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Evaluation of New Zealand's Country Programme in PNG

Part III: Linking Farmers to Markets

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3. Linking Farmers to Markets

Agricultural is of central importance to the PNG economy. Linking farmers to markets is one of New Zealand's priorities under the Joint Commitment for Development. New Zealand has been supporting agriculture, and fresh produce production and marketing in particular, for over 30 years in PNG. This Part reviews the performance of New Zealand's support in this important area. It begins with an overview of the agricultural context, followed by assessments of major activities in this space. This includes reviewing different approaches such as the 'lead firm approach', which involves partnering with private sector companies, agricultural activities delivered through non-bilateral and regional modalities, and market infrastructure projects.

3.1. Agricultural Context

Approximately 80 per cent of Papua New Guineans live in rural areas and are dependent on agriculture for their livelihoods[1]. Agriculture is the mainstay of the PNG economy and accounts for approximately 30 per cent of GDP[2]. It has been estimated that 82 per cent of the population aged over 10 years of age are engaged in agricultural production in some way[3]. Women play a key role in agriculture. They do around 70 per cent of the work and play pivotal roles in agricultural marketing in the informal sector in particular[4]. Subsistence farming systems, dominated by the production of root crops, provide staple food for households across the country. These root crop - based systems are highly productive, particularly when considered from the viewpoint of land and labour inputs. Farmers do engage in cash crop production, which is used to generate income for goods and services, typical cash crops include: oil palm, coffee, cocoa, coconuts, tea, and fruits and vegetables.

PNG is characterised by significant agro-ecological diversity and this allows for the production of a wide variety of fruit and vegetables all year round. The highlands of PNG is a particularly important locus of production in this regard. The production of fresh produce in the highlands provinces helps supply Port Moresby and the markets in Lae and Mt Hagen, which remain key domestic markets. Recent estimates suggest that the Port Moresby fresh produce market is around 190,000 tonnes per annum[5]. Supply from the highlands provinces is not as significant as previously thought[6] with the vast majority of vegetable supplies to Port Moresby (~90 per cent) originating in Central Province. Supply from peri – urban areas around Port Moresby is significant, and is set to increase through a number of large investments including 9 Mile Farm, a $28 million investment by an Israeli company - Innovative Agro Industry (IAI) - in hydroponic vegetable production[7].

The PNG fresh produce market is comprised of three segments: the formal market, wherein producers sell to wholesalers, who in turn sell to retailers in urban centres and mining enclaves; the informal market, which are the open air markets found in every city, town and village across the country; and direct bulk selling, wherein producers sell directly to supermarkets, restaurants and resellers[8]. It has been estimated that the market share of fresh produce in the formal sector is about 10-15 per cent compared with 85-90 per cent for the informal sector[9]. Women are particularly prominent in informal markets, where they sell their produce in small stalls to buyers in municipal and road side markets. Aside from their role in informal markets, the role of women in fresh produce supply chains is not well documented.

[1] PHAMA (2016)
[2] World Bank (2013)
[3] Coppel (2004)
[4] World Bank (2013)
[5] PHAMA (2016)
[6] PHAMA (2016)
[7] http://www.businessadvantagepng.com/israeli-expertise-boosting-papua-new-guinea-fresh-food-independence/
[8] Benediktsson (2002)
[9] Chang (2009)

In the fresh produce sector domestic marketing pathways are poorly developed and export marketing pathways are virtually non-existent. A recent report[10] suggested that there are very few viable export pathways for agricultural products from PNG and that better returns would be forthcoming from the development of the domestic market. Domestic marketing opportunities were seen as easier and more profitable and include a number of import substitutes. The report concluded "…..*it is questionable whether PNG should invest significant resources in the development of fresh produce export marketing pathways, given the likelihood that, in the immediate future, better returns would be forthcoming from the development of the domestic market*"[11]. (Note that 9 Mile Farm does export to Fiji, utilising the Melanesian Treaty which provides a 30% 'buffer' over Australian and New Zealand exports to Fiji. Otherwise all production is aimed at domestic supply channels.)

There are very significant constraints to the development of the domestic fresh produce market. A comprehensive analysis by the ADB in 2004[12] identified the key constraints as follows:

- Inadequate transport infrastructure (particularly in the Highlands and in secondary and tertiary road networks), lack of infrastructure maintenance and periodic road closures;
- Expensive and limited air freight, unpredictable flight schedules and lack of cold chain facilities;
- Lack of access to affordable finance;
- Law and order problems – in the Highlands region in particular;
- The subsistence orientation of farmer's means that cash crop production is largely opportunistic, which, in turn leads to unpredictable supply;
- Overcrowded, poorly equipped and poorly managed urban markets;
- Small number of quality wholesalers, who struggle to gain access to finance to expand their businesses;
- High price expectations from growers for the small marketable surpluses they produce;
- Lack of confidence between value chain actors;
- Poor telecommunications;
- Lack of timely market information; and
- Significant quality deterioration in the many stages between farmer and consumer.

The latter point is particularly important from the perspective of fresh produce supply. A research project conducted in the formal sector in 2011 highlighted the significant problems with quality deterioration and unpredictability of supply and the impact that has on prices[13]. This research found that the quality requirements of buyers varied considerably and the demand for quality in urban areas was largely not met due to communication deficits between buyers and suppliers. Quality requirements are not well defined and quality is perceived differently amongst the different supply chain actors. There exist no quality standards in PNG.

