

**SUPPORTING COMMERCIAL VEGETABLE PRODUCTION AND MARKETING IN NAMATANAI DISTRICT,  
NEW IRELAND PROVINCE**

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**SUMMARY**

A Market Development Facility (MDF) Team visited Namatanai District between 9<sup>th</sup> – 12<sup>th</sup> December 2019 on the invitation of Namatanai Advancement Ltd (NAL) to scope its operations, supply chain, market end sales and returns. Then we spent most of 13<sup>th</sup> December visiting National Catering Services Ltd (NCS) projects on Lihir island.

NAL is a local company established in 2018 by the local Member of Parliament for Namatanai District, New Ireland Province (NIP). Newcrest Mining Limited (NML) operates the gold Mine on Lihir Island in Namatanai District. NML has contracted NCS to provide catering services to the mine site/camps. NCS operates two messing facilities on Lihir Island to serve some 7,000 – 8,000 meals to mine workers daily<sup>1</sup>. NCS and NAL trialed the buying of fresh produce in 2019. NAL is grasping the concepts on managing the supply chain challenges in order to supply fresh vegetables competitively to NCS. By December 2019 NAL supplied 452 tonnes of fresh food to NCS, took 45 % of the market share, and earned some K1.8 million, but not without a host of challenges. In November 2019 the parties entered into a 3-year Supply Contract.

NAL has a long-range vision to not only supply fresh produce to NCS in Lihir, but also Simberi Gold Mine, and Kavieng and Kokopo markets. To do this NAL needs to develop a business plan that aligns with targets and timelines, building on the learnings from servicing the NCS contract. There are many critical issues that must be addressed to improve business performance – foremost amongst them is filling technical capacity gaps identified, and these are discussed in the report.

Support services for agriculture is generally lacking in the district. Generally agricultural productivity is low demonstrating that smallholder agriculture functions at well below its potential. We suspect that there are soil fertility and pest/disease issues, which are reflected on the quality of the produce. There was also a limited diversity of crop varieties amongst the species produced for sale. The district requires a sustainable seed supply and distribution system. NAL estimated that there was 20 – 25 % post-harvest loss at the Namatanai end, but the losses at NCS was estimated at 40 %, with leafy vegetables such as aibika sustaining even higher losses. The key to reducing loss is in getting the fresh produce to the chillers at Lihir in the shortest time possible after harvest.

To support development of the fresh produce sector we suggest a Program Management strategy which includes the appointment of a Manager to manage the entire business, and a number of key staff positions to be filled. Experienced and qualified staff are required for the work, as well as supply of seeds, agrochemicals and training for farmers are equally important. The current staff employed by NAL are not trained agricultural extension and or value chain management specialists.

Our brief 2 days engagement with NAL operations at the buying depot in Namatanai, and one day observations of NCS operations on Lihir Island, is that there are too many unknowns in the business model to make any concrete proposals for a partnership. It is however proposed that NAL and NCS discuss the issues we highlight against NCS fresh food requirements and NAL's current capacity to sustainably deliver on the contract. The broad recommendations given in the report should inform NAL strategic planning in order to improve performance of the NAL/NCS Supply Contract. MDF focusses on studying the supply/value chain for 'enterprise development', identify key actors and gaps in the business plan, and may coinvest in the business on agreed terms. The NAL business strategy is too vague for MDF to make an informed decision on possible areas of partnership support. Any partnerships entered between the parties under the present circumstances would be too risky for MDF.

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<sup>1</sup> NCS has been feeding Lihir Mine workers for over 30 years already and are committed in the long run. NCS is ISO 2009 compliant and is working towards auditing and upgrading to ISO 2014. It was noted that NCS operations has been certified under ISO Standards at the demand/messing end. A complete process audit may require tracing to the supply point where certification at farm (field agronomic practices) and NAL depot operations are carried out.

## 1. INTRODUCTION

A 3-men MDF<sup>2</sup> Team visited Namatanai District between 9<sup>th</sup> – 12<sup>th</sup> December 2019 on the invitation of Namatanai Advancement Ltd (NAL) to scope its operations, supply chain, market end sales and returns (see itinerary in Appendix 1). Our trip coincided with the visit of the Prime Minister (PM), Rt Hon. James Marape to Namatanai and Lihir. The PM announced that his government has a policy bias towards developing the agriculture sector and has allocated significant amounts of funds to the sector in the 2020 budget. Better policies, planning and management can substantially lift the contribution of the agriculture sector to the national economy. It is time to reverse the decline in agricultural productivity. Tapping into New Ireland's agricultural potential could lift economic growth rates, raise local incomes, increase employment and improve nutrition outcomes. With a major part of agriculture work being done by women, fresh food production and marketing have a strong component favoring empowerment of rural women.

### *Huge market demand for fresh food in New Ireland Province*

There are two large Mines operating in New Ireland Province, one on Lihir Island and the other in Simberi Island. These Mines are scheduled to continue production for over 20 years into the future, offering a potentially secure and enduring market to farmers. Currently there is a huge demand for fresh food, not only by the workforce on those Mines, but the communities around the Mines (See Appendix 2 – testimonial of Ms. Francesca Williams), and in towns like Kavieng and in logging camps (there are more than 10 large logging operations in various parts of NIP). The annual demand for fresh food to feed the Mine workforce on Lihir Island is over 2,000 tonnes (Table 1). Farmers in Namatanai district have seized the opportunity and commenced producing garden food for sale to NAL in 2019 for onward sales to NCS.

NAL is a local company established in March 2018 by the local Member of Parliament (MP) for Namatanai district. NAL aims to connect the Namatanai people to the markets within the reach of the district and this includes the Lihir and Simberi Gold Mines. At present the company purchases and aggregates fresh vegetables and fruits produced by local farmers and sell to NCS, a subsidiary of Anitua Group of Companies operating out of Lihir. This programme commenced in December 2018. A 3-year contract was signed between the parties in November 2019 to continue the business.

## 2. METHODOLOGY

### 2.1 *What we did in Namatanai*

In Namatanai we met with Mr. Hosea Talis (CEO, NAL) and Sam Lekneke (Operations Manager) and their staff. We also met Ms. Christian Niambari and Matthew Sale, both agents of MiBank<sup>3</sup> in Namatanai, and held discussions. On the first day we observed the fresh food buying, sorting and packing at NAL buying depot. On day 2, Mr. Israel Isaiah, (DPI Advisor) showed us around the DPI extension center near the old Namatanai airstrip. The DPI run down facility can be facelifted to create an avenue for farmer training and conduct demonstration trials. We did not visit any farmers fields or

<sup>2</sup> MDF is a private sector development Programme funded by the Australian Government to help stimulate investment and business innovation in order to create jobs for, and increase the income of Papua New Guinean people, with a focus on poor rural women and men.

<sup>3</sup> MiBank headquartered in Kokopo (ENBP) operates a Super Agent service in Namatanai. Christian Niambari is the current Manager and Matthew Sale is the NAL Liaison Officer working with MiBank in Namatanai. NAL has at 3 other staff helping Christian in the bank.

production areas. On the 3<sup>rd</sup> day (12<sup>th</sup> December) we travelled by ferry to Lihir. We departed Namatanai wharf at 2:45 pm and arrived there 2 hours later.

