AGRICULTURAL VALUE CHAIN GUIDE FOR THE PACIFIC ISLANDS

CTA

pacific farmer organisations

Produced for publication by **Pacific Island Farmers Organisation Network** with funding assistance provided by **EU-ACP Technical Centre for Agricultural and Rural Cooperation (CTA).**

Graphics: **Duke Lawalevu**

About CTA

The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). CTA operates under the framework of the Cotonou Agreement and is funded by the EU.

For more information on CTA, visit www.cta.int

About PIFON

The Pacific Island Farmers Organisation Network (PIFON) is intended to serve as an umbrella organisation for national Farmer Organisations (FOs), to coordinate capacity building, share success stories and the lessons learnt, support regional exchanges of expertise between FOs and their associated private sector and donor agency partners. PIFONs mission is to make Pacific FOs more vibrant, viable and sustainable organisations: www.pacificfarmers.com

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Agricultural Value Chain Guide for the Pacific Islands

PREPARED BY PACIFIC ISLAND FARMERS ORGANISATION NETWORK APRIL 2019

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Foreword

A farmer-inclusive value chain development approach is a powerful formula for developing sustainable market linkages in the Pacific. At the Technical Centre for Agricultural and Rural Co-operation (CTA), we believe that investments in innovations in agriculture will help to catalyse development. Agribusiness, climate smart agriculture and digitalisation with a strong focus on women and youth are CTA's priority intervention areas in the Centre's strategic plan, 2018-2020 and can help countries to drive progress towards achieving the Sustainable Development Goals.

We need to apply new thinking to modernising and sustaining agri-food systems as the impacts of climate change, unpredictability in global trade, migration and conflicts threaten progress towards the goals of zero hunger and end to poverty and malnutrition. Innovation in all aspects of the agri-food system, from production to processing, financing and marketing as well as in how producers organise themselves to address these challenges is critical.

To foster the transition into modernised food systems that provide sustainable incomes and nutrition for farmers/ fisherfolk and rural communities, we need new and or improved technologies, business models, laws and policies and empowered farmers and producer organisations. Strengthening public-private-producer partnerships and the linkages between agri-SMEs, financing institutions and governments is key. A shift of mindset is needed that values farmers as entrepreneurs and farming as a business.

The "Agricultural Value Chain Guide for the Pacific Islands - Making Value Chain Analysis a Useful Tool in the Hands of Farmers, Traders and Policymakers" that was first published by CTA in 2014, has proven to be a valuable resource for farmers. Combined with the training workshops conducted by PIFON, it has contributed to raising awareness on the importance of enhancing farmers' engagement in all aspects of value chain development. This has had direct impacts on changing farmers' way of thinking and their businesses have benefitted. Increase in production and sales and responsiveness to market demands, have been reported.

The agricultural sector is rapidly evolving, creating many opportunities for producer organisations and agribusinesses. This updated version of the value chain guide for farmers, features lessons learnt, successful case studies and new approaches and tools including the "Optimising the Performance of Producer Organisations" approach and tools. It is therefore very timely.

I hope this updated publication will continue to make a difference for thousands of farmers and other agri-entrepreneurs who are committed to transforming value chain development in the Pacific.

CTA looks forward to continued cooperation with PIFON and our many other partners in the Pacific region.

by Michael Hailu
Director, CTA

Acknowledgements

The contribution of Dr. Andrew McGregor to the development of this updated guide is acknowledged. After taking the lead role in developing version 1, Andrew was involved in the piloting of the guide with farmers and farmer organisations in Fiji and Vanuatu in partnership with the Pacific Island Farmer Organisation Network. Based on these successful experiences conducting value chain training using this guide a number of key improvements were identified which have now been brought into this version 2. The contribution of Livai Tora as a passionate value chain trainer is acknowledged and has helped to refine and simplify this version 2. The production of the manual in its final form would not have been possible without the contribution of numerous Pacific island farmers, traders and exporters (value chain exporters). These key drivers freely shared their knowledge and informed us of what they wanted from the manual. A number of these people are mentioned by name in the manual itself and we hope that we have been able to meet their expectations.

List of Acronyms

ADB	Asian Development Bank
AGS	Rural Infrastructure and Agro-Industries Division
AusAID	Australian Agency for International Development
AVRDC	The World Vegetable Centre
BAF	Biosecurity Authority of Fiji
BQA	Bilateral Quarantine Agreement
CBA	Cost Benefit Analysis
CGA	Cocoa Growers Association of Vanuatu
CIP	International Potato Centre
CTA	International Centre for Tropical Agriculture
DIIS	Danish Institute for International Studies
FACT	Facilitating Agricultural Commodity Trade Project [EU funded]
GM	Gross Margin
GIZ	German Agency for Technical Cooperation
HACCP	Hazard Analysis and Critical Control Points
HTFA	High Temperature Forced Air Quarantine Treatment Technology
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
ISHS	International Society for Horticultural Science
ITC	International Trade Centre

M4P	Making markets work for the poor
MA	Main Actor
NGOs	Non-governmental organizations
NMA	National Marketing Authority [Fiji]
NPK	Nitrogen Phosphorous Potassium based Fertilizer
NWC	Nature's Way Cooperative [Fiji] Ltd.
NZAID	New Zealand Agency for International Development
PICs	Pacific Island Countries
PIFON	Pacific Island Farmers Organisation Network
PITIC	Pacific Islands Trade and Investment Commission
PPP	Public Private Partnership
SA	Supporting Actor
SDC	Swiss Agency for Development and Cooperation
SFA	Samoa Famers Association
SWOT Analysis	S [Strength] W [Weakness] O [Opportunities] and T [Threats]
TLB	Taro Leaf Blight
UNDP	United Nations Development Programme
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
VCD	Value Chain Development
VCO	Virgin Coconut Oil
VOCGA	Vanuatu Organic Cocoa Growers Association

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Introduction to Agricultural value Chains in the Pacific

Value Chain Development in the Pacific

Since 2006, several development partners have promoted value chain analysis in the Pacific region. In 2007, FAO hosted the first regional workshop on Value Chain Analysis, held in the Solomon Islands. This was followed by a paper entitled 'Participatory value chain analysis for improved farmer incomes, employment opportunities and food security"[1].

In 2012 the ACP-EU Technical Centre for Agricultural and Rural Cooperation [CTA] commissioned studies in several countries on issues relating to green and inclusive chains that had been established by the private sector, including in the Pacific with funding from FAO. Local consultants through Koko Siga Pacific [KSP] undertook a series of value chain assessments.

In 2013, SPC with support from CTA, launched the Pacific Agricultural Value Chains Portal — AgLInks, developed as a one-stop shop for the latest information and tools on linking smallholder farmers to markets.

In 2014 CTA published several publications, including:

- Westlake [2014][2] 'Developing Sustainable, Green and Inclusive Agricultural Value Chains in the Caribbean and the Pacific',
- McGregor and Stice [2014][3] 'Agriculture Value Chain Guide for the Pacific Islands' and supporting flip chart.

The above mentioned guide was intended to provide a simplified approach to value chain analysis and therefore make it useful in the hands of 'farmers, traders and policy makers'.

Between 2014 and 2017 PIFON has been running value-chain training sessions with its farmer organisation members as an initial piloting of farmer-orientated value chain training in the Pacific.

CTA is currently implementing a project entitled 'Promoting Nutritious Food Systems in the Pacific Islands' [2016-2020], in partnership with the International Fund for Agricultural Development [IFAD] and the Pacific Islands Private Sector Organisation [PIPSO]. Under this project, CTA has partnered with PIFON to prepare a study to assessing lessons learned from initial piloting of farmer-orientated value chain training in the Pacific along with a video[4] . CTA has also supported this present publication.

[1]Bammann, 2007. 'Participatory value chain analysis for improved farmer incomes, employment opportunities and food security". Pacific Economic Bulletin Volume 22 Number 3 October 2007 © Asia Pacific Press
[2]Westlake, M.J. 2014. 'Developing Sustainable, Green and Inclusive Agricultural Value Chains in the Caribbean and the Pacific'. Published by CTA; FAO;. https://publications.cta.int/en/publications/publication/1790/
[3]McGregor and Stice, 2014. 'Agriculture Value Chain Guide for the Pacific Islands'. Published by CTA.https://publications.cta.int/en/publications/publication/1837/
[4]Value Chain Trainings and Lessons Learned Video: https://www.youtube.com/watch?v=ogRZKdR9Aps&t=1s

Key Definitions for the User

Definition of an agricultural value chain

an agricultural value chain is a way of describing the different 'links' required to take a product from the farm to the end consumer.

Definition of value chain actors

value chain actors are the people at each link along the chain required to move a product from the farm to the consumer.

it can be said that there are really two categories of actors in the value chain, these are:

main actors — those who buy and sell product as it moves along the chain

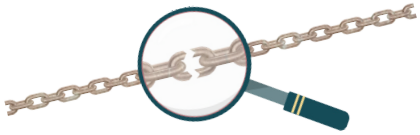
supporting actors — those who provide services help move the product along the chain

Definition of value chain analysis

value chain analysis is a tool for looking at every step and actor along the value to identify both weaknesses to be resolved and opportunities for increasing profits for all involved in the chain.

Definition of value chain awareness

value chain awareness is a tool for highlighting the key messages coming out of value chain analysis to help actors to be more informed about each other's role along the chain.



Why is Value Chain Analysis and Awareness Important?

The value chain approach is orientated toward the market and what consumers want.

By analysing the value chain, information is obtained that should lead to better decision making by those involved [farmers, traders, etc.] and those wanting to support the value chain [policy makers, donors, etc.].

The result of better decisions is higher and more sustainable income for those participating in the chain.

a. Value chain analysis can identify all of the people [actors] involved in getting the product from the farm to the consumer
b. Value chain analysis can identify the contribution, [the share of value added] and the risks faced by each actor involved.

Farmers and other actors along the chain often do not realise how many people are involved, and what they do, in getting the final product to the consumer. A simple value chain map can illustrate this: Example: "Fiji Red" papaya from the seedling nursery to consumers in Auckland.

Individual actors along the value chain, and policy makers, often don't appreciate:

- The contribution each actor makes in getting the final product [value added] to the consumer;
- The share [reward] each actor receives from the value of final product in the hands of the consumer [share of retail price];
- The risk each actor takes in trying to obtain their share of the value of the final product.

The actors need this information to get the most from and contribute most to the value chain.

FOLAU
NURSERY GURU

PRIYA
EXPORTER

BIOS

CLEMENT MELE + THEIR DOG TUI
PAPAYA FARMERS

MIKE
NATURE'S WAY
CO-OPERATIVE

JESE
SECURITY

OSANA
INTERNATIONAL
WHOLESALES

ANNIE
INTERNATIONAL
CONSUMER

KALANI
FREIGHT & LOGISTICS

DEREK
INTERNATIONAL
RETAILER

Example
"Fiji Red" papaya exports to Auckland: exporter contribution, reward and risk

Exporter	What the exporter contributes to the final product [value added]	The exporter's share of the final sharing price of the consumer	Exporter Risk Assesment
	Transports, packs and grades, arranges and pays for quarantine treatment, finds markets and arranges air freight, etc	The price of papaya loaded on the aircraft (fob price) minus the farm gate price of the papaya. **Estimated export share of Consumer purchase price: 12.6%**	High: Post-harvest losses; importer claims for poor quality, delay in payments from importer; product offloaded due to lack of airline space; market access problems, etc

c. Value chain analysis can identify weaknesses that prevent progress and suggest actions that can be taken

Example
Fresh breadfruit exports to New Zealand.
The value chain analysis undertaken by Natures Way Cooperative showed:

Situation: Large market exists, lots of breadfruit trees but very little breadfruit exported.
Weakness in chain: Breadfruit wild harvested — not possible to maintain quality and keep costs low.
Action to be taken: A project to assist moving from "wild" harvest to orchard production [the Pacific Breadfruit Project].

Who Benefits from Quality Value Chain Analysis and How?