[10] PHAMA (2016)

[11] PHAMA (2016) p iv

[12] ADB (2004)

[13] Chang, C., and G. Griffith (2011) "Assessing buyer's requirements for fresh produce in the formal market sector in PNG", *Australasian Agribusiness Review* – Vol. 19 pp 64-75

3.2. Overview of New Zealand's Investments

It is in this challenging and complicated environment that New Zealand has prioritised agriculture and support for fresh produce markets in particular. This builds on a history of such support from the 1980s onwards, which has included assisting with institutional strengthening of the Fresh Produce Development Agency, the trialling of joint venture arrangements, challenge funds, projects targeting smallholder farmers and community led extension-type projects[14]. This has now evolved into the use of 'Lead Firms' to link farmers to markets.

The JCFD outcome for agriculture is "Increase economic returns and food security benefits from agriculture". To achieve this New Zealand focuses on two key areas: improving the fresh produce supply chain and supporting the development of market infrastructure. New Zealand also supports a range of smaller activities through the Partnerships Fund that focus on lifting incomes through cash crop production. The details of these activities are outlined in Table 3.1.

As highlighted in Table 3.1, New Zealand's investments cover a number of provinces and modality types and include 'lead firm' approaches in the Western Highlands and Morobe that link farmers to markets through private sector intermediaries; more traditional community development partnerships with NGOs that focus on raising productivity and community development; and market infrastructure activities wherein MFAT partners with PNG government entities to build infrastructure which provides safer, more productive locations for smallholders and vendors across the country.

As highlighted in Table 3.1, the progress of these activities has varied widely. The discussion below provides more in-depth details of the main projects funded by MFAT.

[14] Key Informant 21

Table 3.1 New Zealand's major investments in 'Linking farmers to markets'

Project	Current Triennium	Previous Triennium	Whole of life	NZ share	Partner	Region (Province)	Start date	Status
PNG Fresh Produce IFC Cultivating Opportunity (A12213)	2,000,000		2,000,000		IFC	Western Highlands	April 2015	**Did not progress as planned; Ineffective modality**
Tininga Fresh (A12291)	815,328		815,328	50%	Tininga	Western Highlands	Oct 2015	**Progressing in line with expectations**
NKW Fresh (A12291)	1,747,000		1,747,000	50%	NKW Holdings	Morobe	Dec 2015	**Progressing in line with expectations**
Gordon's Market Upgrade (A11967)	-	7,000,000	7,000,000	50%	UN Women	Papua (NCD)	June 2014	**Progress with construction expected from 2018**
Saraga Market (A12215)		1,450,000	1,450,000		NCDC/MSMMB	NCD – Port Moresby South	March 2014	**Completed after long delays – indeterminate effectiveness**
Simbu Farmers Marketing Ltd	TBC		TBC	TBC	Chimbu Provincial Government	Chimbu	2014	**Stalled**
Bogia Smallholder Market Access (A11306)		1,652,093	1,652,093	80%	World Vision of NZ	Madang	May 2013	**Completed – indeterminate effectiveness**
Highlands Accessing Rual Value-Chains for Equitable Sustainability (HARVEST) (A12523)			2,796,000 (of total maximum cost 3,495,000)	80%	Oxfam	Jiwaka, Chimbu and Eastern Highlands	2016	**Underway indeterminate effectiveness**
Lae Market redevelopment (A12679)	785,000		TBC			Morobe		**Progress expected in 2018**
Regional Pacific Fairtrade Development		651,000	651,000[15]	100%	Fairtrade ANZ	National	May 2012	**Completed – indeterminate effectiveness**

[15] Total regional value NZ$ 4,560,000 across seven countries so PNG allocation assumed to be one-seventh of the total

3.3. Detailed Activity Assessment – Tininga Fresh

Relevance	Efficiency	Effectiveness	Sustainability	Impact

3.3.1. Overview and Objectives

One of the approaches adopted by New Zealand to link farmers to markets is through a lead firm approach. Lead firms are key players in agricultural value chains. The lead firm approach is based on the premise that within value chains there are dynamic 'lead' firms that have forward or backward commercial linkages with a large number of micro, small or medium size enterprises (or in this case small holder farmers). These firms provide important services in the form of buying, trading or input supply, and are often involved in the aggregation of farming outputs. Within the private sector development space it is thought that supporting lead firms to provide such services will increase the sustainability and scale of impact and lead to greater market competitiveness[16].

Tininga Ltd, is a Mt Hagen based company that specialises in providing retail and wholesale services in the supermarket and hardware industries, it also has a distribution and fresh produce wholesale business. It employs over 600 people across the company. In October 2015 Tininga entered into an agreement with MFAT and the IFC to expand its fresh produce wholesale business and strengthen commercial linkages with local farmers through the aggregation of local fresh produce. The NZ$ 1.63 million Tininga Fresh activity is funded in equal proportion by Tininga and MFAT and is scheduled to run to February 2021. MFATs support for Tininga also included the provision of funds to the IFC for the deployment of a fresh produce consultant who works on operational aspects of the business. This consultant provides vital support for the business.

The aim of the activity is to facilitate improved and sustainable returns to farmers supplying the Tininga supply chain aimed at capturing greater value in the PNG economy. It aims to achieve this objective through a range of means, including:

- the provision of production and post-harvest extension services to farmers that aims to increase productivity and maintain quality
- the provision of better collection and aggregation services to make it easier for farmers to supply Tininga
- improvements to the cool chain system to ensure the quality of fresh produce is maintained from farm gate to consumer
- improvements in packaging
- the distribution of improved seed varieties
- the registration of farmers
- upskilling Tininga personnel in various aspects of the fresh produce supply chain.