## 2.2 *What we did on Lihir Island*

In Lihir we held several meetings with senior managers of Newcrest Mining Limited and staff of the National Catering Services Ltd: Glen Sherry (NML Superintendent, Business Support), Billy (William) Gracie, (NCS Project Manager), George Anthony Hebron, (NML Purchasing Manager (on break, we did not meet him)), Nebo Smacker (NCS Ware House Manager), Luke More (NML Logistics Manager), Ian Banono (NCS Food Safety/Quality Manager) and Jovet Bacsaine (Anitua Farm Manager, Lihir Integrated Livestock Ltd). We were shown the laydown area and visited the warehouse, chillers and held discussions with key staff. Then we were shown the piggery, hatchery, the broiler and breeder farms and the abattoir. We were provided data on volumes of fresh food purchased by NCS from NAL in 2019 – corresponding sales data from NAL was not provided.

## 3. OUR FINDINGS

The issues discussed here are based on observations and inferences made from inspecting the physical appearances of the crops sold to NAL at the Namatanai buying depot and in the chillers at the NCS mess, at Lihir. Physical measurements and proper tests are required to verify these observations. Here we present a summary of our observations.

### 3.1 *What we saw and observed in the NAL operations in Namatanai*<sup>4</sup>

- There are 36 employees (6 females) undertaking various tasks from providing field services to buying, sorting, quality control, invoicing and dispatching the fresh produce to NCS. None of the workers are trained agriculturalists. Four staff work with MiBank to administer payments to the growers, bringing the total NAL staff strength to 40 (excluding senior staff).
- The Operations Manager said NAL purchases all fresh produce brought into the buying depot. The records kept by NCS indicated that some 47 species of food crops were purchased from NAL in 2019 (see Table 2). The Supply Contract stipulates that NAL supply 1.5 tonnes of fresh food to NCS on a daily basis but sometimes this quota is exceeded to 1.7 tonnes. Whatever is not sold to NCS (low grade) is sold to Namatanai District Authority which delivers the produce to the High School and Hospital. Limited quantities of vegetables are sold to Chinese shops/kaibars. The practice of indiscriminate buying of fresh food, irrespective of quality, leads to comprising quality of the fresh food intended for sale to NCS.
- *Species diversity*: There was a limited diversity of crop varieties amongst the crop species. Simple variety trials of a range of crops should be carried out to determine the suitability of the varieties to the agroecological environment. Increasing species diversity and correcting soil fertility problems will require expert technical advice.
- There were *deformed and cracked sweetpotato* tubers indicating infestation by nematodes and or showing an underlying nutrient deficiency symptom. The shape and size of sweetpotato tubers supplied to NCS varied greatly, it is preferable to have uniform sized

<sup>4</sup> Our observations include limited exposure to the NAL operations at the buying depot, interviews with key staff and fresh produce shipped to Lihir on the ferry which we traveled on.

tubers. The capsicums were small with deformed heads, symptomatic of either a variety characteristic, nutrient deficiency or both. The *lettuces were harvested premature*, heads had not compacted properly. Only one tomato variety with a characteristic grooved fruit was produced, but there are many commercial varieties available.

- *Improving quality of produce:* Loses at NCS mess at Lihir can be lowered if the time taken from harvest, sorting and transportation of fresh produce to shipment to Lihir can be shortened. Food is produced by some 5,000 – 6,000 growers from 4 LLG areas except the island communities (Lihir and Tanga). It was estimated that on average it takes 3-4 hours post-harvest time to reach the buying depot at Namatanai. We saw growers queuing at the depot to sell their fresh produce as early as 7:30 am. This means two things: either they harvested the crops on the previous day, which is probably what happened, or the produce was harvested early morning, which would be ideal but is probably not what happened. So, it is plausible to say that the post-harvest time to the depot is ca.24 hours. Allow 6 hours prior to shipment and at least 3 hours to reach the NCS mess, the whole operation takes ca. 33 hours.
- *Transport and logistics:* Sea travel between Lihir and Namatanai is by a ferry provided by NML. This is a passenger boat which has a cargo limit of 1.5 tonnes - which seems to be the reason for setting the daily supply limit to this amount. However, higher volumes of fresh food have been allowed to fill-in for low passenger numbers. Sometimes the boat will carry up to 2.2 tonnes, but on most days it averages 1.7 tonnes.
- *Fresh food shipment:* Whilst waiting to board the ferry we witnessed the loading of the fresh produce onto the ship by NAL staff. Several bags of sweetpotato were stacked together at the bow of the boat whilst the red polytene baskets filled with various types of fresh vegetables were laid at the back and along the sides of the boat. The polytene baskets were not covered, allowing the fresh vegetables to weather the 2 hours boat ride.
- The *price of diesel fuel* in NIP is over 50% higher than the fuel price in neighboring East New Britain Province. The high cost and ineffectiveness of transportation, including coastal shipping and road-based transport has affected the growth and expansion of the NIP economy. In 2019 RAMs Ltd in partnership with Namatanai District Authority has commenced a ferry sea transport service between West Coast Namatanai and Kokopo. This is greatly helping with transporting people and cargo. The Namatanai airstrip has been closed for over 15 years. NCS is in the process of acquiring another ferry with larger cargo capacity and higher speed to be dedicated to service the fresh food sales contract (*see footnote 8, pp 7*).
- *Soil fertility:* We suspect that there are soil fertility issues that are reflected on the quality of the produce. Generally, the soils on the islands, such as on Lihir and Tanga can be acidic whilst on the mainland, such as in Kavieng, it can be calcareous, or alkaline<sup>5</sup>. Expert advice is required to assess the soil fertility status of the production areas and recommend agronomic practices to correct any soil nutrient deficiencies.
- *Training and upskilling farmers:* NAL admits that there is a huge need to train and upskill farmers to produce better quality fresh fruits and vegetables. The following is a selection of

<sup>5</sup> O'Sullivan, J, B. Humphrey and P, Igua (2001). Selecting sweetpotato genotypes tolerant of specific environmental constraints. In Bourke, R.M. and Harwood, T. (eds) (2009). Food and Agriculture in Papua New Guinea. ANU E Press, The Australian National University, Canberra. PP 689 – 697

trainings that can be sourced from both the private and public sectors to upskill and improve the capacity of farmers:

- Best agronomic management practices,
- Soil fertility management (mulching, legume rotation during fallow, multi tree species cropping),
- Crop scheduling and crop rotation techniques,
- Pest and disease management,
- Nursery management and practices,
- Harvesting and post-harvest handling and packaging (quality assurance), and
- Financial literacy training.

### 3.2 What we saw and observed in NCS operations on Lihir Island

In 2019 NCS purchased fresh vegetables and fruits from 16 national companies (Table 1). All the companies would have signed a Supply Contract with NCS. We cited such a contract between NCS and NAL<sup>6</sup>. Of these, 12 were local landowner companies operating on Lihir Island and only one (NAL) was supplying from Namatanai on mainland New Ireland Province. Three were from other parts of PNG. Most of temperate fruits are imported from Australia or New Zealand (data held by NCS).