Those that benefit from value chain analysis are: farmers; traders; consumers; policy makers and aid donors.

Farmers

Accurate and understandable value chain analysis equips farmers to make business decisions that are in their best interest and helps them to decide where to focus their limited resources [time, land & $s].

Example
A value chain analysis of Fiji taro exports to New Zealand shows that the exporters gross margin [the difference between the export selling price and the direct cost of marketing the taro — including the cost of buying the taro from the farmer] is 9.5% of the fob price [the price of the taro on the ship at the Suva wharf] **[page 74]**. In assessing this level of profitability consideration has to be given to the exporter's contribution: costs incured, investment made, expertise required and risks involved.

Using value chain analysis, taro farmers can make better business decisions, including:

Do
- Focus your effort and limited resources on what is most likely to increase and maintain your income taro - increase production, reduce costs and adopt more sustainable production practices.
- Consider alternative crops and land use activities.

Don't
- Withhold supplies from exporters in an effort to secure a higher price.
- Sell to "fly by night" buyers who offer unrealistic prices and then disappear and spoil your relationship with long standing reliable buyers.
- Lobby government to impose minimum prices which would make your product uncompetitive to consumers in the export market.
- Try to become an exporter with other farmers when no one has any experience of exporting.

Traders

Accurate and understandable value chain analysis helps traders understand the requirements of their buyers and needs of their suppliers and therefore enables them to perform better in the value chain.

Example

The Samoa taro export value chain. The leaf blight [TLB] in 1993. Over the following twenty [20] years, considerable resources were devoted to the breeding of TLB resistant varieties. As a result, Samoa now has numerous taro varieties resistant to TLB. The target consumers in New Zealand like some of these new varieties but don't like others. The taste panel based market study undertaken as part of the value chain analysis identified which varieties consumers like and which they do not like.

Appropriate business decisions for taro exporters resulting from the value chain analysis could include:

Do
- Only export those varieties that have been identified by the market study as 'acceptable' to consumers.
- Clearly label consignments to identify the varieties for consumers.

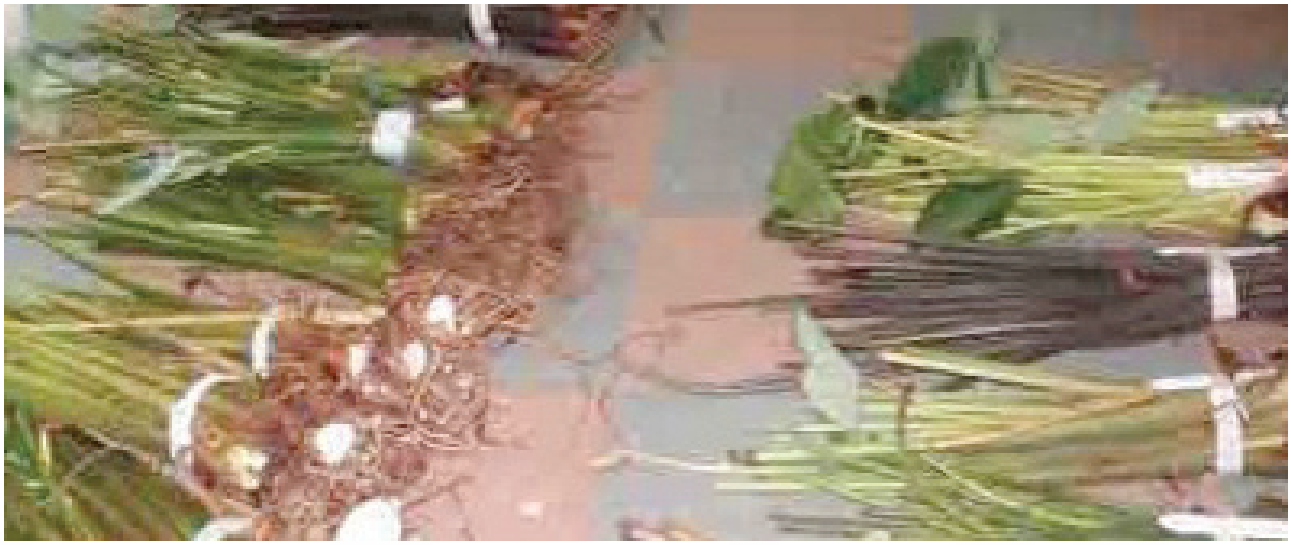
Don't
- Don't export varieties just because you think they taste good.

Consumers

Value chain analysis is focused on the market and what consumers want. Thus accurate and understandable analysis of the value chain should lead to information on what the consumers of the product want being passed on to the actors in the chain. If the actors act on this information, the result is satisfied consumers spending more money on the product being produced by the value chain.

Example

Fiji papaya value chain analysis found that the consumers in target markets (NZ, Australia, US and Japan) preferred fruit that was red fleshed, around 600 gms and bell shaped and had high brix (sweetness) count. If papaya exports were to earn maximum income it was necessary for the value chain to supply to the market such a produce



Numerous taro varieties resulting from the breeding program for TLB resistance

Policy makers

Accurate analysis of the value chain and the identification of bottlenecks will assist government policy makers to introduce policies and programs that enhance rather than hinder the performance of the value chain.

Example

Fiji taro export value chain analysis found:

- The Fiji taro industry is characterized by a large number of marketing agents, traders and exporters, resulting in narrow marketing margins.
- Environmental vulnerability resulting in declining soil fertility.
- Market access vulnerability resulting in declining exports to Australia.

The appropriate response from policy makers resulting from the value chain analysis:

Do

- Promote sustainable agricultural practices in commercial taro production.
- Negotiate improved market access with importing countries.

Don't

- Try to set minimum farm gate prices for taro.
- Promote government agency involvement in taro marketing.
- Encourage farmers to become involved in taro marketing.

Aid donors

Accurate analysis of the value chain and the identification of bottlenecks can assist donors to identify appropriate programs and projects that enhance rather than hinder the performance of the value chain.

Example: Fiji taro export value chain analysis found:

- The Fiji taro industry is characterized by a large number of marketing agents, traders and exporters resulting in quite narrow marketing margins.
- Environmental vulnerability is reflected in declining soil fertility and the The Ministry of Agriculture has limited capability to address this problem.
- The vulnerability of Pacific Island taro to taro leaf blight.

Do

- Support farmer organisations together with the Ministry of Agriculture, to promote sustainable production practices.
- Facilitate the manufacture of low cost local lime manufacture to reduce soil acidity.
- Support taro breeding programs to develop varieties that are resistant to taro leaf blight.

Don't

- Don't support farmer groups wanting to get involved in taro marketing.

Impacts of Value Chain Analysis and Awareness

Using the 'Agricultural Value Chain Guide for the Pacific Islands', PIFON and its partners have been conducting training on value chain analysis and awareness across the Pacific since 2014.

Through support from CTA, PIFON carried out a study to assess impacts and document the lessons learnt from these trainings. The report explores a range of impacts of the initial piloting of value chain training in the Pacific.

These included:

- The beginnings of a change in the mind-set of the actors in the value chain — particularly farmers
- The incorporation of the value chain 'way of thinking' into normal extension activities of farmer organisations
- Improvements in relationships and better collaboration
- Increased supply of produce
- Value chain training materials being translated/adapted/adopted into training programmes

The beginnings of a change in the mind-set of the actors in the value chain — particularly farmers

Interviews with 25 participants and trainers involved in the various VC training sessions revealed that 100% of the participants reported having a change in mindset related to the other actors in the value chain. This was reportedly directly related to the exercise of systematically looking at the actor in terms of: what the actor contributes to the final product, the cost of the actor's contribution, the reward the actor receives and the actor's risk.

A significant impact of this type of training is that it helps participants think more critically about the business of agriculture and ask themselves the right questions.

Participants further reported that, as a result of the training, they had developed a new perspective on their role in the value chain and in relation to the actors. In some cases the farmers had felt as if they were the most important person in the chain and that everything should revolve around their needs. After participating, they had realized that actually the customer is the most important person and everyone else is working together to give the customers what they want.

The value chain way of thinking has been incorporated into normal extension activities of farmer organisations

All of the farmer organisations that participated in the piloting of value chain training reported that the value chain approach has been incorporated into their normal extension activities and extended to other crops that they are working on. Farmer organisation staff have reported that even without detailed value chain analysis they are able to guide the discussion with farmers and buyers to be more analytical and think about the different actors, what they contribute, their costs and returns.

Testimonial on the 'change of 'mindset' that occurred as a result of the value chain training

A female participant reported the following story:

"I attended the training on a Thursday. When I went to do my family's shopping on Saturday, I picked up a packet of Watties® frozen mixed vegetables and as I was about to put it into my cart, I was thinking to myself:

- If this packet costs me $5.95 for 500 grams, I wonder what the farmer must receive?
- I wonder how much it must cost to run a factory that chops and freezes these vegetables?
- I wonder how much it costs to keep these vegetables frozen all the way from the factory in Australia until they reach Fiji?
- I wonder what the mark up of the supermarket is?

Improving relationships and better collaboration

A common and important impact across several of the value chain training sessions has been the improving relationships and better collaboration between actors in the value chain — particularly farmers and buyers. The improving relationships are due to the sharing of information about each other's role in the value chain — what they contribute, their costs, their returns and their risks.

This impact was reported by four different traders who participated in the various value chain training sessions and by ten different farmers.

Increasing supply of produce

Interviews with traders involved in the training revealed that it led to increasing supply of produce. In particular, an exporter involved in the Fiji papaya value chain training reported that several growers had commenced to expand their papaya planting following the training. The spices buyer/processor involved in the Vanuatu spices value chain training reported an immediate increase in the supply of pepper following the training.

Value chain training materials being translated/adapted/adopted into training programmes

An important impact reported by several of the farmer organisations is that they have translated/adapted and incorporated value chain training materials into their own programmes.

Nature's Way Cooperative (NWC) has incorporated elements from the CTA guide into a new publication entitled "Fiji Export Procedures for Selected Crops — Guidelines for 'Team Fiji' to bring back the 'Gold'. This publication has been used widely by NWC, MoA and BAF as a training resource.

Tutu Rural Training Centre (TRTC) has translated and incorporated elements of the value chain training material into the curriculum of the Young Farmers Course.

MORDI Tonga Trust and the Nishi Foundation, which were collaborators under the PIFON -supported value chain training, have incorporated elements of the training materials into the syllabus and training manual of their Farmer Field Schools.

Testimonials

"The VC training was carried out on the small island of Malo near Santo. We took the training to groups of vanilla and pepper farmers along with the processor. During the training the farmers found out the importance of their role as the farmer and also why the buyer pays a certain price per kilo, because it is not an easy thing and also there is a long process. During the training the farmers gained a better understanding about the whole value chain."

Oliver Yato
Farm Support Association
(Farmer Organisation)

"I was directly involved in the Vanuatu Spices Value Chain training and it was particularly good because the buyer himself was involved. He could talk to the farmers directly and walk them through the whole process. The response was very good. Immediately there was an increase in supply because they knew who he was, there's a better understanding of what he did and what he contributed. Any increase in knowledge and information is going to improve markets."

Andrew McGregor
Agricultural Economist, Value Chain Trainer

"The VC training allowed the farmers to see how the products are being handled from farm to the middleman and to the factory. And when we visited the factory there was a big impact. We saw the change in their mind-set and we could see them smiling. They saw that the ginger had to be washed and dirt taken out, the factory has to peel the skin and, especially for processed ginger, has to chop it up in cubes. They saw then that there is wastage, and from there they started to know this was the reason why we are getting these high prices per kg overseas whereas in Fiji ginger sells for $0.95 - $1."

Rosivela Dresu
Fiji Crop and Livestock Council

"The training was very beneficial to the growers and now they understand how things start and where they end and also the costing from the nursery up to the market. Right now, since we had just established the industry, this work helped to guide us in our activities and in setting prices. When we finally set our price the growers will have a better understanding about how we got to this price, what are our costs and what everyone along the chain receives".