Together these activities are designed to increase fresh produce volumes, reduce waste and supply high quality produce to Tininga customers in a timely fashion. These supply chain improvements will then lead to higher incomes for farmers and more revenue for Tininga, while also capturing greater value in the PNG economy through import substitution.

Prior to the beginning of this initiative, Tininga's fresh produce business was relatively small, providing between 10 and 14 tonnes per month to one primary customer in Port Moresby. Its relationships with farmers were comparatively ad hoc. Smallholders were selling their cash crops to speculative buyers or in local informal markets. There was very little focus on quality, a lack of postharvest awareness

[16] http://pdf.usaid.gov/pdf_docs/PNADP042.pdf

and limited cold chain improvement. Selecting Tininga as a lead firm was a logical choice based on its existing commercial linkage its strong management and its capacity to deliver a range of services to smallholder farmers in the Mt Hagen area, where it is based.

The MFAT/Tininga funded activity was aligned with and supported by the IFC Cultivating Opportunity project, to which New Zealand provided NZ$ 2 million in 2015. With these funds the IFC was to provide the services of a consultant, which it has done, as well as undertake a number of other tasks, including baseline surveys, farmer training and extension. The IFC was also meant to identify and work with other lead firms in addition to Tininga. This activity has not progressed in line with MFAT's expectations and there have been significant delays in various aspects of the activity, which have stemmed from recruitment issues within the IFC.

3.3.2. Progress so far

As reported by MFAT[17] the Tininga Fresh activity has made significant progress in four of the six outputs, partial progress in one output and no progress in the setting up of an aggregation facility due to an ongoing court case over land. The Tininga activity has performed significantly better than the NKW lead firm activity discussed below, and New Zealand's other lead firm activity, the Simbu Farmers' Marketing Limited. The following results have been achieved over the two years:

- 30 lead and 600 other farmers have registered with Tininga
- Performance assessments of Tininga staff have been undertaken and an ongoing mentoring and training programme has been put in place so local managers can fully manage the supply chain
- Over 800 production and post-harvest training units have been rolled out, over 60 per cent of attendees have been women
- Improved seed varieties have been made available to farmers
- Cold chain infrastructure has been built and training has been provided to managers
- Monthly supply increased from 14 to 80 tonnes per month and has been maintained (note that during field work to Mt Hagen Tininga indicated that 150 tonnes per month is the break-even volume).
- Knowledge and adherence to quality standards has improved significantly and this has resulted in very low quality complaints from customers.

The latter issue is of particular importance in the fresh produce sector. Mt Hagen is 500 kilometres from the main markets in Port Moresby. Through improvements in supply chain logistics, it has been possible, on occasion, to decrease the time for transport via road and sea from Mt Hagen to Port Moresby to 3-4 days. There continue to be major disruptions along the Highlands Highway, emanating from either civil disputes or environmental factors, that have led to extended delays of weeks and at times months. With appropriate cold chain management, it is possible for fresh produce such as lettuce and broccoli to arrive in Port Moresby in a very good state if handled properly, however expensive airfreight is utillutilised to overcome unexpected delays. Onsite training and interventions at key points along the cold chain (initial handling, truck transport, storage at sea etc.) have meant that it is feasible to transport fresh produce to Port Moresby at a low price (0.40c per kilo)[18].

An important role has been played by Tininga's 30 lead farmers. These farmers have been the targets of productivity and post-harvest training and aside from providing reliable fresh produce supplies play an important role in aggregation. During field work it was noted that there appears to be a high turnover of lead farmers with many exiting the program due to a range of reasons, including: inability to meet supply, higher prices at the local markets, ongoing issues of poor quality, and other personal issues.

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[17] Tininga Fresh Activity Monitoring Assessment, 17th May 2017

[18] Key Informant 37 per comm October 18th 2017

Progress has been constrained by a number of factors some of which are beyond the control of Tininga such as logistical risks associated with landslides and road blockages (note that in 2017 the Highlands Highway experienced 6 weeks of closures). There are a number of other constraints that were identified during the field work that require attention. These constraints may affect the overall sustainability and impact of the activity, including:

- The increased supply of high quality produce from farmers in Central Province and the new 9 Mile Farm in Port Moresby is undermining the financial viability of establishing a sustainable fresh produce supply chain between Mt Hagan and Port Moresby. There is a need to undertake (or update) a market feasibility study that factors in the new 9 Mile Farm in Port Moresby.
- Reduced demand for premium produce due to the economic downturn, especially in Lae and Port Moresby. The abovementioned feasibility study should look at the availability of markets and the different [grades] of fresh produce demanded.
- The extensive and unfettered use of agri-chemicals and the possibility of health and environmental impacts. This is of significant concern from a sustainability perspective. Farmers are procuring agri-chemicals (often from Tininga) with very limited knowledge of agri-chemical use. Information provision vis-à-vis the safe and targeted use of chemicals is limited. Farmers are using these chemicals in increasing numbers as they see this as prerequisite for the production of high quality vegetables. There are significant negative externalities associated with the inappropriate use of pesticides, these include[19]: damage to local flora and fauna, the destruction of beneficial organisms and the increasing virulence of pests, human morbidity and mortality associated with exposure to unsafe levels of pesticides and food safety issues if application protocols are not followed. The expansion of extension services in this area needs to be undertaken urgently, including training in the safe use of chemicals, data collection and audit on the current situation. Health surveys should also be conducted at lead farms to track short and long term exposure issues.
- The gender equity issues associated with the lead farmer approach are unknown. Specific technical knowledge on gender equity needs to play a stronger role within the support package with a do no harm approach taken at a minimum. There is a general lack of gender disaggregated data and very little consideration of the potentially negative effects of the lead firm model on gender equity in the local cultural context. This is very troubling considering the ubiquity of gender based violence in the region and the high female participation rates in local agricultural production.
- There are concerns over the ongoing financial viability of lead farmers as they face increased input costs and lower than expected prices for their produce. This has potential to undermine supply. The provision of training in financial literacy and the expansion of access to credit services is a necessity.
- There is limited to no business data captured (or available) to inform future investments both under Tininga or other firms and a need to develop a stronger M&E framework with a business data analytics approach.