**Table 1. Companies which supplied fresh vegetables and fruits to NCS in 2019 (Source: NCS, Lihir)**

N0	Suppliers/Companies	Location	Province	Quantities (kg)	Percent (%)
1	Namatanai Advancement Ltd	Namatanai	New Ireland	924,805	45.2
2	HGN & M Limited	Lihir	New Ireland	271,238	13.2
3	Kumul Fresh Food Limited	Goroka	EHP	220,357	10.8
4	Jomap Limited	Lihir	New Ireland	171,045	8.4
5	ISR-PNG Limited	POM	NCD	140,809	6.9
6	Niu Verge Limited	Lihir	New Ireland	133,883	6.5
7	Tininga Hilans Fresh	Mt. Hagen	WHP	51,094	2.5
8	Island Marine Products Ltd	Lihir	New Ireland	36,810	1.8
9	Cash Suppliers	Lihir	New Ireland	16,692	0.8
10	ANG - Ngulu Fresh Food	Lihir	New Ireland	15,902	0.8
11	Manum Fresh Food Supplies	Lihir	New Ireland	15,295	0.7
12	Pii Orse green Fingers	Lihir	New Ireland	13,568	0.7
13	Talex Mine Contract	Lihir	New Ireland	13,160	0.6
14	LCM Fresh Food Marketing	Lihir	New Ireland	11,531	0.6
15	Juma J Limited	Lihir	New Ireland	11,391	0.6
16	Tongli Fresh Food supplies	Lihir	New Ireland	324	0.0
<b>Total fresh vegetables &amp; fruits supplied to NCS in Lihir</b>				<b>2,047,902</b>	<b>100.0</b>

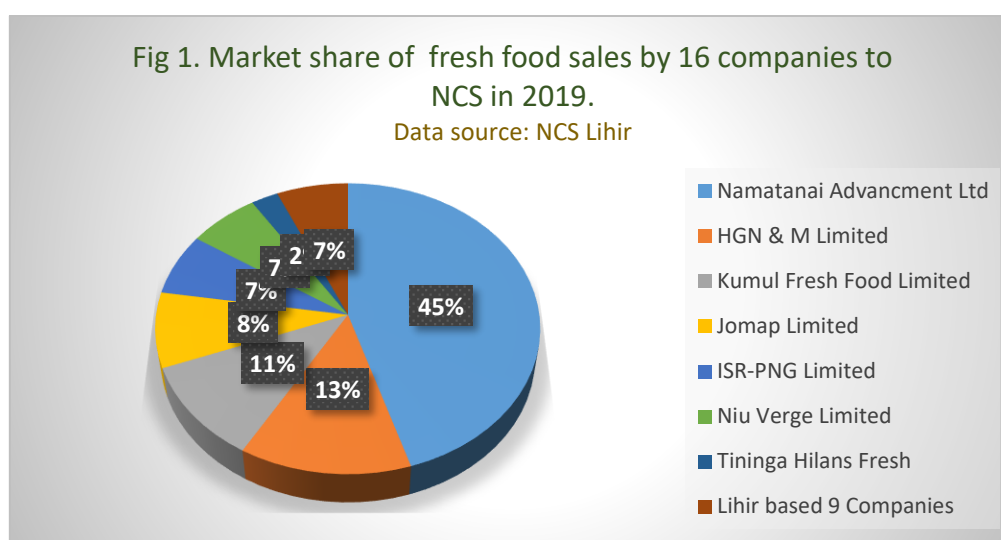
In 2019 the total volume of fresh food supplied by all the 16 companies between January and August was 2,047,902 kg (Table 1). The sales quota depicted in Figure 1 shows that 45 % of the fresh food

<sup>6</sup> We were given an unsigned copy of the Supply Contract between NCS and NAL. The attachment bearing the NCS code of conduct standards for suppliers was not included. The main drivers of demand are price and quality of fresh produce. The Contractual standards for quality are not implicit but implied, even though the Contract has a termination clause to penalize substandard produce. The daily or weekly quota for supply is also vague. The Supply Contract is vague on enforcing the quality standards on NAL, which supplied 45 % of the total NCS fresh food requirements in 2019. It also represents a risk for NCS, in that it could compromise its ISO 2009 compliant status (see footnote 1, pp 1).

was supplied by NAL. Of the 12 Lihir based landowner companies, only three (Jomap, HGN & M and Niu Verge Limited), individually supplied reasonably larger volumes (6 – 12 %) of fresh food, and together they supplied a total of 28 % of fresh produce to NCS. The other 9 supplied significantly smaller quantities, but together they supplied an aggregated total of 7 % (Fig 1).

### 3.2.2 Some important features of the NAL fresh food supply chain

It is noteworthy that within the first year of its operations, NAL had secured 45 % of the fresh food market share (Fig 1). NCS sourced a total of 47 types of crops from NAL in 2019 (See Table 2). Of the large range of crops, only 7 made up 50% of the total volume supplied. These crops were sweetpotato (or kaukau), watermelon, yam, tomato, Aibika, Chinese cabbage, and pumpkin. Of the 7 frequently supplied crops, only 4 were supplied year-round (kaukau, Chinese cabbage, tomato and aibika), whilst the availability of the other 3 crops were limited to certain months of the year due to crop seasonality, or seed availability and or production constraints.



Of the 47 types of fresh produce supplied by NAL to NCS in 2019 (See Table 2), only 7 food items (chilli, local corn, ginger, kaukau, lemon, tomato and watermelon) matched the quota set by the contract. The other 40 crops were short supplied. The lack of frequent supply of the majority of the food crops in the communities is more likely associated with difficulty in producing them under the traditional production system.

The total income from the sales of 47 types of fresh foods to NCS from December 2018 to December 2019 was K1.8 million (Table 3). Of these, the earnings from 8 crops (Aibika, ginger, kaukau, yam, tomato, choko fruit, pineapple and watermelon) constituted 50 % of the total revenue.

Except for the seeds of a few species (e.g. Chinese cabbage, pak choi, egg plant) which were purchased by farmers and planted, nearly all of the crops produced are local cultivars, for which the planting materials are maintained using traditional practices. Generally, productivity and the quality of produce are way below their potential probably due to poor soil fertility, and pests and disease pressure. Excellent crops of introduced vegetables like pak choi, Chinese cabbage, lettuce, saladeer, carrot, broccoli, radish, potato, Zucchini, celery and parsley can be grown if better agronomic practices are adopted. Upskilling the farmers knowledge and crop production skills through training and mentoring can lead to improving the yield and the quality of the fresh fruits and vegetables produced.



#### 4. DISCUSSIONS

It is our considered view that if NAL is to realize their long term goals, it ought to do more to scale-up implementation of the NAL/NCS Supply Contract, benefit from it, and leverage the learnings to secure the fresh food markets in Simberi Mine and the Kavieng and Kokopo markets. This includes careful attention to variety selection, agronomy, scheduling of production, harvest and post-harvest treatments and spreading risk (and opportunities) across production locations. There is a need to spread the production base. Lelet Plateau is a high-altitude area and the environment is suitable for growing temperate vegetables (broccoli, cauliflower, round cabbage, English Potato, carrot) and fruits (Orange, Mandarin and avocado).