Sinai Tuitahi
Growers Federation of Tonga
(Farmer Organisation)

"Before the VC training, I only thought about what was in it for me. I didn't care about the others. If their produce went bad that's theirs to deal with. I just needed to make my money. Something I've learned from the VC training is to take care of all my produce so my buyers business also benefits."

Waisea Turaga
Taro Farmer

"Most of us did not really have any idea of the intermediaries along the chain. We understood that the dalo went to the middleman, the middleman sold to an exporter and the exporter exported it. That was our basic knowledge. There's a lot of mistrust between farmers and the middlemen. So this VC training was really useful as it gave the farmers an idea, well it gave us all an idea of all the different links in the chain before it reached the market and even what our market was. Most of us had no idea where our dalo was going…who bought our dalo.

The VC training was held in 2014. We invited all our champion farmers — farmers that are lead farmers in our farm groups. We have approximately 16 farm groups based all over Taveuni. The training resources were very good….very basic, straight to the point. Farmers understood it very well. The feedback from the farmers after the training was they really appreciated it. You know the diagrams are really simple and you could understand the whole message of that value chain and how important each link in the chain was…where our part was as farmers."

Alan Petersen
Tei Tei Taveuni

“Generally before the VC training, we really did not know what was going on, what the costs were and who was doing the handling and who was doing what at what stages. So with the VC we really know how many actors were involved…. who is clearing it, how it goes to the buyer, what is costed, the hidden costs, what are the hidden costs of the exporters, Bio Security has its costs. So all these things are very important in planning.

After the training we see that the farmers really understand what their role is so it makes them work smarter, makes them make more money, the production goes up. The one who is selling 100 kilos perhaps will sell 300 kilos. They are planning…these are the fruits for the market, this is for the export…they are thinking like business people making those decisions.

The VC training did strengthen our relationships. Before we were just doing our work and like everybody was doing theirs and we thought that is his job, and this is my job. But now after the training, everybody is taking responsibility for what they are supposed to do.”

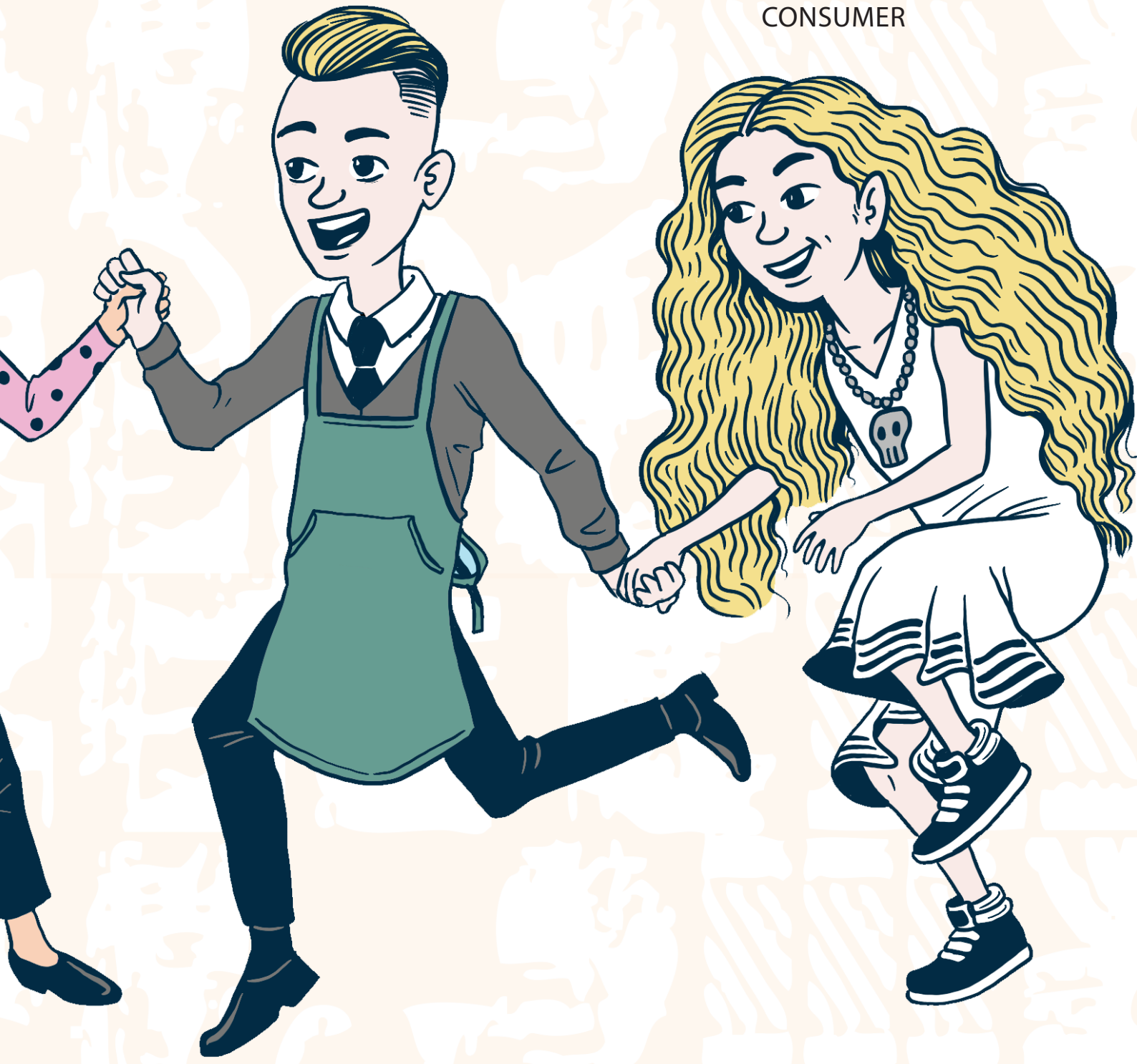
Praneel Mudaliar
MD Sunrise Producer (Exporter)

Notes

PRIYA
EXPORTER

CLEMENT MELE + THEIR DOG TUI
PAPAYA FARMERS

ANNIE
INTERNATIONAL
CONSUMER



DEREK
INTERNATIONAL
RETAILER

2 The Steps in Value Chain Analysis

There are many approaches to value chain analysis and numerous tools to help make this analysis meaningful. This guide outlines the six recommended steps for practical value chain analysis.

These are:

Step1:	Drawing a value chain map
Step 2:	Putting real and accurate information into the map
Step 3:	Identifying the services each actor provides and returns received for these services
Step 4:	Assessing the market
Step 5:	Assessing strengths and weaknesses for all actors along the chain and ways to capitalise on strengths and minimise weaknesses
Step 6:	Developing a plan to improve the value chain

In support of each of these steps is a list of helpful tools that can be used by those analysing the value chain.

We have used the example of the 'Fiji Red' papaya export value chain to New Zealand as an example for each of these steps.

The steps for value chain analysis are best carried out by a group of the actors who are themselves involved in various links of the value chain.

This is called a 'participatory value chain approach'. In this approach, it is often helpful to assign someone to be the 'facilitator' which involves the writing up of all of the information drawn out from the different steps above. It is usually desirable for the facilitator to have some experience and training in value chains. This facilitator can also be tasked with chasing up additional information the group require to finalise their work. More than one meeting of the group is usually required.

Stakeholders discussing fresh produce for the value chain from PNG's Central Province to a Port Moresby supermarket chain

Step 1: Drawing a Value Chain Map

What's involved

1. List down all of the people involved in getting the product from the farm to the plate of the consumer. The people you have listed can also be called 'actors'. You may decide to divide your list into main actors and supporting actors, with the main actors being those who buy and sell the product as it moves along the chain and the support actors being those who provide services to facilitate the movement of the product along the chain.
2. Arrange these people in order of how the product moves [the map] starting from the farm all the way through to the consumer.

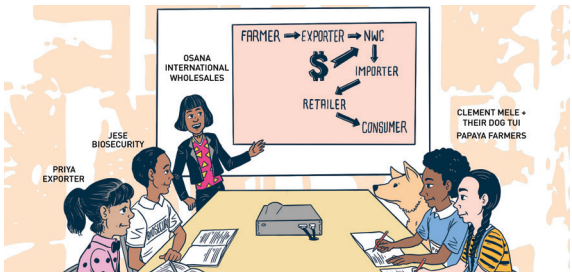
Example from 'Fiji Red' papaya export value chain to New Zealand

Part 1: List of actors involved in the value chain

The main value chain for the papaya being exported to New Zealand

MAIN ACTORS Those who buy and sell the product as it moves along the chain	**SUPPORTING ACTORS** Those who provide services to facilitate the movement of the product along the chain
Farmers	Input suppliers [nursery operators, farm supply companies]
Exporters	Extension officers [Nature's Way Cooperative and Agriculture Department]
New Zealand importer/wholesaler	Nature's Way Cooperative [Quarantine treatment]
Retailer	BAF [the Fiji Quarantine Service]
Consumers	
The secondary value chain is the papaya being sold on the local market	
Farmers	Input suppliers [nursery operators, farm supply Companies]
Traders/Exporters [selling export reject fruit on the local market]	Extension officers
Market vendor/other retailers/hotels	Transport operators
Consumers	

Part 2: drawing a map of how the product flows and placing each actor in their correct place along the chain



Tools and tips

- Appoint a good facilitator — preferably with some experience and basic training.
- This exercise is best done with a very specific value chain, that is, a real product from a specific location to a specific customer [wholesaler, retailer or hotel]. More general value chain maps can be quite difficult.
- This exercise is best done with a group of people who are directly involved in the supply chain.
- Using a whiteboard or butcher paper for 'brainstorming' is useful.
- When drawing your map, you should start with placing all of your 'main actors' in their places and then adding in your supporting actors.

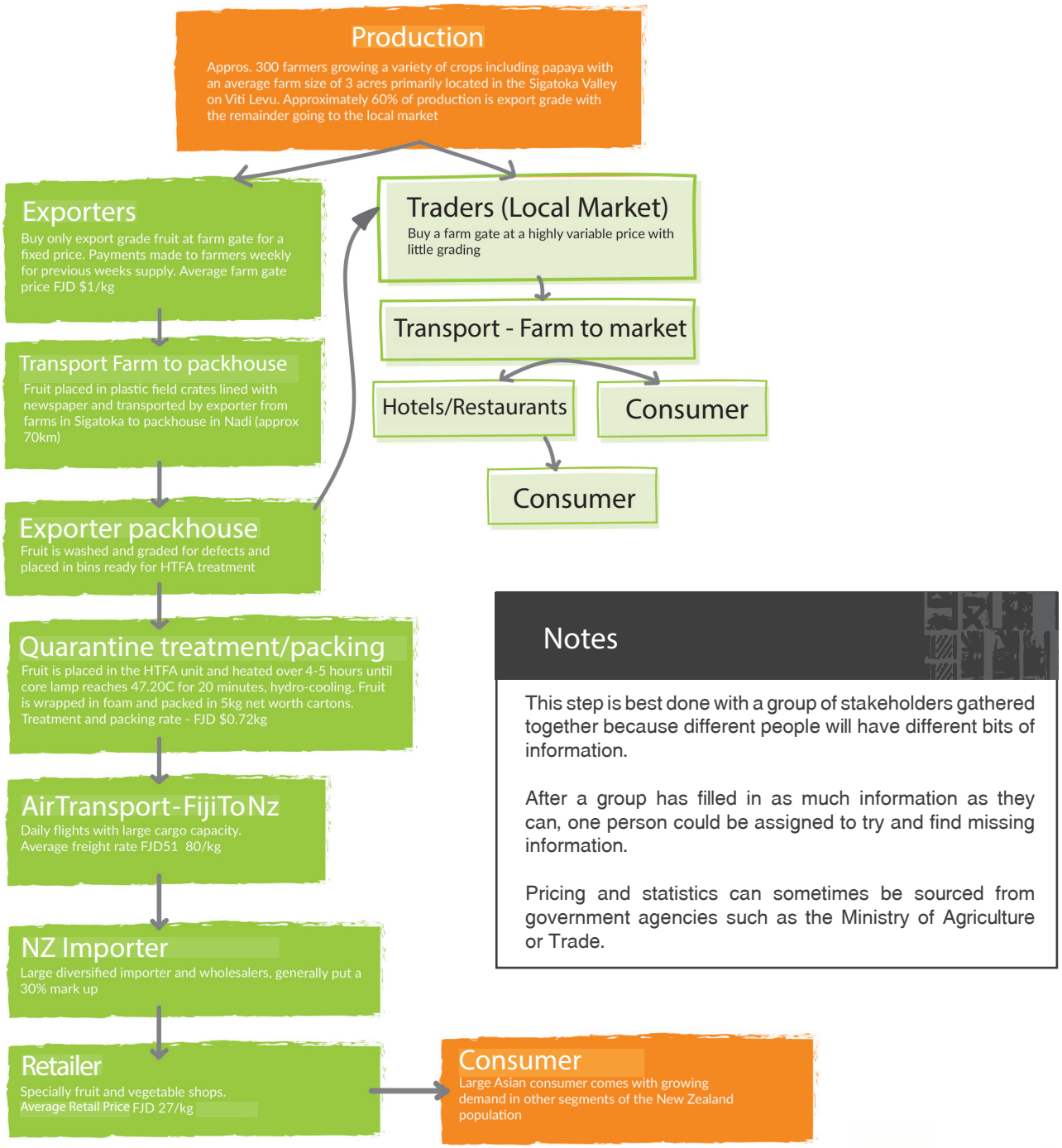
Step 2: Putting facts and figures into the map

What's involved

This step involves adding as much 'relevant' information as possible to your value chain map in the form of real and accurate facts and figures. This step can also be called 'quantification of the chain' or adding numbers to the value chain map.