3.3.3. What have we learnt?

Aside from the addressing the constraints presented above. There are a number of key issues that require consideration by Tininga and MFAT over the remaining course of the project. The first issue relates to Tininga's stated preference to register a larger cohort of more 'professional' farmers. While this fits within the lead firm model and has numerous advantages (e.g. consistent supply of high quality produce), there is a need to think about the long term development implications of this if it is successful. It may mean that the majority of less 'professional' smallholder farmers do not have direct access to formal markets. This is an inevitable consequence of the lead firm and lead farmer model.

[19] Wilson, C and C. Tisdell (2001) Why farmers continue to use pesticides despite environment, health and sustainability costs. Ecological Economics, Volume 39, Issue 3

But what ramifications will this have in the local context? It could increase inequality between farmers. If the majority of lead farmers are men it could increase gender inequality as well.

It must also be asked, is this the most appropriate course of action to take in a place that is rife with conflict? Such a model could exacerbate existing tensions between different ethnic groups if it was perceived that one group is benefitting over another. While this might not be the case, it is not evident that MFAT or Tininga have the answer to such a question or any means of monitoring such issues.

The second issue is the longevity of investment. The high quality fresh foodsupply chain is in a nascent stage of development. Mechanisation, the use of inputs and other more 'professional' farming practices are at least a decade away according to some experts. It will take many years before 'improved' agricultural practices are widespread in the target area.

The third issue is environmental sustainability. There is already evidence that farmers supplying Tininga are using agri-chemicals, supplied by Tininga, in unsustainable and potentially dangerous ways. This issue was discussed at length above. Action needs to be taken to quantify the various risks associated with this use.

The fourth issue is the risk of monopsony and dependence on Tininga. While Tininga is operating as a lead firm and is providing a range of useful services, it is a business and it will seek to ensure the consistent supply of high quality products and the integration of farmers into its supply chains. It will be increasingly predisposed to contract farming models and providing input and credit to farmers. These models will expose farmers to risk when the inevitable downturns in the formal market occur. As noted throughout this report, PNG is characterised by very high levels of volatility in many areas. The formal market for fresh produce is just one area where markets can fluctuate. There is a need to ensure that a balanced approach is adopted and that safeguards are put in place to ensure that farmers are not exposed to high risk levels due to the creation of a monopsony for high quality produce.

3.4. Activity Assessments

3.4.1. NKW Fresh

Relevance	Efficiency	Effectiveness	Sustainability	Impact

New Zealand's second 'lead firm' investment is with NKW Holdings Ltd. NKW is a landowner owned company that was established in 2004 to provide services to the Hidden Valley mining project in Wau. It is comprised of three companies that provide a range of services including logistics, project management, construction, consulting and catering. In 2014 the company created a subsidiary called NKW Fresh which aggregates fresh produce from around the region and supplies products to the catering and retail sectors.

New Zealand is providing NZ$ 1.747 million over five years to the NKW Fresh initiative. This initiative aims to improve returns to farmers through the production of fresh produce, while also ensuring greater value is captured in the PNG economy from the production of local fresh produce. NKW Fresh is also investing NZ$ 1.599 million in the initiative. The total project budget is NZ$ 3.346 million.

The project focuses on strengthening the fresh produce supply chain through improvements in the provision of seed, construction of aggregation facilities, refurbishing collecting depots in remote areas, providing reliable chilled transport and employing skilled and experienced advisers who can support supply chain strengthening and provide appropriate advice to farmers.

Since its commencement in December 2015 the project has experienced some significant delays caused by an array of factors largely beyond the control of the project implementers. The declining value of the Kina against the USD led to an increase in the cost of aggregation equipment and supplies ordered internationally. Wastage and delays were also occasioned by landslides and floods which affected the timely transportation of fresh produce between Kainantu and Wau to the Lae aggregation facility. There were construction delays at the Mumeng collection depot which affected the quality of produce supplied by farmers.

Despite these issues some reasonable progress has been made against the key outputs and outcomes[20]:

- 1183 farmers have registered to supply fresh produce of whom 75 per cent are men and 25 per cent women, each of these has been paid an average of PGK1606
- Monthly supply has increased to 70 tonnes, up from 10 tonnes before the MFAT investment
- Improved seed varieties have been supplied to farmers which has helped increase the quality of produce
- The produce range has diversified
- The produce supplied has met market expectations and there is a demand for it
- Improvements in logistics has extended the shelf life of products and returned higher incomes to farmers
- Collection depots in remote areas have been rolled out and this has led to better aggregation and quality improvement
- Five new customer relationships have been established.

While these achievements are impressive considering the initial delays, from a business perspective the company faces some challenges. NKW has expanded rapidly off the back of the MFAT investment. A delay in the payment of a major catering contract resulted in some financial (or cashflow) stress which delayed payments to farmers and affected the relationship with suppliers. The company made an operating loss of NZ$ 512,381 in the 2016 financial year as a result of these issues. Financial pressure and the continuing risk of wastage and delay caused by weather events and poor road conditions adds a high level of risk to the enterprise.