Overall, support services for agriculture is generally lacking in the district. However, the effort and work which got started is commendable. The current technical staff are not trained agriculture extension and or quality control specialists with any competencies in supply chain management. Many of those employed as technical staff are either seamen or recording clerks. They need to be trained by experienced Agricultural Extension specialists including quality assurance specialists on all aspects of production techniques and post-harvest handling practices from storage and shipment to the consumer, ensuring that the quality of the fresh produce supplied meets the standards.

The shelf life of the vegetables delivered to the NCS mess on Lihir Island depend on a number of critical factors, and these include:

- the physical condition of the plant at harvest, sorting, grading, aggregation and transportation to the buying depot at Namatanai,
- handling and refrigeration conditions in the chillers at Namatanai (none exists at present, except an air-conditioned room), and packaging and transfer to the ship,
- storage and care of produce whilst transshipped to Lihir, and
- refrigeration conditions in the chillers at NCS Lihir.

NAL is slowly grasping the concepts on managing the supply chain challenges but all actions along this value chain needs' improvement.

NAL estimated that there was 20 – 25 % post-harvest loss at the Namatanai end, but the losses at NCS was estimated at 40 %, with leafy vegetables such as aibika sustaining even higher losses. We believe that it is the intent of the Supply Contract signed by the parties to ensure the agricultural produce that reaches the tables at the two NCS messes on Lihir Island are the freshest and cost efficiently delivered by speeding up quality controls along the delivery chain. The key to reducing losses is in getting the fresh produce to the chillers at Lihir within the shortest time possible after harvest<sup>7</sup>. Delivery of vegetables to the depot at Namatanai is fraught with poor packaging and inappropriate transportation – i.e. pickup and delivery of fresh vegetables from farmer's field to the depot is a critical part of the supply chain that needs improving. We think that it is possible to reduce the time taken from harvest, sorting, handling and transportation of fresh produce to shipment to Lihir. If harvest is carried out during early hours of the morning, say around 3 am, the produce can be delivered to the buying depot by 6 am (allowing 3 hours). Allow 2 hours for sorting, packing and delivery to the wharf. The produce should leave Namatanai wharf by 8 am and transferred to the NCS chillers by 10 or 11 am, a total of 8

<sup>7</sup> It is to be noted that the harvested part of the plant will continue to respire even after it had been cut off or harvested. If post-harvest conditions are carried out during the early part of the day, the plant will continue to respire and stay alive longer (i.e. the chillers serve this purpose by creating an artificial environment to keep the plant alive longer). If the ambient conditions are not conducive for the plant to stay alive, it will begin to break down the sugars and eventually wither and turn yellow, signifying that the plant had physiologically died.

hours<sup>8</sup>, with most of the work taking place in the cool of the morning. At present the entire process takes ca. 33 hours, with most of the activities carried out during the heat of the day, and sometimes harvest and delivery to the depot are broken by a day.

We believe NAL has a huge challenge to instill into growers the need to remain committed to supply quality fresh produce on a consistent basis and this requires a whole lot of actions from choosing the right seeds of the crop varieties, to seeding in the nursery and accompanying best nursery practices (i.e. use of good nursery medium, watering and maintaining constant temperatures). Apart from transport and shipment of fresh vegetables, NAL ought to identify farmer knowledge gaps – such as in post-harvest crop handling and packaging, correct methods of agrochemical use and general business skills. Once identified targeted training may be sourced and delivered to upskill the farmers.

The important inputs are seeds, agrochemicals and training for farmers. We do not know if growers are applying chemical fertilizers and other farm inputs. We were shown a seeds storeroom where packets of different types of vegetable seeds purchased from Yates Australia were stored at room temperature (30 – 35°C). These were generally 10-gram packets of the crops. These seeds are sold on cost recovery basis. Once the seed packets are opened, they must be stored in a cool room. The district requires a sustainable seed supply system with the appropriate storage structures and associated cool room facilities and distribution networks.

We were taken into a cool room (ca. 3m x 3m) powered by several air conditioners. The temperature was about 15°C. We were told that this was sufficient to transit hardier crops such as English cabbage and carrots overnight prior to shipment. Although the temperature range is not conducive to store perishable crops like broccoli, cauliflower and tomatoes, lettuces, sometimes these crops are stored here prior to shipment. NCS has 5 chillers on Lihir to store vegetables purchased from NAL. The temperature in the chillers at the NCS mess was 9°C. Ideally different temperature regimes are required to store different types of fresh food, and they fall into three groups<sup>9</sup>:

- Storage at 0-2°C. Broccoli, cabbage, carrots, cauliflower, celery, Chinese cabbage, lettuce and oranges.
- Storage at 7-10°C. Beans, capsicum, chili, eggplant, pawpaw, peas, pineapple, potato, suga prut (passionfruit), tomato, white radish, zucchini.

The fresh food supply and demand gap maybe considered from the Hazard Analysis and Critical Control Points (HACCP) perspective. There are hotels and catering companies in PNG who are HACCP conscious and are currently sourcing from abroad because the local suppliers cannot meet the standard<sup>10</sup>. This import gap (potential substitution) needs to be measured in terms of volumes and

<sup>8</sup> The weekly pickups of fresh produce for Lihir starts from Tuesdays and ends on Fridays. On Wednesdays and Fridays there are two boat trips, so NAL can ship 2 loads of fresh food on these days. NML has contracted a ship to provide logistics between Namatanai and Lihir. Current travel time is 2 hours. A better and faster ship has been purchased by NML to come into operation to service this contract (*Pers Comm. Glen Sherry, Superintendent Business Support, NML*). This should cut down timing to less than 1 hour. If this happened it will somewhat change the story told here.

<sup>9</sup> Extract from Kanua, M and R.M Bourke, (November) 2018. Notes from trip to PNG highlands sweetpotato production and marketing areas. ACIAR HORT/2014/096 – Supporting commercial sweetpotato production in the highlands of Papua New Guinea. Pp 9 – 10.

<sup>10</sup> For this reason, from 2009 – 2014 Exxon Mobil which operated the construction phase of the multibillion-dollar PNG LNG Gas Project could not purchase any fresh produce from within PNG to feed its 15,000 workers (45,000 meals daily) due to noncompliance by local companies to food quality and safety standards. In recent times, one company that subjected its fresh vegetable supply chain operations to audit by TQCS Pty Ltd,



can be substituted if there is a business case for local businesses. But first they must organize their supply chain to comply with HACCP standards.

## 5. SUGGESTED PROGRAM ADMINISTRATION

To support development of the fresh produce sector we recommend appointment of a Program Manager, preferably with extensive experience in supply chain management. We also recommend employment of one full-time Agronomist or Horticulturalist, one post-harvest expert, and two full-time extension officers (preferably female) with formal qualifications in agriculture. The Program Manager may be employed on a short-term employment contract. The incumbent would link with NCS and Lihir development partners, and work together with them to support the NAL fresh food production and marketing programme.