Some things to think about at each step of the chain are: How many people are involved, what is the cost of the activity, what is the transport distance, pricing, margins, losses or wastage and risks.

Example of populating the value chain map from 'Fiji Red' papaya export value chain to New Zealand



Notes

This step is best done with a group of stakeholders gathered together because different people will have different bits of information.

After a group has filled in as much information as they can, one person could be assigned to try and find missing information.

Pricing and statistics can sometimes be sourced from government agencies such as the Ministry of Agriculture or Trade.

Step 3: Identifying what each actor contributes to the final product and the returns they receive

What's involved

- Create a table that starts with a list of the actors in the value chain. List what each actor specifically does to produce the final product.
- List the cost of [and where possible quantify] each actor's contribution to the final product.
- Calculate the return the actor receives [the difference between the actor's buying and selling price].
- Consider [and where possible quantify] the risks [the chances of things going wrong] faced by each actor.

Example from 'Fiji Red' papaya export value chain to New Zealand

Tools and tips

- Formal questionnaires and interviews
- Group "brain storming" with actors along chain
- Make full use of any available price and cost information

Actor The participant in the value chain Main actor [MA] Support actor [SA]	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives [Share of the final selling price to the Consumer]	Actor risk
Seedling supplier (SA) 	Certified seedlings that provide the sweet "Fiji Red" papaya that overseas consumers look for at their local supermarket	Cost of certified seed, potting mix, nursery operators' time	The selling price of the certified seedlings to the farmer. Estimated seedling supplier share of the consumer purchase price: 0.02%	Moderate: Natural disasters such as floods or cyclones
Farmer (MA) 	Takes the certified seedlings and combines with other inputs to produce papaya to sell at the farm gate. Farmers contribute their land, labour and expertise, etc.	Cost of land preparation, fertiliser, farmers' time	The farm gate selling price of a kg of exportable papaya minus the cost of seedlings and other inputs. **Estimated farmer share of the consumer purchase price: 11.0%**	High: Natural disasters, weather, disease, theft, etc.
Exporter [MA] 	Transports, grades, washes, arranges and pays for quarantine treatment, finds markets, arranges air freight , etc.	Cost of operating packing facility and operating trucks. Cost of cartons and packaging, paying for quarantine treatment, pack house labour, etc.	The price of papaya loaded on the aircraft [fob price] minus the farm gate price of the papaya **Estimated exporter share of consumer purchase price: 12.6%**	High: Post-harvest losses; importer claims; delay in payments from importer; product offloaded due to lack of airline space; market access problems.

Actor The participant in the value chain Main actor [MA] Support actor [SA]	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives [Share of the final selling price to the Consumer]	Actor risk
Quarantine treatment [SA] 	Provides quarantine treatment required to conform to bilateral quarantine agreement [BQA] with importing country. Provides grading and packing services.	Cost of energy, cost of labour and management, repair and maintenance, "rainy day" reserves, BAF charges, etc.	The cost incurred for quarantine treatment **Estimated quarantine treatment share of consumer purchase price: 8.0%**	Low to moderate: Natural disasters
Biosecurity [SA] 	To ensure the requirements of the BQA are met	Contribution to BAF overheads, time of BAF officers	The cost incurred to obtain the quarantine certification required by the importing country **Estimated BAF share of consumer purchase price: 0.04%**	None
Air freight [SA] 	To transport the papaya from Nadi airport to Auckland airport	Fuel, labour and management, etc.	The cost incurred to transport the papaya from the Nadi airport to the Auckland airport **Estimated air freight company share of consumer purchase price: 13.8%**	None
Importer/ Wholesaler [MA] 	Clears, stores, ripens and distributes the product to retailers	Clearance charges, ripening charges, labour, cost of operating and maintaining storage facilities, transportation	The difference between the price of the papaya landed at Auckland airport and the wholesale price paid by the papaya retailers **Estimated importer/ wholesaler share of the consumer purchase price: 9.4%**	Moderate: post shipment losses, claims and delayed payments from retailers
Retailer [MA] 	Makes the papaya conveniently available to the final buyer — displays, promotes and serves	Cost of operating the supermarket, advertising, etc. Cost of produce that cannot be sold	The difference between the wholesale and retail price **Estimated retailers share of the consumer purchase price: 43.0%**	High to very high: not being able to sell a highly perishable product that must be disposed of in a very limited time. Post rots are most prevalent at the retail stage. Price undercutting from competitors.
Consumer [MA] 	The "Queen" at the end of the chain			Insignificant: If the customer doesn't like the product she won't buy again and will tell her friends.

Step 4: Assessing the market

This step is sometimes called market research or market analysis

What's involved

Write down what you understand the consumer cares about the most and try to score the performance of the value chain in meeting these demands and why.

Depending on how close you are to the consumers [whether it is a local or export product], you will either need to interview consumers or try to get in contact with someone who deals with end consumers often and can help you list down what the consumers really care about.

If you have sufficient funding, formal taste testing of consumers by experts can provide very useful information [see example above for Samoan taro sold to New Zealand]

Tools and tips

- This step can best be done if you have access to a recent market study to draw information from.
- Market studies tend to be far more useful if you already have a product to discuss with buyers rather than just an idea or a concept.
- Market studies are often undertaken by consultants. It can be far more useful if the exporter is also involved which allows actual buyers and sellers to meet.
- Good to have somebody involved in this step who regularly handles the product at the retail side — deals with customers.
- If you don't have a recent market study or access to a retailer, you may try sending a questionnaire to the wholesaler or retailer asking them to provide the information for the table above.
- Try sending what you have already worked on to the wholesaler and retailer to provide their comments. Sometimes you will have to send them several requests in order to get a response — be persistent.
- Some Pacific Island exporters have found repeated participation in trade and fine food fares to be very useful. However, for small niche markets such participation may not be profitable unless sponsored by donors.
- Formal consumer taste panel tests undertaken by professionals can be very useful.
- In-store promotions can also provide useful information — but these can be expensive.
- See Shepherd, Andrew, 2003. Market research for agroprocessors. Marketing Extension Guide No. 3, FAO. ftp://ftp.fao.org/docrep/fao/007/y4532e/y4532e00.pdf

Example from 'Fiji Red' papaya export value chain to New Zealand

What consumers care about	Performance of value chain in meeting demand [score from 1 — 10] and why
Fruit taste	9 — Feedback is that consumers in New Zealand love the taste of 'Fiji Red' papaya and it is superior to other products on the market. However, there are some cases where seed purity has been lost and the consumers get a less tasty and yellowish fruit.
Quality (disease and physical damage)	7 — Physical damage is a problem for Fiji papaya because there are so many steps in the chain where the fruit is handled and generally it has more marks on the fruit than the competition. Disease in the form of post- harvest rots can be a problem in Fiji's wet season [November —April].
Health benefits	10 — Fiji papaya is a healthy product like all papaya. However, Fiji papaya has the added advantage that consumers often envision that it is produced in a healthy, "pristine" environment.
Price	7 — Fiji papaya in New Zealand is more expensive than the competition.
Packaging and labelling	5 — Most exporters do not use any fruit stickers and retailers do not use special labelling or displays that indicate it is a 'Fiji Red' product. VC analysis has identified the need to patent the "Fiji Red" brand.

Step 5: Assessing strengths and weaknesses along the chain and identifying actions required

This step is sometimes referred to as SWOT Analysis -S [Strengths] W [Weaknesses] O [Opportunities] and T [Threats]

What's involved

- Examine each link along the value chain to find out what is done well and what is not done so well in terms of producing the final product and getting it into the hands of the consumer. Consider, where possible, potential threats and risks along the chain.
- Consider what more can be done to take greater advantage of what is being done well and make recommendations for the appropriate action.
- Consider what can be done to reduce the weaknesses and make recommendations for the appropriate action. This would take account of threats and risks along the chain.

Tools and tips

- First undertake a preliminary analysis before working in a group.
- Present preliminary draft findings to meetings with actors along the chain for verification and refinement.
- To be completed with an industry-wide meeting for endorsement of findings and ownership of recommendations that forms the basis of developing the plan to improve the value chain [step 6].

Example from 'Fiji Red' papaya export value chain to New Zealand

Actor The participant in the value chain	Strengths and	Weaknesses and threats	Action needed
Seedling supplier (SA) 	• Competent private nurseries in place to supply high quality seedlings at a competitive price • The availability of selected "Fiji Red" seed •A reserve stock of quality seed now in place •No longer necessary to import seed from Hawaii or elsewhere.	• Poor cross-pollinated seed being used by some farmers and seedling suppliers.	• The implementation of a seed certification scheme. • The importance of high quality "Fiji Red" seed promoted to farmers
Farmer [MA] 	• Relatively high level of entrepreneurship by farmers growing papaya [particularly in the Sigatoka Valley]. • Excellent inherent agronomic conditions for growing "Fiji Red" papaya. • Ability to produce high quality organic papaya at a competitive price.	• Vulnerability to natural disasters • Most farmers don't have access to irrigation • Inadequate attention given to drainage. • Some farmers not using selected "Fiji Red" papaya seed. • A susceptibility to post-harvest rots • A concentration of papaya farming in one location — increasing disaster risk. • The risk of future incursion of pest and diseases of quarantine significance	• A more focused extension effort • Expanding papaya production areas • The implementation of measures to reduce post-harvest rots • Implementation of a certified seed scheme
Exporter [MA] 	• A number of long-standing exporters that provide competition	• Mainly purchasing fruit from one geographical area • Under-developed contract farming • No track record in developing mainstream supermarket markets	• Incentives to link exporters to farmers in new areas • Patent and certify the "Fiji Red" brand
Quarantine treatment [SA] 	• A longstanding highly reliable quarantine treatment in place • A non-chemical quarantine treatments allows for organic papaya exports	• The high cost of quarantine treatment	• Support for measures to reduce energy costs • Support for market access requests to reduce the necessary treatment time • Support for programs to increase treatment throughput to reduce unit costs

Actor The participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Biosecurity [SA] 	• Fiji Quarantine involvement only regulatory — government now not involved in treatment	• High cost of biosecurity certification due to user pays policy • Slow pace of securing and reforming market access agreements. No market access to the remunerative US market	• Reform of BAF to reduce costs and increase efficiency. • A concerted effort required to secure long outstanding US market access
Freight [SA] 	• Daily flights to Auckland	• Limited air freight capacity on new Fiji Airways aircraft • High air freight charges	• Working with Fiji Airways and other companies to improve air freight availability. • Priority given to undertaking sea freight trials

Step 6: Developing a plan to improve the value chain

In this step we are converting our value chain analysis to real value chain development. This step leads to what is often referred to as the upgrading strategy.