MFAT officials are of the view that the investment decisions made by NKW will pay off in the end and that the organisational and management capacity and commercial acuity of the company is high. The firm has made significant progress in a number of areas that bode well from a sustainability perspective. It has invested in key staff who understand the fresh produce business, it has opened a sales office in Port Moresby that can increase the market base further, it has contracts with eight key clients, and it provides relevant advisory and extension services to farmers. Importantly it is focusing on building the strength of supply chains in localities around the collection depots. The recent international recognition of NKW Fresh's waste reduction efforts through the development of low tech software suggests that the company is able to find practical solutions to its business challenges[21]. NKW Fresh is also supported by the DFAT-funded Market Development Facility which augments the MFAT funded activity very well as it focuses more on training and the provision of extension advice.

Ensuring the predictable supply of high quality produce is a key to success. The delays in payment to farmers noted above is a risk from a sustainability perspective. Maintaining a strong, positive financial relationship with farmers is essential. There is a need to ensure predictability in payments and to ensure that financial arrangements with farmers, including expectations regarding payment, are clearly established and relevant to local context. Operational cash flow problems can arise from any number of exogenous issues including contract delays, logistical challenges, exchange rate issues, demand fluctuations etc. Due to the relative instability of the PNG economy it would be prudent to assume that these types of issues are normal. Measures need to be taken to smooth out the financial stress caused by these issues to ensure payments to farmers are made on time as continued episodes of non-payment will erode trust and undermine the foundations of the supply chain. MFAT

[20] NKW Fresh, Activity Monitoring Assessment, May 2017

[21] NKW Landowners Get International Recognition – Post Courier 27th November 2017

could investigate the possibility of establishing an insurance scheme that provides a hedging mechanis, noting that the benefits to farmers from positive shocks would also be reduced.

Further effort also needs to be made to improve data collection in a number of areas particularly in the area of gender. Improving gender outcomes is a key focus of the project. The recruitment of a gender adviser, which was initially delayed, provides a good opportunity to improve outcomes in this regard. More effort needs to be expended in the collection of gender disaggregated data. There are presently no gender disaggregated data on average income. Data on the growth in female participation is also important as the project should be able to establish whether women are increasingly seeing this initiative as a way to meet their economic needs. There is anecdotal evidence that as a result of this project domestic violence in the target areas has decreased[22]. If this is indeed the case then this warrants significant attention. MFAT should consider providing additional resources for the gender advisor to quantify if this is indeed the case and how this initiative has led to such an outcome. This could have significant implications for MFAT's work in PNG. This has the potential to scale up the impact of this project significantly by improving women's economic empowerment and reducing gender based violence.

3.4.2. Simbu Farmers Marketing Limited

Relevance	Efficiency	Effectiveness	Sustainability	Impact

MFAT's third 'lead firm' investment is with Simbu Farmers Marketing Ltd (SFML) which is a farmers cooperative based in Chimbu province. Chimbu is a remote, densely populated province located in the Central Highlands of PNG. The majority of the population of 376,473 are smallholder farmers who engage in subsistence agricultural production. Other important crops are coffee, taro, banana, yam and Cassava.

MFAT's initial support for SFML under the lead firm model is not, in retrospect, consistent with its support for NKW or Tininga. SFML is a struggling government business venture with a board largely comprised of political actors. Its major shareholder is a farmer's cooperative that is not functioning proactively and has little support from its own members. It has very thin operational management capacity. It has no diversified streams of income which can help subsidise fresh produce investments (like both Tininga and NKW) and very limited financial resources. Investment by the provincial government has not been forthcoming. It exhibits none of the characteristics of a lead firm as described under Section 3.3.1.

As a result of these constraints MFAT's investment in SFML and its expectations have shifted significantly since its initial engagement in 2014. The draft Activity Design Document has been put on hold as MFAT works with SFML to implement a quick wins contract, which was signed in January 2016. As of August 2017 there has been very little progress in the 'quick win' activity aside from some preliminary planning for storage facilities in Port Moresby for fresh produce delivered from Chimbu province. MFAT has proposed a number of different scenarios for future investment in SFML. This includes not pursuing the lead firm approach at all, which is logical considering the lack of lead form characteristics and pursuing some customised training/capacity development activity. This clearly does not align with MFAT's strategic focus on lead firms, but for political purposes is the only viable option under consideration.

[22] Ibid

3.4.3. Regional Pacific Fairtrade Development

Relevance	Efficiency	Effectiveness	Sustainability	Impact

Aside from its bilateral programme, MFAT also links farmers to markets through its regional programme. An example of such a programme is the Regional Pacific Fairtrade Development Programme. Through this programme New Zealand seeks to link PNG coffee and cocoa cash crop farmers to international fair trade markets. This NZ$ 4.5 million programme commenced in 2012 and ended in mid-2017. The programme was implemented by Fairtrade Australia and New Zealand in PNG, Fiji, Tonga, Samoa, Solomon Islands, Vanuatu and Timor-Leste. The programme aims to improve the livelihoods of smallholder farmers through the establishment of Fairtrade markets in key cash crops. In PNG the target crops are Coffee and Cocoa.