We suggest that NAL work with what's in place – so start agriculture extension work utilizing current DPI staff in the district which have experience in agricultural extension. The Program Manager would also assist NAL to develop annual plans and incentives to support active involvement of DPI staff, facilitate linkages with NCS and oversee the implementation of work by the core team – including planning and coordinating training for all stakeholders across the supply chain. NAL ought to define its core activities against core technical staff and outline its training needs. None of these exists today.

The cost to run such a programme ought to be worked out by NAL. Some savings could be made with reducing numbers of current staff from 40 and use DPI staff. Accounting for the entire program, costs must include all operational costs, with capacity to increase spending on the fresh produce program if additional funds are available. A feasibility study should be conducted to formulate the TOR or job descriptions of the key managerial and technical positions and determine the operational costs against forecasts of earnings from the sales of fresh produce – i.e. calculate the expected returns on investment over the medium to long term<sup>11</sup>. If there are requirements for important capex items such as housing for staff, this ought to be mapped out and costed. These details need to be verified during the feasibility study.

## 6. RECOMMENDATION

The issues discussed in the foregoing are not exhaustive as the MDF Team did not undertake a field assessment of the supply end. We did not have preview of any production documents, business plans or any other relevant reports. Our initial reactions based on the 2 days visit in Namatanai station is that there are too many unknowns in the business model to make any concrete proposals for a partnership. It is however proposed that NAL and NCS discuss these issues and consider the broad recommendations outlined below to improve performance of their Contract:

- *Village food production:* There are numerous options for improving the productivity and quality of locally grown food crops through provision of better planting materials. Planting materials and seeds of some crops are now available from the National Agricultural Research Institute at Keravat in ENB or can be supplied from other research stations around the country. These include PT (pathogen tested) sweetpotato varieties, African yam, cassava, corn and numerous vegetable and fruit crops.

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Adelaide, Australia, was Tininga Ltd based in Mt Hagen. TQCS Pty Ltd is a world class quality assurance auditor. Tininga Ltd was recommended by TQCS Pty Ltd for accreditation in 2018 (*pers. Comm. Peter Laka, 2019*).

<sup>11</sup> We asked if such a document was available to NAL senior Management Team, but none of the staff we spoke with knew if it existed.

- *Broaden the current Supply Contract* to allow NAL/NCS to jointly research and consider co-investment in addressing the technical issues along the supply/value chain – from the field to the kitchen.
- The parties should *take a broader view of development*, so agriculture gains are not just increased incomes but include other key factors such as improved nutrition and better public health. Nutrition outcomes can be improved through introducing superior planting materials for sweetpotato, African yam, cassava, corn and numerous other vegetable crops and fruits. An education, training, capacity building program should back these new initiatives and encourage greater diversification of the diet and better food preparation methods to improve nutrition outcomes. Technical support is required to schedule production across a spread of locations, source well-adapted crop varieties and improve agronomic, and harvest and post-harvest practices.
- *We recommend that a feasibility study of the NAL business* is conducted to determine need for key managerial and technical positions and determine the costs and returns on investment over the medium to long term.
- Fresh Produce Development Agency (FPDA) has an office in Kokopo to service the NGI Region. *FPDA has a responsibility for the development of the fresh food production and marketing sector.* It is suggested that NAL seek assistance from FPDA for technical advice on conducting demonstration trials, training and information dissemination.
- *IFAD Village Market Project* – this is an EU funded K85 million project implemented by FPDA and DAL. NAL should seek support for farmer training and perhaps some capex funding.
- *Both NAL and NCS require reliable data* and information on all aspects of the commercial fresh vegetable production system to inform project investment planning. NCS has some records of volumes of produce purchased. NAL needs to record and keep data on farm operations, land area used, and production data. Such data should include cash income by the farmers and calculated gross margins – an important requirement for ex-ante impact assessment.
- NAL partnered *MiBank Kokopo Branch to operate a Super-Agent micro-banking service in Namatanai.* This program ensures that the farmers are assisted to operate a bank account. On delivery of the veggies to the depot, the farmer gets a receipt stating the funds that have been remitted to his/her MiBank Bank Account. By December 2019 some 2,800 savings accounts had been opened with weekly payments ranging from K4,000 – K12,000. NAL spends on average K7,300 per day to purchase and aggregate fresh produce from the farmers. This amounts to around PGK 1.75 million per year. Hon. Walter Schnaubelt indicated that this figure should go up to K4 million once the project grows and matures, with farmers from all 6 LLG's participating in the growing and selling of fresh food. *This important service should be made available to the wider population of the district.*

**ACRONYMS used in the Report**

ACIAR	Australian Centre of International Agriculture Research
CEO	Chief Executive Officer
DAL	Department of Agriculture & Livestock
DPI	Division of Primary Industries
ENBP	East New Britain Province
EU	European Union
FPDA	Fresh Produce Development Agency
HACCP	Hazard Analysis and Critical Control Points
IFAD	International Fund for Agriculture Development
ISO 2009	Standards developed or updated in 2009 for voluntary adherence by companies to align their product development supply chain systems with internationally accepted standards. These standards were updated in 2014, hence ISO 2014. For further details see ISO.org.
LLG	Local Level Government
MDF	Market Development Facility
NAL	Namatanai Advancement Ltd
NCS	National Catering Services Ltd
NGI	New Guinea Islands
NIP	New Ireland Province
NML	Newcrest Mining Limited

# MDF FRESH PRODUCE AGRIBUSINESS PARTNERSHIPS STUDY REPORT

Table 2: Volumes of fresh food and vegetables procured by NAL between December 2018 and December 2019.

