project in Indonesia.

PRODUCING VEGETABLES AT SOGERI NATIONAL HIGH SCHOOL

FIRST STEPS TO A COMMUNITY LEARNING AND DEVELOPMENT CENTRE.

A primary aim of Network Kokoda's rural project is to show people (in the first instance through the school students of Sogeri National High School) that agriculture can be a profitable and very worthwhile small business enterprise; that real opportunities exist for the Sogeri plateau with the rapid growth of the city of Port Moresby, and that local communities are well placed to take advantage of these.

Developing an agricultural business is not a task that can be accomplished overnight because of the number of unknown or poorly understood factors involved. It will be instructive in the first place to examine local practice and see the way local growers are handling changed growing circumstances. However, because of other interests, much local agricultural practice may have become a simplification of what existed in the past.

Basically, the project will develop a series of appropriate and productive crop rotations which will allow a continuous production from the same parcels of land. Although completely integrated systems may take some time to develop, significant progress can be expected within six months, and the school should be approaching total self sufficiency within the year. A useful source of information in *Tok Pisin* and *Hiri Motu* is contained in the publication by the Fresh Produce Development Co, *Save bilong Kumu*, though little information is given on yields.

Determining yields under school conditions at Sogeri requires further work, and this will be started with all new plantings at the site.

With project plantings, inter-planting is used as a deliberate pest and weed control strategy, as well as a means of managing fertility, mimicking some of the virtues of traditional agriculture.

The figures shown in the following table are for some of the crops it is planned to grow in the project gardens, though it is stress that none of these figures have been obtained from the Sogeri area. These figures may serve as a starting point on which to base future estimates

Yield Table

Average crop yield used for calculating staple food crop production (t/ha)

Banana	12 t/ha
Cassava	22
Irish potato	14
Queensland arrowroot	10
Rice	2
Sweet potato	13
Taro (<i>Alocasia</i>)	8
Taro (<i>Amorphophallus</i>)	6
Taro (<i>Colocasia</i>)	8
Chinese taro	14
Swamp taro	6
Aerial yam	13
Greater yam	13
Lesser yam	15
Yam (<i>Dioscorea nummularia</i>)	13
Yam (<i>Dioscorea pentaphylla</i>)	9

It is difficult to measure yields of the staple root crops under village conditions because of the progressive harvesting method that villagers use. The yield of root crop tubers depends on a range of factors: maturity, fertility, hours of sunlight, rain and a number of other factors.

Three-phase project development plan

Costings are only considered for the first phase, as uncertainty at later times is too great, but the project can be seen as a logical progression through the three phases, despite some overlap:

1. developing and planting up the system at Sogeri National High School; discovering establishment and operational costs. Development of a small-scale aquaponics project at the school This project is meant to demonstrate the extraordinary productivity of this kind of system, as well as raise the interest of many students;
2. establishing a developing market in which producers may become involved; and
3. involving the community in small business production.

Developing and applying financial data to the project. As a necessary part of small business training, producers must learn to keep track of their costs and returns.

Preliminary Program Budget

The first 12 months of the project should see total self-sufficiency achieved for the school, a fresh nutritious diet available to the students, and a surplus of food increasingly available for sale.

After three months, the gardens are estimated to be yielding about 1 ton of sweet potato, and after 6 months, 13 tons. (Rice will become a problem, as it is cheaper to buy rice than it is to produce it.)

As an indication, we can focus on five other crops which will be a mainstay or production, for example the Chinese green, Pok Choi, which will produce 12 crops per year. One eighth of a hectare will produce sufficient of this type if green, together with the same amount of beans and snow peas etc.

A vegetable such as carrot will require a further one fifth of a hectare.

A system such as this will substantially supply the school with vegetables from about month No 10.

Preliminary budget to Sat 31 March:

1. Lab equipment, freight on books;	\$2 000
2. Telephone:	\$60
3. Seeds and Plants:	\$4,000
4. Aquaponic tanks, etc:	\$3,000
5. Sundries:	\$800
TOTAL	\$9000

Lab equipment and seeds will not be maintained at this high level, and will drop away to almost zero in the second month



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