Coffee and cocoa are the two most important cash crops in PNG. Cocoa is the second most important export cash crop. Concentrated in the island regions of PNG this crop is grown by over 70,000 smallholder producers. A recent market assessment[23] highlighted the high quality of PNG Cocoa and its significant potential as a differentiated product. A lack of quality processing and other issues associated with transport and logistics affect supply at the present time. Production quantities also fluctuate quite widely. Coffee is the most important cash crop in PNG. Over 400,000 smallholder farmers produce 85 per cent of PNG's coffee. PNG is a modest exporter by global standards, ranking 13 of 39 in Arabica exports. The coffee sector in PNG is highly fragmented, the sector suffers from significant constraints in infrastructure and logistics, a lack of cooperatives, problems with security and financing options. Major markets do exist in differentiated markets in Germany, the US and Australia, but the potential of the industry has certainly not been realised[24]. As with cocoa, production can vary considerably year on year. For example in 2009 production totalled 60,240 tonnes, this increased to 84,870 tonnes in 201 and decreased to 55,000 tonnes in 2014[25].

It is in this complicated environment that the Fairtrade activity commenced in 2012. Fairtrade ANZ's work in PNG actually began in 2010 with pilot activities in PNG which mapped out different producer organisations that had the potential to achieve Fairtrade certification. The Fairtrade system, which seeks to promote a trading partnership based on dialogue and transparency focuses on establishing sustainable trading opportunities between organisations or cooperatives of farmers in developing countries with commercial entities primarily in developed countries. The aim being to provide these organisations with sustainable income streams which provide a social premium, allowing communities to benefit from fairer trade over the long term. For this to occur partner organisations in PNG need to be of a certain standard with regards to organisational capacity, financial management and other criteria. This is certainly not easy in the coffee and cocoa markets in PNG which, as noted, are highly fragmented.

In PNG the project sought to develop the capacity of producer organisations and facilitated buyer requirements and quality issues. Of the seven countries in the regional programme, key informants noted that PNG was starting at the lowest base with regards to producer organisational capacity. Further, while the quality of coffee and cocoa was high, years of underinvestment in agriculture, and a lack of finance meant that crops were in need of replacement and relatively unproductive and farmers had little knowledge of advanced farming practices. Further, the activities of adventitious buyers and a lack of understanding of markets meant that farmers often sold their crops to buyers at low prices.

An evaluation of the Fairtrade regional programme in 2016[26] made a number of observations that are relevant to this evaluation. It found that the initial time horizons set for the activity were highly ambitious and incapable of being met, particularly in PNG. The evaluation commended Fairtrade for

[23] PHAMA Cocoa Market Assessment, see: http://phama.com.au/news/papua-new-guinea-cocoa-best-cocoa-world/

[24] Giovannucci and Hunt (2009)

[25] FAO STAT

[26] Final Evaluation Report: Evaluation of Support for Fairtrade Business

the gains it made working with remote communities in PNG. The evaluation also found that the regional model presented a number of problems for the project. This was an insight supported by a number of key informants interviewed for this assignment who suggested that the implementer did spread itself too thin. Implementing such an ambitious programme of activities across seven countries, presents a huge array of geographical barriers and project management challenges. While there are some efficiencies gained with the production of tools and resources across a regional programme, the relevance of these tools to local contexts needs to be considered. Key informants noted that the regional approach often challenged them and that local context often took a back seat. The 2016 evaluation found that there were inefficiencies in the delivery of the activity and that more of a hub and spoke model wherein more resources were pushed out to countries with less at HQ would have improved implementation.

The 2016 evaluation also found that the M&E framework for the activity was weak and that greater emphasis needed to be placed on determining the social impact of the activity. Gender outcomes were also not appropriately considered in the design and this was an area that required significant improvement in the early years of implementation. This was assisted with the recruitment of a gender adviser funded by DFAT and a short term gender liaison officer who conducted training in PNG and assisted the producer support team collect data on gender equality.

MFAT M&E reporting[27] highlighted the output level achievements which included the certification of four producer organisations (with a total of 3,850 producers) and the application or pre-application of four other producer groups. In general performance at output level was reasonable and the project tracked in line with expectations. Fairtrade was working with six coffee and two cocoa buyers who source Fairtrade products from PNG. There is no data on how volumes or sales through these supply chains have increased as a result of the intervention which is a major constraint with regards to determining how effective the activity has been.

Progress at the outcome level was more challenging. The activity failed to meet most of the outcome level indicators and over the course of the activity some results actually decreased significantly compared to early years. This was particularly the case with certified export volumes. This performance was significantly influenced by changes in the ACP protocol in Europe leading to significant decreases in the purchase of Fairtrade sugar from Fiji. There is no data on progress at the country level which is another significant limitation of the regional approach.

While this project has made some solid progress, it suffered from an overly ambitious design, which made it virtually impossible for the project to achieve its objectives in line with expectations. Establishing Fairtrade or organic markets is complex and time consuming. There is very little knowledge of market linkages or quality standards amongst small holder farmers in PNG. Expecting a Fairtrade activity to achieve significant results within five years was ambitious. Aggregating countries with vastly different capacity constraints together poses significant challenges for a regional programme. More locally relevant and targeted approaches are required particularly in PNG. Having said that the programme did have an impact in remote parts of PNG where it is very difficult to foster change. It should be seen as the first step in the transformation of the coffee and cocoa sectors. More work needs to link this activity with larger investments in the coffee sector such as that by the World Bank. In future activities more effort needs to go into assessing and reporting on quantifying improvements in the functioning of producer organisations, as it is these groups that will ultimately facilitate the linking of farmers to markets.