Description/Basket Tally	VOLUMES IN KG													TOTAL
	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
AIBIKA /Aupa	822.00	2,275.20	3,142.00	3,551.00	4,516.00	2,902.00	4,440.00	2,871.00	975.00	29.00	384.00	917.00	619.00	27,443.20
KAUKAU	3,979.00	6,110.90	4,055.00	5,632.00	2,823.00	5,129.00	6,424.00	3,898.00	5,908.00	4,045.00	4,795.00	5,450.00	3,659.00	61,907.90
YAM	-	-	-	-	10,464.00	6,230.00	26,871.20	3,577.00	132.00	-	-	-	-	47,274.20
WATERMELON	542.00	705.40	590.00	203.00	8,974.00	1,769.00	611.00	23,538.20	984.00	-	157.00	149.00	75.00	38,297.60
CHINEESE CABBAGE	-	-	-	-	-	351.00	349.00	360.00	8,522.00	5,496.00	5,758.00	1,744.00	130.00	22,710.00
PUMPKIN	1,595.00	2,454.20	2,152.00	2,656.00	647.00	1,440.00	1,019.00	350.00	1,688.00	1,405.00	868.00	441.00	502.00	17,217.20
TOMATOE	369.00	379.70	889.00	1,526.00	1,320.00	2,398.00	224.00	1,188.00	3,381.00	1,656.00	1,980.00	942.00	660.00	16,912.70
PINEAPPLE	260.00	2,698.90	1,100.00	628.00	48.00	267.00	337.00	196.00	1,533.00	914.00	1,751.00	1,793.00	3,134.00	14,659.90
CUCUMBER	312.00	824.20	518.30	967.00	854.00	730.00	790.20	284.00	2,289.00	1,788.00	1,053.00	1,758.00	507.00	12,674.70
ENGLISH CABBAGE	531.00	478.70	356.30	880.00	-	132.00	200.00	409.00	798.00	3,235.00	3,887.00	1,249.00	178.00	12,334.00
PACCHOI	703.00	505.00	178.00	119.00	1,491.00	212.00	492.00	477.00	2,384.00	1,932.00	2,017.00	1,219.00	587.00	12,316.00
CAPSICUM	703.00	1,520.60	-	-	738.00	-	-	-	2,430.00	1,354.00	1,649.00	1,221.00	646.00	10,261.60
Zucchini Luffa	-	-	-	-	-	-	-	-	-	-	-	10,145.00	39.00	10,184.00
CARROT	579.00	138.70	1,101.00	8.00	961.00	1,873.00	1,880.00	3,106.00	-	30.00	50.00	69.00	-	9,795.70
GINGER	27.00	291.20	105.00	35.00	234.00	2,380.00	124.00	5,444.00	172.00	135.00	148.00	195.00	42.00	9,332.20
LETTUCE	186.00	694.10	393.30	243.00	133.00	873.00	2,193.00	252.00	481.00	1,093.00	1,371.00	734.00	135.00	8,781.40
CELERY	819.00	654.60	948.00	1,289.00	499.00	1,457.00	1,106.00	1,720.00	-	-	-	-	-	8,492.60
LOCAL ORANGES	105.00	25.20	-	5.00	-	39.00	10.00	13.00	950.00	1,342.00	2,207.00	2,281.00	139.00	7,116.20
SAGO	313.00	773.50	236.00	1,699.00	669.00	1,600.00	1,168.00	196.00	10.00	-	-	-	-	6,664.50
AVOCADO	506.00	951.20	275.00	752.00	210.00	687.00	265.00	27.00	219.00	636.00	591.00	761.00	464.00	6,644.20
BEANS	332.00	355.00	529.00	1,173.00	385.00	500.00	701.00	679.00	503.00	249.00	332.00	573.00	279.00	6,590.00
TARO	108.00	475.70	152.00	446.00	646.00	1,371.00	2,501.00	86.00	315.00	250.00	104.00	29.00	-	6,483.70
EGG PLANT	364.00	45.00	-	-	3,130.00	50.00	86.00	429.00	917.00	230.00	106.00	566.00	302.00	6,225.00
SPRING ONIONS	-	-	-	252.00	886.00	651.00	892.00	629.00	313.00	510.00	615.00	592.00	101.00	5,441.00
LEMON	376.00	362.00	489.00	913.00	248.00	1,037.00	636.00	1,148.00	15.00	-	-	-	-	5,224.00
SINGAPORE	-	-	-	-	247.00	55.00	109.00	1,409.00	915.00	529.00	677.00	464.00	-	4,405.00
SALADEER	692.00	603.70	378.00	262.00	274.00	899.00	318.00	57.00	-	-	-	-	-	3,483.70
Water Cress	-	-	-	-	356.00	22.00	2,474.00	498.00	-	-	-	-	-	3,350.00
SNAKE BEAN	-	-	-	-	161.00	181.00	-	92.00	1,446.00	306.00	56.00	543.00	476.00	3,261.00
KULAU	-	-	-	-	-	237.00	881.00	821.00	613.00	306.00	-	-	-	2,858.00
PITPIT	-	-	43.00	382.00	277.00	288.00	6.00	942.00	10.00	-	21.00	523.00	81.00	2,573.00
LOCAL MANDARIN	28.00	-	-	-	-	-	-	8.00	157.00	84.00	401.00	1,795.00	61.00	2,534.00
TAPIOKA	-	-	-	-	-	-	387.00	1,940.00	149.00	-	39.00	-	-	2,515.00
CORN - LOCAL	113.00	121.00	9.00	-	314.00	230.00	-	360.00	139.00	264.00	221.00	256.00	112.00	2,139.00
CHACCO Fruits	-	98.00	-	-	15.00	32.00	-	-	687.00	545.00	12.00	100.00	118.00	1,607.00
PAWPAW	436.00	682.00	22.00	144.00	-	108.00	22.00	59.20	15.00	-	-	-	-	1,488.20
PUMPKIN TIPS	-	-	-	-	93.00	165.00	-	868.00	-	-	-	-	-	1,126.00
MANGO	-	-	-	-	81.00	16.00	-	705.00	-	-	-	101.00	161.00	1,064.00
FERN	-	-	-	-	147.00	537.00	-	317.00	-	-	-	-	-	1,001.00
CHILLI	-	-	-	-	-	-	-	155.00	234.00	173.00	2.00	75.00	84.00	723.00
EATING BANANA	444.00	130.40	-	-	52.00	-	-	84.00	-	-	-	-	-	710.40
RADDISH	-	-	-	-	85.00	181.00	10.00	205.00	22.00	87.00	69.00	-	-	659.00
BROCOLLI	-	-	-	-	541.00	-	50.00	-	-	10.00	-	-	-	601.00
POTATOES	-	91.00	-	-	74.00	332.00	-	-	-	-	-	-	-	497.00
COOKING BANANA	80.00	72.10	-	-	42.00	92.00	89.00	100.00	20.00	-	-	-	-	495.10
PARSLEY	-	18.00	2.00	-	-	53.00	-	12.00	9.00	10.00	16.00	11.00	2.00	133.00
FRESH PEANUT	-	-	-	-	-	-	-	121.00	-	-	-	-	-	121.00
TOTALS	15,324.00	24,535.20	17,962.90	23,765.00	42,635.00	37,506.00	57,665.40	59,630.40	39,335.00	28,643.00	31,337.00	36,696.00	13,293.00	428,327.90

# MDF FRESH PRODUCE AGRIBUSINESS PARTNERSHIPS STUDY REPORT

Table 3: Total revenue earned by NAL from the sales of fresh food and vegetables to NCS arranged in the order of highest to lowest Kina earned by crops.