What's involved

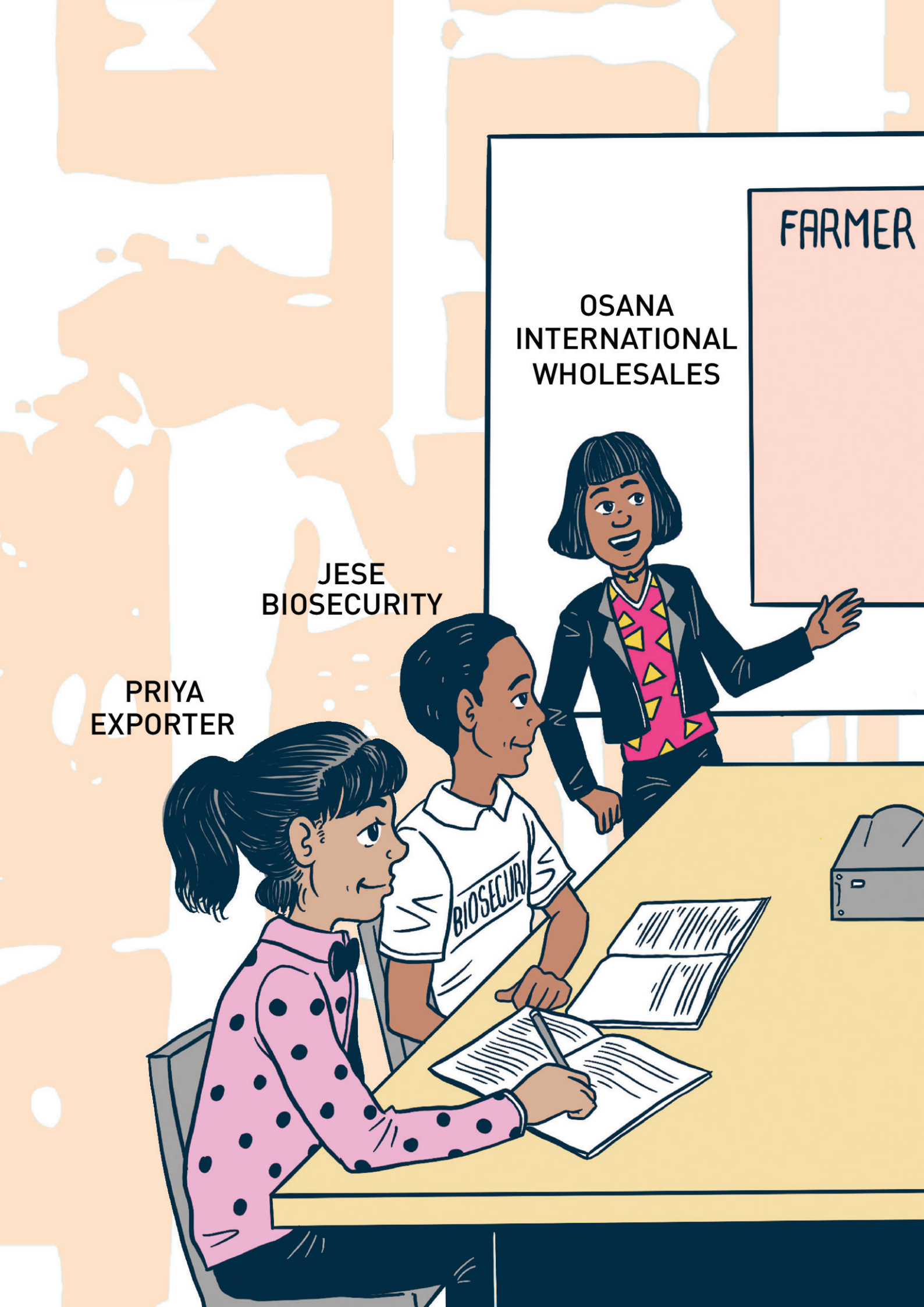
- Take the findings from Step 5 to develop a plan to improve the value chain.
- This should involve both short-term and longer-term plans.
- There can be plans for the individual actors and plans for the entire value chain.
- Short-term plans [things to be done that will have a quick impact — to take advantage of "low hanging fruit"].
- Longer-term plans [things to be done, the impact of which will be felt further into the future]
- It is important to identify a key driver in the value chain that can take a leading role in implementing the value chain improvements.

Tools and tips

- In developing plans, set priorities taking into account what is achievable and what are the costs and expected benefits. Cost-benefit analysis is an important tool in setting priorities [see 6.1].
- Present draft plan to actors along the chain for their verification and inputs.
- Present plan(s) to industry-wide meeting for endorsement and ownership.
- Remember what is being proposed may require external funding assistance. This could involve a bank loan, being part of a public private sector partnership with the government or aid donor assistance. If so, you will need to take into account the requirements of these external entities in preparing your plan.

Example from 'Fiji Red' papaya export value chain to New Zealand

Actor	Short-Term Plan	Longer-Term Plan
Seedling supplier [SA] 	• The training of selected farmers in "best practice" seed collection techniques. • Facilitating the establishment of seed and seedling supply enterprises	• Papaya planting material only to be supplied by certified private nurseries.
Farmer [MA] 	• A concerted extension effort advising farmers of the adverse consequences of collecting their own seed but to instead purchase seedlings from recommended nurseries. • Introduce improved field practices to reduce rots.	• The development of papaya production "best practice" for disaster and climate change mitigation.
Exporter [MA] 	• The adoption of wrapping fruit in newspaper to reduce costs.	• Development of appropriate contract farming in new production areas.
Quarantine treatment [SA] 	• Negotiate reduced treatment holding time with New Zealand quarantine authorities. • Install equipment to reduce post-harvest rots.	• Increasing throughput to reduce unit treatment costs.
Biosecurity [SA] 	• Industry negotiating with BAF and Ministry of Agriculture to reduce treatment charges.	• Focus attention on improving market access and the Bilateral Quarantine Agreement [BQA]. • Reform of the Biosecurity Authority of Fiji [BAF] to improve service, reduce cost and improve efficiency.
Freight [SA] 	• Industry negotiations with Fiji Airways and other airlines, to reduce freight charges.	• Undertake applied sea freight research.
Wholesaler/Retailer [SA] 	• Develop an industry marketing plan for "Fiji Red" papaya to be sold in major supermarket chains [how to compete with Dole papaya from the Philippines]. •Develop an industry marketing plan for niche speciality "red" papaya [organic/specialty markets].	• The implementation of the industry market plans.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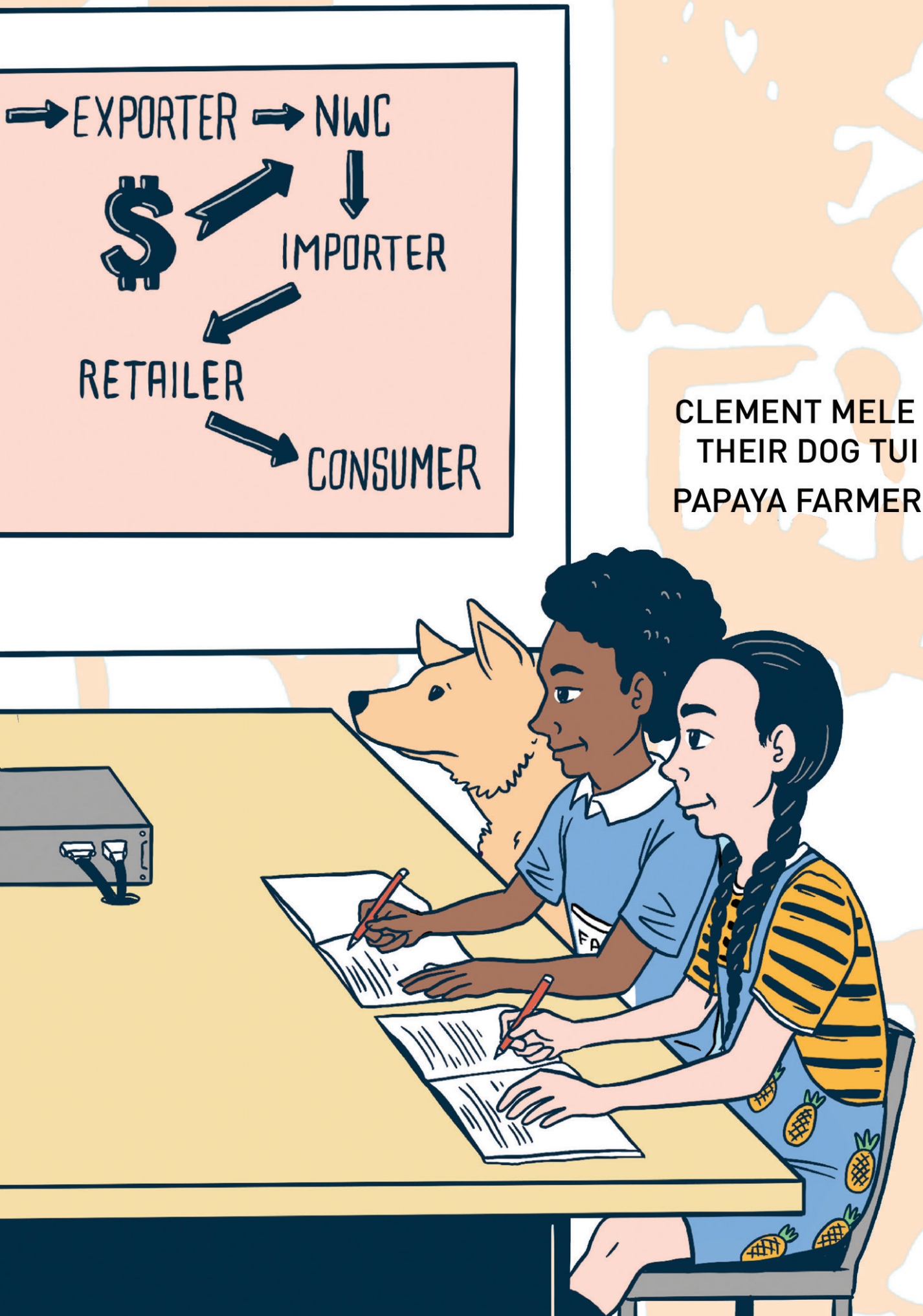


CLEMENT MELE +
THEIR DOG TUI

PAPAYA FARMERS

3 Value Chain Case Studies

1. High grade copra sold on the domestic market in the Solomon Islands: the Chottu Coconut Products (CCP) case study

Step 1: Drawing of value chain map
Part 1: List of actors involved in the value chain

Main actors Those who buy and sell the product as it moves along the chain	Supporting actors Those who provide services to facilitate the movement of the product along the chain
Farmers [producing wet copra]	Agro-supply services [copra bags, drums and pipes, drier nets]
Copra producers [producing dried copra]	Transporters of copra to oil producers
Copra oil producer — Chottu Coconut Products [CCP]	Mill equipment and spare part suppliers [Tinytech mill agent]
Local wholesalers [In the future exporters?]	Food quality drum and bottle suppliers
Local retailers [In the future export market retailers?]	Transporters of oil to wholesalers
Local Consumers [in the future overseas consumers]	Quality testing services [Commodity Export Marketing Authority, USP/Institute of Applied Science]
	Ingredient suppliers for skin products
	Bottle and label suppliers
	Transporter of oil to the retailers

[5] *The detailed value chain study from which this case study was drawn can be found in McGregor, Andrew and Moses Pelomo [2018]. The Solomon Islands Quality Copra Oil Value Chain for the Domestic Market: The Chottu Coconut Products Case Study. SPC/EU Coconut Industry Development Project. lrd.spc.int/reportspublications/doc.../2484-solomon-islands-coconut-value-chain-study.*

Step 2: Drawing the map of how the product flows and placing each actor in their correct place along the chain

Farmers

Ten households grow coconuts and make copra that is sold to CCP.
Coconut plantings range in size from 5 to 25 hectares (ha, with an average planting density of 160 palms/ha).
CCP's current copra buying price is $4/kg farm gate (CCP collects the copra).