[27] Activity Monitoring Assessment for Regional Pacific Fairtrade Development, 11 January 2017

3.4.4. Gordon's Market

Relevance	Efficiency	Effectiveness	Sustainability	Impact

Gordon's market is the largest market in PNG. It is of central importance to the livelihoods of thousands of Papua New Guineans, particularly women. Predominantly female vendors sell produce procured from Central province, and in particular, from the peri-urban fringes of Port Moresby, which as highlighted in 'Agricultural Context' above is an important source of fresh produce for the residents of Port Moresby. For many years the market has been in a state of abject disrepair with waste management and sanitation issues affecting the utility of the market. Safety and security are also significant issues. On one day in November 2016 twelve muggings, eight violent assaults, two stabbings and one significant ethnic clash were reported at Gordon's market[28].

In 2014 New Zealand partnered with UN Women and the National Capital District Commission (NCDC) to redevelop the market. MFAT provided NZ$ 7 million to UN Women to implement the activity in partnership with NCDC who provided matched funding. The project supports UN Women's Safer Cities initiative and has a priority on ensuring there are safer spaces for female vendors to conduct livelihoods activities. The goal of the activity is to build a larger, more efficient, safer and cleaner produce market, resulting in increased income for market vendors and producers. The market redevelopment is designed to produce a number of medium and long term outcomes that together are designed to achieve the overall goal, these include:

- Improved sanitation
- Improved market infrastructure and facilities
- Improved health and safety of vendors
- Increased number of buyers and sellers utilizing the market
- Increased throughput of produce.

This is one of the most complicated and ambitious infrastructure redevelopment activities ever undertaken in Port Moresby and an area where MFAT had little experience. The project has faced significant delays and complications, which while frustrating, are quite commonplace in PNG, particularly for infrastructure projects such as this. The closure of the market was initially expected to take place in 2015. There have been issues with securing land tenure, problems with NCDC's procurement processes, and problems with the quality of designs. The relationship between UN Women and the NCDC soured significantly during the initial period of the project and this required MFAT to step up and invest significantly more time and effort into the management of the project, which has stretched MFAT resources.

The capacity of the NCDC to manage the various aspects of the project has been a significant cause of the delay. In the initial stages the NCDC was focused on the delivery of the Pacific games and its resources were largely devoted to this time consuming task. The inability of the NCDC and UN Women to agree on, and operationalise, a procurement approach that satisfied all parties also caused problems. The various attempts by the NCDC to secure land tenure has, and continues, to cause problems. UN Women also initially faced significant technical constraints which were addressed through the recruitment of a civil engineer to oversee the project. Stakeholders interviewed for this evaluation suggested that the national elections in July 2017 also contributed to the delay as the NCDC and local ministers did not want the relocation of vendors to occur before the election as this would cause political issues.

In recent months some significant advancements have been made. The market was officially closed in September 2017 and vendors were shifted to an alternative site. There has been some negative

[28] Gordons Market Now a Hive of Crime, Post Courier 24th November , 2016

fallout from this move as some vendors now face significantly higher transport costs[29], however the relocation of thousands of people was always going to be a very complicated and difficult process. The market redevelopment has been successfully tendered and designs which meet the technical conditions of all parties have been submitted. A project management company has been recruited to manage the redevelopment on behalf of MFAT and this has reduced some of the administrative burden. Audit New Zealand oversaw the procurement process indicating a high level of confidence that sufficient probity was undertaken as part of that process. A more hands off approach is now expected and UN Women can resume the implementation agency oversight as originally conceived. UN Women has procured the services of GHD who will undertake a project manager role for the construction project. UN Women have also continued working with the Markets Division within NCDC to strengthen their capacity in areas such as asset maintenance, safety and planning.

A number of challenges remain. MFAT should seek clarity from UN Women and NCDC on the processes for the disbursement of funding to the construction contractor. It was unclear to the evaluation team what this process is and how the NCDC component will be disbursed.

One issue that requires immediate action is the reporting of baseline data. There is no evidence that baseline data has been collected against any of the outcome indicators by UN Women or MFAT. Gender Safety Audits have been conducted but these data have not been shared with the Evaluation team. There was a general lack of coordination and communication between MFAT and UN Women with regards to collection of baseline data, which in MFAT's understanding was UN Women's responsibility. Without such data it will be impossible to determine if MFAT's significant investment was warranted considering the considerable delays. Infrastructure projects such as this can have far reaching impacts, which over the medium to long term justify the sometimes slow and inefficient inception and implementation phases. Baseline data on market throughput, productivity, economic value, market usage, safety, and health should have been collected prior to the movement of vendors from the site. These data should have been disaggregated by gender. This should be followed up with end line data collection in the same categories at least one year after the market has been completed. With an investment of such magnitude and potential development significance, MFAT and UN Women should have commissioned the conduct of an impact evaluation, not doing so is a lost opportunity. There is an opportunity to address this issue through the use of qualitative apporoaches once the project nears completion.

3.4.5. Saraga Market

Relevance	Efficiency	Effectiveness	Sustainability	Impact

New Zealand provided NZ$ 1.35 million to the NZ$ 2.7 million Saraga market development in 2014. Additional funds were provided by the NCDC and the member for Moresby South. The Saraga market is a new market in the six-mile region of Port Moresby that was designed to provide a safe and secure market environment for vendors and customers in the western part of Port Moresby. The market is part of an initiative by the NCDC to provide better suburban market facilities across the city. A number of new markets have been constructed in suburban areas including at Koki, Ranaguri, and Sabama. The implementing partner is the Moresby South Market Management Board (MSMMB) and the NCDC[30].

The project was seen as a 'quick win' investment by MFAT as planning for was already underway and quite well progressed when MFAT offered to co-fund the initiative. As highlighted in the JCfD the provision of market infrastructure was identified as a priority for New Zealand and support for Saraga was a quick way to achieve some results in that key area. Procurement and contracting was completed when MFAT came on board and the construction was completed 2015. The NCDC and

[29] Post Courier, October 19th 2017

[30] Activity Monitoring Assessment, Saraga Market, 20 July 2016

MSMMB demonstrated capacity to manage and supervise the successful completion of the construction in line with previous market projects as noted above.