CROPS	VALUES IN PGK													TOTAL
	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	
KAUKAU	13,130.70	20,165.97	13,381.50	18,585.60	9,315.90	16,925.70	21,199.20	12,863.40	19,496.40	13,348.50	15,823.50	17,985.00	12,074.70	204,296.07
WATERMELON	1,897.00	2,468.90	2,065.00	710.50	31,409.00	6,191.50	2,138.50	82,383.70	3,936.00	-	628.00	596.00	300.00	134,724.10
YAM	-	-	-	-	26,160.00	15,575.00	67,178.00	8,942.50	330.00	-	-	-	-	118,185.50
TOMATOE	2,509.20	2,581.96	6,045.20	10,376.80	8,976.00	16,306.40	1,523.20	8,078.40	22,990.80	11,260.80	13,464.00	6,405.60	4,488.00	115,006.36
AIBIKA /Aupa	3,288.00	9,100.80	12,568.00	14,204.00	18,064.00	11,608.00	17,760.00	11,484.00	3,900.00	116.00	1,536.00	3,668.00	2,476.00	109,772.80
CHACCO Fruits	-	-	-	-	-	1,263.60	1,256.40	1,296.00	34,088.00	21,984.00	23,032.00	6,976.00	520.00	90,416.00
GINGER	229.50	2,475.20	892.50	297.50	1,989.00	20,230.00	1,054.00	46,274.00	1,462.00	1,147.50	1,258.00	1,657.50	357.00	79,323.70
PINEAPPLE	1,300.00	13,494.50	5,500.00	3,140.00	240.00	1,335.00	1,685.00	980.00	8,431.50	5,027.00	9,630.50	9,861.50	17,237.00	77,862.00
C/BANANA	2,952.60	6,386.52	-	-	3,099.60	-	-	-	16,524.00	9,207.20	11,213.20	8,302.80	4,392.80	62,078.72
EGG PLANT	2,336.40	2,106.28	1,567.72	3,872.00	-	580.80	880.00	1,799.60	3,990.00	16,175.00	19,435.00	6,245.00	890.00	59,877.80
CAPSICUM	5,569.20	4,451.28	6,446.40	8,765.20	3,393.20	9,907.60	7,520.80	11,696.00	-	-	-	-	-	57,749.68
CUCUMBER	1,248.00	3,296.80	2,073.20	3,868.00	3,416.00	2,920.00	3,160.80	1,136.00	10,300.50	8,046.00	4,738.50	7,911.00	2,281.50	54,396.30
PACCHOI	2,812.00	2,020.00	712.00	476.00	5,964.00	848.00	1,968.00	1,908.00	9,536.00	7,728.00	8,068.00	4,876.00	2,348.00	49,264.00
L/ORANGE	837.00	3,123.45	1,769.85	1,093.50	598.50	3,928.50	9,868.50	1,134.00	3,078.40	6,995.20	8,774.40	4,697.60	864.00	46,762.90
PUMPKIN	4,147.00	6,380.92	5,595.20	6,905.60	1,682.20	3,744.00	2,649.40	910.00	4,388.80	3,653.00	2,256.80	1,146.60	1,305.20	44,764.72
C/CABBAGE	2,316.00	554.80	4,404.00	32.00	3,844.00	7,492.00	7,520.00	12,424.00	-	150.00	250.00	345.00	-	39,331.80
LETTUCE	619.50	148.68	-	29.50	-	230.10	59.00	76.70	4,750.00	6,710.00	11,035.00	11,405.00	695.00	35,758.48
Zucchini	-	-	-	-	-	-	-	-	-	-	-	35,507.50	136.50	35,644.00
AVOCADO	2,530.00	4,756.00	2,875.00	3,760.00	1,050.00	3,435.00	1,325.00	135.00	1,095.00	3,180.00	2,955.00	3,805.00	2,320.00	33,221.00
S/BEAN	1,408.50	3,480.75	1,062.00	7,645.50	3,010.50	7,200.00	5,256.00	882.00	45.00	-	-	-	-	29,990.25
E/CABBAGE	1,820.00	225.00	-	-	15,650.00	250.00	430.00	2,145.00	4,034.80	1,012.00	466.40	2,490.40	1,328.80	29,852.40
BEANS	1,494.00	1,597.50	2,380.50	5,278.50	1,732.50	2,250.00	3,154.50	3,055.50	2,263.50	1,120.50	1,494.00	2,578.50	1,255.50	29,655.00
SINGAPORE	-	-	-	1,134.00	3,987.00	2,929.50	4,014.00	2,830.50	1,408.50	2,295.00	2,767.50	2,664.00	454.50	24,484.50
TARO	378.00	1,664.95	532.00	1,561.00	2,261.00	4,798.50	8,753.50	301.00	1,102.50	875.00	364.00	101.50	-	22,692.95
L/MANDARIN	1,504.00	1,448.00	1,956.00	3,652.00	992.00	4,148.00	2,544.00	4,592.00	67.50	-	-	-	-	20,903.50
SAGO	-	-	-	-	1,111.50	247.50	490.50	6,340.50	4,117.50	2,380.50	3,046.50	2,088.00	-	19,822.50
S/ONIONS	3,114.00	2,716.65	1,701.00	1,179.00	1,233.00	4,045.50	1,431.00	256.50	-	-	-	-	-	15,676.65
SALADEER	-	-	-	-	724.50	814.50	-	414.00	6,507.00	1,377.00	252.00	2,443.50	2,142.00	14,674.50
Water Crash	-	-	-	-	1,424.00	88.00	9,896.00	1,992.00	-	-	-	-	-	13,400.00
LEMON	126.00	-	-	-	-	-	-	36.00	706.50	378.00	1,804.50	8,077.50	274.50	11,403.00
KULAU	-	-	-	-	-	734.70	2,731.10	2,545.10	1,900.30	948.60	-	-	-	8,859.80
TAPIOKA	-	-	-	-	-	-	1,199.70	6,014.00	461.90	-	120.90	-	-	7,796.50
CORN - LOCAL	395.50	423.50	31.50	-	1,099.00	805.00	-	1,260.00	486.50	924.00	773.50	896.00	392.00	7,486.50
PITPIT	-	-	120.40	1,069.60	775.60	806.40	16.80	2,637.60	28.00	-	58.80	1,464.40	226.80	7,204.40
PAWPAW	1,831.20	2,864.40	92.40	604.80	-	453.60	92.40	248.64	63.00	-	-	-	-	6,250.44
CARROT	-	490.00	-	-	75.00	160.00	-	-	2,473.20	1,962.00	43.20	360.00	424.80	5,988.20
MANGO	-	-	-	-	315.90	62.40	-	2,749.50	-	-	-	393.90	627.90	4,149.60
Celery	-	-	-	-	-	-	-	697.50	1,404.00	1,038.00	12.00	450.00	504.00	4,105.50
BROCOLLI	-	-	-	-	3,516.50	-	325.00	-	-	65.00	-	-	-	3,906.50
CHILLI	480.00	432.60	-	-	252.00	552.00	534.00	600.00	84.00	-	-	-	-	2,934.60
E/BANANA	1,642.80	482.48	-	-	192.40	-	-	310.80	-	-	-	-	-	2,628.48
FERN	-	-	-	-	367.50	1,342.50	-	792.50	-	-	-	-	-	2,502.50
PUMPKIN TIPS	-	-	-	-	204.60	363.00	-	1,909.60	-	-	-	-	-	2,477.20
RADDISH	-	-	-	-	306.00	651.60	36.00	738.00	79.20	313.20	248.40	-	-	2,372.40
POTATOES	-	409.50	-	-	333.00	1,494.00	-	-	-	-	-	-	-	2,236.50
PARSLEY	-	145.80	16.20	-	-	429.30	-	97.20	72.90	81.00	129.60	89.10	16.20	1,077.30
FRESH PEANUT	-	-	-	-	-	-	-	242.00	-	-	-	-	-	242.00
TOTAL	61,916.10	99,893.19	73,787.57	98,240.60	158,764.90	157,147.20	189,650.30	247,208.74	175,603.20	129,498.00	145,679.20	155,487.90	60,332.70	1,753,209.60

### Appendix 1. Itinerary of trip to New Ireland Province in December 2019 by Matt Kanua, Eleo Dowa and Taidas Manzang from MDF