Coconut oil processor (Chottu Coconut Products)

CCP uses two Tinytech oil mills with a combined capacity to produce 2,200 ltres (2,400 kg) of CNO per day from 4,000 kg of copra (equal to 50 bags of copra).
All of CCP's coconut products (coconut nut oil (CNO), soap and copra meal for livestock) are sold on the local market.

Local wholesaler

Buys 30-L containers of CNO from CCP and repacks into 5-L and 20-L, and 300-ml bottles to on-sell to retailers.
The selling prices to retailers are: 300-ml bottle = $10 (retailed by the wholesaler), 5-L bottle = $80 (sold to retailers), 20-L bottle = $320 (sold to retailers).
The oil is sold either as pure coconut oil or has neem, or various scents and perfumes, added for use as skin and hair products. A 20% to 50% margin is added for scented products
Sells to around 20 women retailers at the Honiara Market and also has her own retail business at the market. The various products are retailed in 300-ml bottles. Prices range from $10 to $20/300-ml bottle, depending on the additives used.

Local retailer

All retailers are small-scale market vendors, and are mainly located in the Honiara Market.
As yet, locally produced CNO is not sold in supermarkets and other stores although some supermarkets do sell small amounts of locally produced VCO.

Consumers

Most buyers are Solomon Island women. Some 80% to 90% of the oil is used for hair and skin with the balance used for cooking

Step 3: Identifying what each actor contributes to the final product and the returns they receive

[Analysis is based on the processing of 4,800 kg of copra to produce 2,400 litres [L] of CNO and 1,650 kg of copra meal for sale on the local market]#

Actor The participant in the value chain	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price of the consumer 2,400 L of CNO sells for $80,000	Actor risk
Farmers/copra maker [4,800 kg of copra shared by 4 or 5 farmers or copra makers]	Produces coconuts and transforms coconuts into copra. Harvests the coconuts and makes approx. 4,800 kg copra [56 bags of copra]	The cost of labour to: • maintain the plantation [2 days x $50 = $100] • Harvest and make copra 35 days x $50 = $1,750 Replacement of tools and drums = $200 Total = approx. $2,050	The reward to the farmer/ copra maker is the farm gate value of the copra, minus the cost of labour and other inputs. Estimated at $19,200 - $ 2,050 = $17,150 **Estimated farmers' share of the consumer purchase price = 21% to be shared among farmers**	**LOW TO MODERATE:** • Pests such rhinoceros beetle. • Labour not available to make the copra. • CCP does not having cash available to purchase the copra as soon as it is made. However, has the option of selling to Honiara at a lower price.

Values are expressed in local currencies

Actor The participant in the value chain	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price of the consumer 2,400 L of CNO sells for $80,000	Actor risk
CNO processor [CCP the only processor]	Transforms the copra into usable oil. Processes 2,400 L of CNO and 1,650 kg of copra meal to on-sell to the wholesalers	• Makes a substantial investment in processing equipment. • The cost of buying the copra, operating the processing facility, developing the market and marketing to the wholesale buyers. • The main operating costs are: buying copra; transporting copra from farm; processing costs [fuel; wages; repair and Maintenance]; bottles for CNO and bags for meal; oil transporting. Total operating cost estimated to be $25,000 • Fixed overhead, including debt servicing, insurance, depreciation	The reward to the processor is the wholesale selling of CNO and copra meal, and less production and marketing costs. Estimated at $36,900 — 25,015 = $11,885 [From which the processor should be awarded for management and supervision and fixed overhead costs met]. **Estimated processor share of the customer purchase price @ 15%**	**MODERATE TO HIGH:** • Insufficient amounts of copra are purchased due to working capital constraints. • Substantial debt servicing obligations for commercial loan taken for capital investment in processing equipment.

Actor The participant in the value chain	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price of the consumer 2,400 L of CNO sells for $80,000	Actor risk
CNO wholesalers [2,400 L of CNO handled by one wholesaler]	Creates the link between the processor and the retailer. Purchases 2,400 L of CNO in 30-L containers and repacks in smaller bottles for on-selling to the retailer [some with perfume and skincare additives] to on-sell to retailers in Honiara and other markets	The major operating costs are: buying the CNO [$34,000]; bottles and labels [$5,800]; value-adding with neem, perfumes, etc. [$500]; labour for re-bottling and retailing [$700]. Total operating costs around $41,000	The reward to the wholesaler is the selling of CNO products to retailers — less cost of CNO and value-adding and marketing costs. Estimated at $46,000 - 41,000 = $5,000 [From which the wholesaler should be awarded for management and supervision and fixed overhead costs met]. **Estimated wholesaler share of the customers share of the consumer purchase price: 6%**	**LOW TO MODERATE:** Sometimes unable to purchase sufficient CNO to meet demand due to working capital constraints.

Actor The participant in the value chain	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price of the consumer 2,400 L of CNO sells for $80,000	Actor risk
Retailers [2,400 L of CNO expected to be handled by 10 market vendors]	Makes CNO products readily available to the consumer in useable small volumes	The costs for the retailer are: purchased on bottles of CNO from the wholesaler [$46,000]; empty bottles [mainly used] [$3,000]; labels $1,000; perfumes and other additives [$1,000]; market levies and other changes — $500 Total $51,500	The reward to the retailer is the selling of 300-ml bottles CNO products to consumers — less cost of purchasing CNO and from the wholesaler and marketing costs. Estimated at $80,000 — 51,500 = $28,500 **Estimated retailers share of the consumer purchase price: 35% to be shared amongst the market vendors**	**LOW:** Provided the product sells within a few months as it non-perishable and self-stable. However, market vendors are a low income group whose wellbeing depends on a steady cash flow
Consumers	The 'queen' (i.e. the buyer) at the end of value chain			I**NSIGNIFICANT:** If the customer does not like the product, she/he does not need to buy again and will tell their friends

A summary of the distribution of shares along the Solomon Islands CNO domestic value chain

Actor	Actor's share of the final selling price
Farmer/copra maker	21%
Processor	15%
Wholesaler	5%
Retailer	35%
Input suppliers (e.g. transporters, packaging suppliers, equipment suppliers)	22%
Total	100%

Step 4: Assessing the market

The determinates of domestic market demand for the CCP CNO product

What the consumer cares about	Performance of the CCP value chain in meeting demand and why (1 is the lowest score while 10 is the highest)
Price	7 - Most Solomon Islands consumers have low cash income and are, thus very price conscious. The current retaisl price for CCP CNO in the Honiara Market is seen to tbe reasonably price competitive with most imported vegetable products, except palm oil (the major imported vegetables oil product)
Quality	9 - CCP's CNO is generally regarded to be of good quality by buyers in the Honiara Market. However, it is mainly sold as a skin and hair product. Overall, copra oil is regarded as an inferior product for cooking purposes. The current CCP product is seen to be of better quality, but probably still not up a consistent quality standard to achieve a substantial expansion in demand. The problem is seen to liewith quality of the copra being processed, with some adjustment CNO processing likely to be necessary.
Health Benefits	4 - Substantial health and nutritional benefits exits for using CNO as a cooking oil rather than oil palm and soya oil. Howwever, these are hardly recognised by consumers. This needs to changeif there is to be a substantial increase in demand for quality edible CNO.
Packaging and Labeling	5 - The packaging and labeling of the CCP CNO sold by Honiara Marketing retailers is seen as reasonable. However, there will need to be a significant upgrading if the product is to complete with imported vegetables oils sold in supermarket and stores. There will be no place for using recycled bottles. Bulk imports of suitable containers, or the establishment of a plastic bottle manufacturing plant in the Solomon Islands, will be needed. It will also be necessary to improve labeling to the standard of Kokonut Pacific Solomon Islands VCO, or Ocean Soaps CNO imported from Fiji.

Step 5: Assessing strengths and weaknesses along the value chain and identifying action required

Actor The participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers/copra maker	• Experienced copra producers • Most of the coconut trees are still of a reasonably productive age, having been planted in the late 1970s and early 1980s. • Most farmers are in reasonably close proximity to the CNO processor, and with a reasonable main road. • A strong network of farmers linked to the Processor. • Strong representation of women in the network.	• Insufficient copra being produced to meet projected demand. • A significant number of plots are poorly maintained. • Labour shortage • Rhinoceros betel pest. • Some driers are not up to the standard required to produce the quality copra required [7% moisture and no smoke contamination]	• Encouragement of intercropping [cocoa, betel nut] for more efficient labour utilisation in weeding. • Assistance with sourcing appropriate wheel barrows to increase labour productivity. • Existing Projects to assist with the provision of improved copra driers [with steel pipes and chimney] that are already being manufactured in Solomon Islands. • Providing farmers with appropriate field moisture meters. • A demonstration solar drier and/or combination hot air be established at CCP. • Kastom Gaden Association to provide training in high-quality copra making. • A country-wide subsidised coconut replanting programme needs to be established, CCP farmers being one of the demonstration focus groups. • The CCP farmer network needs to be actively involved in rhinoceros beetle mitigation programmes.
The CNO Processor - CCP	• A well-respected, long standing west Guadalcanal enterprise. • Substantial two generations of family involvement provides a basis for sustainability and minimises the risk of key person dependency. • Proven ability to successfully operate the Tinytech processing equipment. • Able to achieve a high recovery rate of good quality CNO, provided the necessary condition of good quality copra • Closely linked to copra suppliers [holds regular monthly meetings] and wholesale buyers. Church network has been important.	• Inadequate copra supply to minimise unit processing costs. • Insufficient working capital to be able to always buy the copra on offer. • High debt servicing due to high interest loan for the initial purchase of equipment. • Quality of CNO is dependent on the quality of copra supplied by farmers. • Other copra buyers, less concerned with quality, are attracting supply and are a disincentive to make good quality copra.	• Increase the copra supply base: initially within the existing farmer network; expand the farmer network in west Guadalcanal; and eventually beyond Guadalcanal. • Working capital support through the banking and financial system. • Project support for major capital investment items to minimise debt servicing constraints. • A concerted programme to improve copra quality, as listed above for farmers. Demonstrations to be provided at the CCP nucleus. Technical assistance to CCP to improve its processing procedures so that CNO quality can be improved. • The development of a contract farming system, including practical value chain training. The foundation has already been laid with the monthly meetings of the CPP supply network.

Actor The participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
CNO wholesalers	• Several active entrepreneurial wholesalers purchase CCP CNO, and are strongly linked through the Catholic Women's Network. The wholesalers in turn have strong linkages with women retailers selling in the Honiara Market. • Have successfully developed a range of value added skin and hair care products.	• Insufficient working capital to always buy CNO from CCP when it is required by the market. • Have not developed market linkages with supermarkets and other stores. • Not in a position to develop export markets.	• Working capital support through the banking and financial system. • Support with improved labelling and packing to facilitate the development of markets for edible CNO in supermarkets and stores. • Encouraging the entry of new wholesalers who focus on the supplying local super markets and possibly eventually niche export markets.
Retailers	• A significant number of market vendors sell a range of CNO value-added products. They have also been innovative in developing new hair and skin products [such as coconut oil with neem] • It is a highly competitive marketing system that has kept prices down for consumers, which has helped expand the market.	• Only a small proportion of the CNO sold in markets is labelled and promoted as an edible product. • Market vendor retailers do not have access to bulk supplies of bottles and labels. A high percentage of second hand bottles are used, which is not appropriate for edible product. • Supermarkets and stores are currently not involved in selling locally produced CNO.	• More high-quality CNO has to be made available to market vendors so they can market it as cooking oil. • Market vendors need to be convinced of the virtues of quality CNO for cooking so that they, in turn, will promote the product. • Market vendors need access to bulk supplies of new bottles to develop the market for edible CNO. • Supermarkets and stores need to be persuaded of the value of selling quality locally produced CNO for cooking.
Consumers	• Long-established tradition of using CNO for skin and hair care and a willingness to accept new value-added products based on coconut oil. • A large number of consumers buy CNO products from the Honiara Market.	•Consumers generally regard coconut oil as an inferior cooking product and prefer to use imported palm oil and soya bean oil. • Difficult to compete pricewise with imported palm oil -although CNO already competitive with other imported oils. • The reputation of CNO as a cooking oil will be spoiled by the selling inferior-quality CNO as a cooking oil	• Education is needed regarding the health and nutritional benefits of using quality CNO for cooking rather than imported oils. • Demonstrating the positive taste achieved from cooking with quality CNO. • With increased production [thus lower unit cost], there is a need to decrease the retail price of edible CNO.