While it was completed in 2015 the market itself was only formally opened for use on 26th October 2017. A lack of progress in other developments planned for the area including the building of a new police station, schools and health facilities delayed the rejuvenation of the area which was once a dump site. The six-mile location was a notoriously unsafe location prone to criminal activity. The demolition of settlements in the six-mile area and the relocation of what were to be a core group of vendors and customers to other regions also affected the demographics of the area. MFAT had very little influence on these broader urban planning issues. The elections of July 2017 and the fiscal constraints faced by the government also contributed to delays.

The opening of the market occurred after the construction of the police station and the forced closure of the six-mile market; many vendors from that market then relocated to Saraga. Trading activity has been slow to take off due to community perceptions and there is some ongoing concerns over security and the need to ensure an ongoing police presence. However the recent shutdown of the six-mile and Gordon's markets has spurred activity at the market[31].

It is too early to assess the impact of this activity from an economic or safety perspective. A robust M&E framework is absent. Cooperation between MFAT and the implementing agencies was weak during the construction phase and now the project has been finalised there appears to be no ongoing efforts to quantify the impact of the market on the local economy. So while the project will, in all likelihood will contribute to an increase in economic activity, particularly as the six-mile area developed further, there is no way to measure that impact using the current M&E framework.

3.5. Conclusion

New Zealand has prioritised 'linking farmers to markets' and has used various approaches to achieve outcomes in that area. Some of these initiatives have been more successful than others. It is clear from the above discussion that 'linking farmers to markets' remains a relevant priority noting the importance of agriculture to the economy, and the significant production opportunities in PNG due to the high levels of agricultural biodiversity. The question needs to be asked whether the approaches supported by New Zealand are the most appropriate ways to achieve outcomes in this area.

With regards to the lead firm approach, it is clear that the model is appropriate considering the significant lack of government investment in agriculture, the paucity of public extension services, and the presence of companies who have some decent management capacity and commercial acumen (*sans* the Simbu project). Linking smallholder farmers to formal markets through the private sector is an important approach to increasing incomes. The greatest gains will be found in improving the quality of produce and achieving efficiencies in production, therefore potentially increasing the return to farmers regardless of the market they supply.

There are clearly some risks with the lead firm approach from a sustainability and impact perspective. As noted in Section 3.3.1 "*supporting lead firms to provide [such] services will increase the sustainability and scale of impact and lead to greater market competitiveness*[32] - this is one of arguments for a lead firm approach. However, it is in these areas that both the Tininga and NKW activities face problems. Issues associated with financial volatility, environmental and health risks and maintaining a stable supply base affect the sustainability of the interventions. The exact impact of the projects on gender outcomes cannot be determined and these could be negative. While these projects might be more efficient and effective than alternatives, if they are unsustainable and have adverse impacts on target communities then this is clearly a significant issue. More needs to done to address the sustainability issues and quantify the social and environment impacts of these activities. Significant lessons could be learnt from this.

Linking farmers to formal markets in PNG is a risky enterprise due to the volatility in those markets, the increasing competition (such as that from 9 mile farm) and the limited financial resilience of

[31] Saraga market aims to change perception, Post Courier, 26th October 2017

[32] http://pdf.usaid.gov/pdf_docs/PNADP042.pdf

smallholder farmers. A lack of access to credit and insurance is a significant issue, as is the tendency towards monopsony.

New Zealand has also sought to link farmers to global markets through a regional approach and this did not achieve results in line with expectations. The local relevance of such an approach needs to be questioned as does the efficiency of implementing a regional programme in countries with vastly different capacities. PNG is an expensive place to implement activities, particularly in remote areas. More decentralised and locally relevant models that have more realistic timeframes need to be considered. There is a place for the development of Fairtrade initiatives in PNG, as beneficiaries can supply important, high value differentiated markets, but this should be done in a way that is more relevant to local context while also linking to larger productivity enhancing investments.

It is not clear from a strategic perspective how the market infrastructure investments ‘link farmers to markets’ but they do remain highly relevant activities for many reasons. Not the least of which are the potential gender outcomes and the lift in business productivity that may be occasioned through market construction. While there have been significant delays in the market programmes, such delays are an inevitable by-product of building infrastructure in PNG. The need to work through government systems and with government bodies in PNG in the infrastructure space means that there will be unavoidable delays. Shifting thousands of people from the place where they earn the majority of their income is clearly a major issue from a political, economic and social perspective. MFAT should have sought specialised infrastructure advice much earlier on in these projects.

The inefficiencies associated with these projects needs to be considered within a broader understanding of the potential social and economic impacts. If these impacts are significant and positive then delays in implementation (which as noted above are generally foreseeable in PNG) don’t look as bad. Unfortunately there is a lack of information on these proposed impacts. Gordon’s market is the largest market in the Pacific region and the redevelopment of it has the potential to improve business activity, gender outcomes, safety and environment health outcomes considerably. It would be a lost opportunity if these impacts could not be assessed.

Agriculture is an especially important example of the need to forge a more coherent approach by all development cooperation partners in PNG. Linking farmers to markets through value chain improvements has merit but there are limitations of the approach given the serious weakness of agriculture research, extension, credit, and other supporting services. A number of questions that need to be considered during the design of future investments are: should New Zealand work with other donors to build national capacity in these areas? And is community level development a worthy area of future involvement for NZ aid?

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