Day	Date	Location and what the MDF Team did
Sunday	8th	Flew from Port Moresby to Kokopo, ENBP
Monday	9th	Travel by Ferry from Kokopo to West Coast Namatanai. We were picked by NAL and taken to Namatanai station
Tuesday	10th	Inspected NAL market depot, interviewed key staff. Meeting with NAL CEO & Operations Manager
Wednesday	11th	AM: Inspect NAL market depot, interviewed key staff and vendors PM: Visited DPI extensions & training base camp
Thursday	12th	AM: Meeting with Allan Pinia (Part Time Technical Advisor) PM: Ferry trip to Lihir. Dinner meeting with NML Superintendent & senior staff
Friday	13th	AM: Inspect NSC storage depot, chillers and interviewed key staff. Held discussions with NML Superintendent and senior staff PM: Visited Anitua hatchery, piggery, poultry projects and abattoir. Flew to Kokopo.
Saturday	14th	Meeting with Herman Valvalu (ex ENBP Market Development Authority) and visited vegetable farm and Kokopo market
Sunday	15th	Flew from Kokopo, ENBP back to Port Moresby



**Appendix 2: Demand for fresh food at mines and markets in NIP (Annex 4).**

Extract from Ben Mullen, Matthew B. Kanua and R. Michael Bourke (December) 2018. Notes from Report entitled, "Opportunities for agricultural and rural development in Kavieng and Namatanai Districts, New Ireland Province, Papua New Guinea. Australian National University Enterprise Ltd, Canberra."

**Simberi Mine fresh food demand**

The Simberi Gold Mine is operated by St Barbara Mining Ltd. We met Stanis Pambil who is St Barbara Mining Ltd's Government & Stakeholder Liaison Officer based in Kavieng. Stanis is a local Simberian and he has an in-depth understanding of the operations of the company, fresh food demand on the islands and what opportunities are available to be exploited by the people. The construction phase of the Mine ended in 2007 and gold production started in 2008. Since the company has a work force population of about 1000 employees.

The Company encourages the local community to grow and supply fresh food to the mine mess. Most of the fresh food is currently supplied from Tabar, Simberi and Tatau islands. Shortfall in supply is met by contract sellers from the Lelet Plateau and other areas on the mainland. Apart from fresh food, eggs are supplied locally by a local resident company. Poultry meat is purchased from various sources in Lae. We were not provided data on the actual demand of the various types of fresh food species and meat required by the Mine annually.

**Lihir Mine fresh food demand**

We met a team led by Mr George Hebron, NCS Catering Manager from NCS, Lihir and discussed the business partnership between Newcrest/NCS and WFA to purchase fresh food from Namatanai district. Newcrest will provide K4 million to start the fresh food buying program.

Table 10. Newcrest's standing order for fresh produce to be supplied by WFA

Description	Monday	Tuesday	Wednesday	Thursday	Friday
(amount required in kg)					
Aibika	200	100	200	100	200
Beans	40	40	40	25	30
Snake beans	30	30	30	50	30
Capsicum	50	50	50	50	30
Cucumber	20	20	20	20	15
Egg plant	30	30	30	30	30
Ginger	5	5	5	5	
Kaukau	300	300	300	300	300
Lemon / Mandarin	50	50	50	50	50
Pak choi	150	250	170	250	200
Parsley	5	5	5		5
Pineapple	100	200	100	200	100
Pumpkin	200		200		200
Avocado	50	50	50	50	30
Cabbage	100	100	100	100	100
Lettuce	80	80	60	80	80
Onions / Spring onions	30	30	30	30	20
Tomato	60	60	60	60	
Watermelon		100		100	80
<b>Total (kg/day)</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>

**Simberi Vegetable contract buyer – Francesca Williams**

We met Francesca Williams at Konos. She operates a small business which has an official business registration certificates from IPA. This is a requirement by Simberi Mines. Previously between 2009 – 2013 Francesca bought and sold fresh food to Lihir Gold Mines. Then from 2014 to the present time she purchases and sells fresh food to Simberi Mines on contract. In one sales trip she supplied the following items:

Table 11. Fresh produce supplied to Simberi mine by Ms Williams in a single marketing trip

Description and amount	Description and amount
5 baskets of kaukau (50 kg)	6 baskets of kongkong taro (50kg)
2 bags capsicum	3 bags pak choi
6 baskets aibika	3-4 bags snake beans
5 bags ripening banana	7 bags cooking banana
2 baskets spring onion	5 bags Salader cabbage (Sakaio)
7 baskets watercress	5-7 bags pineapple
6 bags pumpkin	4 bags pawpaw

This represents a sample of the quantities of fresh food purchased and shipped to Simberi by one female entrepreneur. Francesca said that the demand at Simberi and Lihir Catering department was high but coupled with demand for fresh food around the mine communities, the demand was very strong and required a better coordinated and managed approach to realise the opportunity. Apart from Ms Williams, there were several other contract buyers from Lelet Plateau supplying the company mess at Simberi.

Francesca's main cost outlay were for dinghy hire K1000 (return trip) and K3400 for purchase of fresh food Purchase. She earned a gross income of between K7,000 – K8,000. Over the years she saved some of the money she earned and with the support of a bank loan from a NDB she purchased a 40 HP dinghy. Francesca said apart from fresh food, Simberi management had asked her to supply flowers. This raises a demand to train women on floricultural techniques. They will require training not only to grow different types of flowers but also prepare and arrange flowers for display in offices and other hotels.

Francisca has a list of women she works with who produce the food for her. She keeps a mobile phone address and rings them to arrange pick up of various types of fresh food. She pays the grower cash, picks up the fresh food and ships it to Simberi.

**Lihir (NCS) Vegetable contract buyer – Mr Simion Tangor**

Simon has a contract with NCS Lihir and been buying and selling fresh out of Namatanai. He buys and sells capsicum, lettuce, tomato, pak choi, Chinese cabbage, English cabbage, carrot, kaukau, aibika, bean, eggplant, pumpkin, watermelon, pineapple, cucumber and avocado.

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We met the following people and held discussions with in Namatanai, on Lihir Island and in Kokopo.

### **Namatanai Advancement Ltd**

Hosea Kalis (NAL CEO)

Sam Lekneke (Operations Manager, NAL)

Christian Niambari, Manager MiBank Super Agent, Namatanai

Matthew Sale, Liaison Officer, NAL/MiBank

Allan Pinia – Part Time Technical Advisor

Israel Isaiah (District Coordinator, Economic Services)

### **Newcrest Mining Limited (NML) and National Catering Services Ltd**

Glen Sherry, Superintendent Business Support, NML

Billy (William) Gracie, Project Manager, NCS

George Anthony Hebron, Purchasing Manager (on break, we did not meet him)

Nebo Smacker, NCS Warehouse Manager,

Luke More, Logistics Manager

Ian Banono, NCS Food Safety/Quality Manager,

Jovet Bacsaine, Farm Manager, Lihir Integrated Livestock Ltd,

### **East New Britain Market Development Authority**

Herman Valvalu – Former CEO, East New Britain Market Development Authority

Howard Meraveka – Kumul Agriculture Ltd (Kokopo) (Phone: 71659021)

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