Step 6: Developing a plan to improve the value chain

Actor in the value chain	Short-Term Plan	Longer-Term Plan
Farmers/copra maker	• Training in: copra quality improvement; the CNO value chain held at CCP; and farm-level rhinoceros beetle mitigation. • Assistance in: establishing improved copra driers and demonstration units at CCP; supplying copra moisture meters; supplying appropriate wheel barrows to increase labour efficiency.	• A Solomon Islands-wide coconut replanting programme, with CCP being one of the demonstration focus groups.
The CNO Processor - CCP	• CCP to expand its copra supply sourced from: i) its own plantation; ii) the existing farmer network; and iii) extending to other farmers on Guadalcanal. • Providing access to a working capital financing facility for key value chain enterprises such as CCP. • Technical assistance for: CCP to improve CNO quality, together with quality testing and certification • CCP to diversify the product line to achieve better utilisation of the processing plant and to enhance viability. • The development of a contract farming system supported by practical value chain training for the CCP network.	•CCP to extend its copra supply sources beyond Guadalcanal. • Assistance for: replacing and expanding equipment and other Infrastructure. • Encourage the development of CNO refining to expand the local edible market.
CNO wholesalers	• Wholesalers extending their buyer network to supermarkets and other stores. • Providing access to a working capital finance for key strategic value chain enterprises such as CCP. • Assistance for bulk imports of bottles and labels.	• Encourage wholesalers to develop niche export markets.
Retailers	• To increase the quantity of quality CNO that is made available to retail market vendors and sold as edible oil. • Educate retail market vendors on the commercial opportunities for selling quality CNO as cooking oil and to provide assistance with appropriate labeling. • Facilitate the availability of reasonably priced food grade bottles for retail market vendor. • Encourage the entry of supermarkets and other markets into the sale of quality CNO as high cooking oil.	• Establish grading and labeling standards for the retailing of cooking oils in Solomon Islands.
Consumers	• Changing the negative attitude of consumers through: consumer awareness campaigns [media and schools] on the health and nutritional benefits of cooking with quality coconut oil compared with imported oils; and cooking demonstrations using quality CNO.	•Establish grading and labeling standards for the retailing of cooking oils in the Solomon Islands. • Review the tariff structure for imported vegetable with a view to encouraging domestic edible oil production.

2. Krissy Coconut Cream Case Study: Value Chain Mapping and Analysis

Krissy Co Ltd. is a leading manufacturer in Samoa, producing canned products, small goods, snacks and tissue products, and is heavily involved in agricultural development and value adding of farm-based products for exports. The company processes coconut cream and is the sole exporter of Samoan coconut cream to Australia, New Zealand, the Cook Islands and American Samoa. They are a buyer and business mentor to the Savai'i Coconut Farmers Association [SCFA].

The Savai'i Coconut Farmers Association [SCFA] is a smallholder producer organisation located on the island of Savai'i, Samoa. Its objective is to develop and secure better sustainable living standards for its members. SCFA currently has 122 full members and many more provisional members. In 2013 SCFA became the first Samoan smallholder producer organisation to be certified by Fairtrade.

Krissy Co. and Fairtrade Australia & New Zealand [Fairtrade ANZ] have worked together since 2012 to support the establishment of the Savai'i Coconut Farmers Association [SCFA], a smallholder farmers' business. Working together, the partners pioneered the development of the only Fairtrade, organic coconut cream supply in Samoa. They have now identified an opportunity to develop a new product — 20 litre sized packs of 100 per cent Fairtrade, organic Ultra Heat Treated [UHT] coconut cream for export. This initiative enables further support to SCFA to scale up production and expand its membership base, and to ensure investments in appropriate processing equipment at Krissy Co.

Step 1: List of actors involved in the value chain

Main actors **Those who buy and sell the product as it moves along the chain**	**Supporting actors** **Those who provide services to facilitate the movement of the product along the chain**
Farmers/suppliers	Fairtrade organisation [ANZ]
Savaii Coconut Farmers Association [SCFA]	Shipping company [PFL]
Processor/Exporter	Ministry of Health [MoH]
Importer	MCIL [HACCP]
Retailer	Ministry of Agriculture and Fisheries [MAF]
Consumer	Can/ Carton suppliers

Step 2: The value chain map

Farmers

Number of coconut suppliers = 122 fair trade certified
60 organically certified: 62 conventional
Farmers responsible for collecting, dehusking and transporting coconuts to roadside
Farm gate price: @ $.30 per brown nut (0 germination, 12 in. circumference, 0 cracks)

SCFA

Membership is made up of the 122 farmers supplying brown nuts
Coordinate buying, trainings & certification paperwork
Premium Fairtrade payment = $.02 per nut goes to SCFA Bank account

Processor

Transport Cost from Savaii to factory - $ .02 per nut
Raw material conversion:9,000 – 10,000 nuts = 1,400 – 1,500 ltrs pure cream = 4,800 – 4,900 cans (400 ml)
Labour cost: 20 people @ $35 per day = $.40 per can
Energy cost = $.15 per can
Packaging materials = $1.10 per can
Storage cost
Production = 168,000 cans/ annum = 7,000 – 8,000 cases

Importer

Importing countries include: NZ (41% of production), Australia, Cook Is., American Samoa (combined 59% of production).
1 sea freight container = 45,000 cans
Clearing wharf charges, GST and taxes as in that country (NZ or AUS)

Transport

Sea freight (PFL) = $.5 sene per can

Retailer

Almost entirely ethnic/island shops.
Storage cost
Retail price averages around $4 Tala per can in all markets
Average of 20% mark up on wholesale price

Consumers

Predominantly Pacific Islanders
Preference for Taste, Fatty content, aroma

Step 3: Identifying what each actor contributes to the final product and the returns they receive

The Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives [Share of the final selling price to the Consumer]	Actor risk
Farmer	High quality mature nuts collected from the field and de-husked	Cost of management of coconut plantation [inputs and labour] Cost of collection and de-husking	The selling price of the brown nut at the farm gate minus the cost of labour and inputs **Estimated farmer share of the consumer purchase price: 22.5%**	High: Natural disasters, weather, pest and disease, theft, rejects
SCFA	Ensure compliance with Fairtrade and organic criteria, buy from farm gate and deliver to transit storage centre Ensure quality mature nuts are bought i.e. 0 germination, 0 cracks and minimum circumference of 12 inches. Capacity building and training for the 122 farmers	Training and monitoring costs and resources	Margin on every nut supplied - $.02 sene per nut **Estimated SCFA share of the consumer purchase price: 1.5%**	Moderate: Low supply of suitable nuts and high reject level
Processor	Buy from farm gate through SCFA, transport to processing centre via. Transit centre, processing and packaging of final product Administration cost for SCFA. Funding of training and support to SCFA farmers Delivery and exporting of final product to importer	Collection of transport of nuts for processing, processing, packaging, labelling cost. Infrastructure and maintenance cost, storage cost. Transport and shipping cost, advertisement and marketing of final product.	The wholesale price minus the farm gate price and cost of inputs **Estimated Processor share of the consumer purchase price: 43%**	High: Inconsistent of supply for final product. Poor quality product resulting in bad image for Brand. Contamination in shipment of final product. Costs associated with returning of contaminated shipment
Importer	Importing final product to retailer Clearing of wharf, import duty and tax costs	Cost of wharf clearance, bonds, GST and transport to retailer	Price to retail minus clearance costs **Estimated importer share of the consumer purchase price:13%**	Low: Contamination of shipmentw
Retailer	Storing and making product available to consumers	Cost of operating retail outlet and storage of product	**Estimated retailer share of the consumer price: 20%**	Low: Poor quality of product, and low turnover rate of product
Consumer	Important person in the whole chain with purchasing of the product will keep everyone in business			Insignificant: If the customer doesn't like the product she won't buy again and will tell her friends.

Savai Coconut Farmers Association (SCFA)

Coordinates certified and soncolidation of nuts for the processor
SHARE: 1.5%

Sea Freight

Contributes: Transport of canned coconut cream fro Apia to importing country
SHARE: 1.25%

Retailer

Contributes: Makes the papaya conveniently available to final buyer
SHARE: 20%

Farmer

Contributes:High quality brown coconuts that are certified
SHARE: 22.5%

Processor/ Exporter

Contributes: Transportation from farm gate to factory, processing of nuts into coconut cream, sterilization, canning, packaging, marketing
SHARE: 41.75%

Importer/ Wholesaler

Contributes: Clearance storage and distribution to retailers
SHARE: 13%

Step 4: Assessing the market

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Price	8 - On average price is $2 in the Australian market and $3.50 in the New Zealand market. This is still a competitive price as compared to products from other countries, although the target market is primarily the Polynesian community, hence this is still affordable for the consumer.
Quality [aroma, flavour, viscosity]	10 - The whole process in producing of Krissy coconut cream ensures these 3 main qualities which are sought out by the targeted consumer are exhibited by the final product. These qualities make all the difference in the final product of their intended use, whether it is for baking or cooking purposes.
Packaging	7 - There are current research efforts to venture into aseptic packaging as compared to the current use of aluminium cans. The current 400 ml can form it is being packaged in presents the decent volume required for normal daily cooking. It is anticipated with the packaging methods being explored for aseptic packaging will greatly enhance the quality of the final product at the same time increasing its value.
Labeling	10 - The use of the Fairtrade label guarantees the final product has complied with all of the Fair trade standards with which appeals to most consumers that are concerned with the way the product is produced and the actual source of the product and its benefits to farmer/ producers. This labelling method also opens up the market opportunity to those outside of the normal Pacific community, and hence attracts additional consumers for the product. In Australia and New Zealand 2% of the total sales is the obligation in the utilisation of its Fairtrade logo

Step 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor The participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• Ideal growing conditions • Improving access to areas with poor access • Low management required for already established coconut trees • High chance of organically certifying coconut farm/ plantation • Demand from different markets • Opportunity to source quality planting material to interested farmers or to expand current plantation size and the same time replacing senile trees	• The threat of pests such as the Rhinoceros beetle is a serious issue in Samoa and continues to have a negative impact on the coconut industry • Old and senile trees • Overgrowth of shrubs and trees making it hard to collect the mature nuts • Poor road access resulting in significant labour to get nuts to the point of collection • Low returns/ profitability from collecting coconuts compared to other income generated activities	• Reassess effectiveness of current Rhino beetle control programme, improve on sanitary measures to reduce the spread of Rhino beetle • Replanting with quality and properly identified varieties • Training on management, collecting and harvesting identifying of quality mature nuts required • Promotion and training for coconut based agroforestry systems • Access to tools to improve access for harvesting and collecting purposes • Access to temporary shelters to collect and store husked mature nuts to await collection • Improve road access • Encouragement of intercropping [crops & livestock] for more efficient labour utilisation in weeding • Assistance in sourcing of bulk wheelbarrow to assist with labour productivity •Subsidise coconut replanting programme
Savaii Coconut Farmers Association	• Administration system in place • Funding is available to support training and monitoring programme • Fairtrade premium price secured for its members • Contract farming in place to ensures stable market and price	• Competition from other end users (such as green coconut, copra and domestic coconut market) • Non-compliance of its farmers • Low return to SCFA potentially impacting long term sustainability	• Assess alternative income generating activities for SCFA to sustain • Explore additional support services to be offered to members • Continue Organisational strengthening of SCFA including governance, planning etc. • SCFA needs to be actively involved in eradication of Rhinoceros beetle programme

Actor The participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• Ideal growing conditions • Improving access to areas with poor access • Low management required for already established coconut trees • High chance of organically certifying coconut farm/ plantation • Demand from different markets • Opportunity to source quality planting material to interested farmers or to expand current plantation size and the same time replacing senile trees	• The threat of pests such as the Rhinoceros beetle is a serious issue in Samoa and continues to have a negative impact on the coconut industry • Old and senile trees • Overgrowth of shrubs and trees making it hard to collect the mature nuts • Poor road access resulting in significant labour to get nuts to the point of collection • Low returns/ profitability from collecting coconuts compared to other income generated activities	• Reassess effectiveness of current Rhino beetle control programme, improve on sanitary measures to reduce the spread of Rhino beetle • Replanting with quality and properly identified varieties • Training on management, collecting and harvesting identifying of quality mature nuts required • Promotion and training for coconut based agroforestry systems • Access to tools to improve access for harvesting and collecting purposes • Access to temporary shelters to collect and store husked mature nuts to await collection • Improve road access • Encouragement of intercropping [crops & livestock] for more efficient labour utilisation in weeding • Assistance in sourcing of bulk wheelbarrow to assist with labour productivity •Subsidise coconut replanting programme
Savaii Coconut Farmers Association	• Administration system in place • Funding is available to support training and monitoring programme • Fairtrade premium price secured for its members • Contract farming in place to ensures stable market and price	• Competition from other end users (such as green coconut, copra and domestic coconut market) • Non-compliance of its farmers • Low return to SCFA potentially impacting long term sustainability	• Assess alternative income generating activities for SCFA to sustain • Explore additional support services to be offered to members • Continue Organisational strengthening of SCFA including governance, planning etc. • SCFA needs to be actively involved in eradication of Rhinoceros beetle programme

Step 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmers	• Training in farm level Rhinoceros Beetle mitigation • Access to Value chain training to better understand the other actors, their roles and the certification/ quality requirements • Support for information and planting materials to diversify farm income • Supply of appropriate wheelbarrow to increase labour efficiency • Provision of materials to construct shelters at collection points	• Design and implementation of national coconut replanting programme with SCFA being one of the focus groups • Design and implement a programme to expand and improve farm access roads
SCFA	• Continue organisational capacity building including learning exchange with other regional and national farmer organisations	• Continue organisational capacity building including learning exchange with other regional and national farmer organisations • Assess alternative income generating activities for SCFA to sustain • Explore additional support services to be offered to members
Processor	• Further investment in machinery and infrastructure to allow for expanded production and improved efficiency • Expansion of contract farming and certification arrangements to include more farmers	• Support for marketing and promotion of products in overseas markets • Diversification into UHT processing to meet identified market demands.
Importer	• Roll out marketing and promotion of coconut cream and related products in collaboration with processor and retailer.	• Education on health and benefits of coconut cream compared to dairy alternatives • Demonstration on cooking using coconut cream
Retailer	•Roll out marketing and promotion of coconut cream and related products in collaboration with processor and retailer.	• Education on health and benefits of coconut cream compared to dairy alternatives • Demonstration on cooking using coconut cream

Notes

Notes

3. Nusi Maualaivao Koko Samoa Processing Case Study: Value Chain Mapping and Analysis

Nusi Maualaivao is a cocoa farmer and processor located on Upolu. Nusi Maualaivao processes their own cocoa and also buys wet bean from surrounding farmers to process into the Koko Samoa.

Nusi Maualaivao sells Koko Samoa direct to customers through their own retail shop and also supplies other retail outlets.

Step 1: List of actors involved in the value chain

Main actors Those who buy and sell the product as it moves along the chain	Supporting actors Those who provide services to facilitate the movement of the product along the chain
Farmers	MAF Crops Advisory Services
Processor	Farmer Organisations
Retailer	Input suppliers
Consumer	

Step 2: The value chain map

Each actors share of the final selling price to the consumer

Processor

Contributes: Transport from farm gate, roasting, pounding and packaging
Delivering packed paste to retailers
SHARE: 53%

Farmer

Contributes:High quality cocoa benas harvested and removed from pods
SHARE: 26%

Retailer

Contributes: Makes the product available to the customers
SHARE: 20%

Step 3: Identifying what each actor contributes to the final product and the returns they receive

The Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives [Share of the final selling price to the Consumer]	Actor risk
Farmers	High quality wet cocoa beans harvested from his fields and removed from the pods	Cost of managing cocoa trees [inputs and labour] Cost of harvesting and wet bean extraction	The selling price of the fresh wet cocoa beans at the farm gate minus the cost of labour and inputs **Estimated farmer share of the consumer purchase price: 26%**	High: Natural disasters, weather, pest and disease, theft, price fluctuations.
Processor	Buy from farm gate, transport to processing centre, roasting, pounding and packaging. Delivering packed paste to retailers.	Fermenting and roasting cost [firewood & labour] Pounding & packaging cost [Labour / cups/ plastic] Storage cost Wholesale price per cup $12 = $60 / kilo	The wholesale price minus the farm gate price and cost of inputs. **Estimated processor share of the consumer purchase price: 53%**	Moderate: Wastage due to quality of beans or processing procedures. Price fluctuations.
Retailer	Makes the product available to the customers.	Cost of operating a shop/supermarket.	The difference between the wholesale and the retail price. **Estimated retailer share of the consumer purchase price: 20%**	Low: Poor quality product resulting in customer returns or complaints. Price fluctuations.
Consumer	The most important person in the chain, purchasing the product and keeping everyone in business.			Low: Poor quality product, contamination of product.

Step 4: Assessing the market

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Price	7 — The price fluctuates between $10/cup and $22/cup. Consumers appear to be content at a retail price of around $15/cup, anything over that becomes prohibitive to many families and they may choose an imported alternative.
Quality [aroma, taste, texture]	9 — Generally the Koko Samoa is processed in a manner that yield these desirable characteristics. There are some suppliers that are inconsistent in their processing which leads to poor quality product. Some customers are able to differentiate between the variety of cocoa beans used to make Koko Samoa. The preferred variety is the local fine flavour trinatario [known as Koko Samoa maoi], this is desirable because of its taste and the fact that you have to use less sugar. The higher yielding bulk amelando variety [known as koko Solomona] is considered inferior in taste due to its bitterness.
Packaging	9 — Koko Samoa is sold by the cup and therefore customers generally want uniformity in the size cup. Most producers are standardized using a 6 oz cup however some producers will use smaller or larger cups depending on availability.
Traditional, non-caffeinated and natural	10 — Much of the demand for Koko Samoa is coming from members of the LDS and SDA churches which are discouraged from consuming caffeine. Many consumers also regard Koko Samoa as being more natural and unadulterated compared to imported alternatives such as milo and dried cocoa powder. Serving Koko Samoa to guests [especially overseas visitors] is regarded as part of the Samoan culture and is desirable as a host.

Step 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• Access to preferred cocoa varieties • Good growing conditions • Cocoa crop is part of their diversified farming system which allows them to spread their risks • Strong demand and various market outlets/ options i.e. wet bean, dried bean buyers, Koko Samoa processors, chocolate processors • Opportunity to supply seed and seedlings for cocoa replanting • Cocoa is a perennial crop that requires relatively low inputs as compared to other cash crops	• Cocoa is susceptible to cyclone damage and other inclement weather • Many existing cocoa plantations are quite old and overgrown resulting in low yields • Poor management and neglect resulting in high incidence of pest and diseases [particularly black pod for the preferred Trinitario variety] • Poor and unreliable access to quality planting material i.e. varietal confusion, no clonal propagation [?] or hybrid seed	• Improved extension/ advisory services on proper management of cocoa • Increased and improved nursery production to include clonal propagation, varietal control and monitoring • Farmers receiving training on natural disaster mitigation • Implementation of a more appropriate replanting scheme for cocoa • Promotion and training related to cocoa based agroforestry systems
Processors	• Strong and stable domestic and export [suitcase] market • Low capital and operating cost • Market/ consumers are close by • Traditional and indigenous knowledge on processing of Koko Samoa • Processed Koko Samoa is stable with a long shelf life	• Lack of proper equipment which could improve processing efficiency • Poor processing and storage facilities which could impact food safety and product quality • Inconsistency of supply of cocoa beans • Competition from other processors and substitute products • Price fluctuation could have an impact on value of stock i.e. processed Koko Samoa sold relatively lower than farm gate price	• Grant facility for processors to access equipment and upgrade facilities • Basic training on food safety • Training in Business Management
Retailers	• Strong and stable market • Processed Koko Samoa is stable with a long shelf life • Low operating cost • Distance from suppliers allows for smaller but frequent purchasing	• Limited capital to be able to purchase in bulk • Limited space and facilities for storage • Packaging is generally unattractive for sophisticated retail outlets • Inconsistency of supply • Lack of promotion related to health benefits of Koko Samoa compared to imported alternatives	• Training on basic business management • Grant facility for access of capital [e.g. those provided by the Samoa Business Enterprise Center [SBEC]]

Actor	Strengths and opportunities	Weaknesses and threats	Action needed
MAF Crops Advisory Services	• Network with the local cocoa farmers • Access to technical knowledge and information to assist the cocoa farmers • Access to resources to assist the cocoa industry • Suppliers of cocoa planting material	• Lack of capacity and resources to better assist the farmers • Shifting and conflicting priorities • Lack of quality cocoa planting materials to supply the farmers	• Alignment of efforts and resources to assist farmers in the Industry • Revisit current cocoa nursery practices and ensure collection of planting materials from trusted sources
Farmer Organisations	• Consolidated effort in representation of cocoa farmers between farmers and buyers • Access and linkages to projects/ source of funding to assist farmers	• Insufficient resources to better represent farmers • Lack of cooperation between the existing FOs resulting in conflicting interests	• Access to funding to improve on capacity and resources to better cater for the need of farmers within the industry. • Collaborative effort amongst FOs to identify synergies and avoid overlap and duplication of activities

Step 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmers	• Training of cocoa farmers on best practices in managing of their cocoa plantation • Removal of diseased and senile plants • Replanting with “fine flavour” cocoa seedlings	• Cocoa seeds for planting materials to be sourced only from identified and certified cocoa plantations • Training on storage of cocoa beans during peak season • Grant facility for farmers to access equipment for harvesting and storage
Processor	• Training of cocoa processors on basic health and food safety • Basic training on packaging and labelling	• Grant facility for processors to be able to access tools and equipment for efficient processing and storage • Training in Business management • Basic training on value chain analysis • Implementing a trace back system
Retailer	• Training on advertisement and promotion [such as online marketing]	• Training on basic business management • Grant facility to access capital

Actor	Short-Term Plan	Longer-Term Plan
MAF Crops Advisory Services	• Setup a database of all cocoa farmers in Samoa to include important information on size of cocoa plantation, age of trees, varieties etc. • Implement a training program for Cocoa farmers on all management aspects related to cocoa • Production of training and awareness materials for cocoa • Provide training to Cocoa Nursery operators	• Update Ag Census information in reference to Cocoa planters and producers • Implement an improved nursery propagation programme such as grafting and proper monitoring system for mother plants utilised for seed production
Farmer Organisations	• Liaise between existing cocoa farmers and implementing partners on various projects available • Keep cocoa farmers up to date and informed with useful cocoa information	• Strengthen linkages between farmers and buyers • Source of funding to assist farmers in the industry • Strengthening farmer to farmer exchange training programmes pertaining to cocoa production especially with the experienced cocoa farmers in the industry

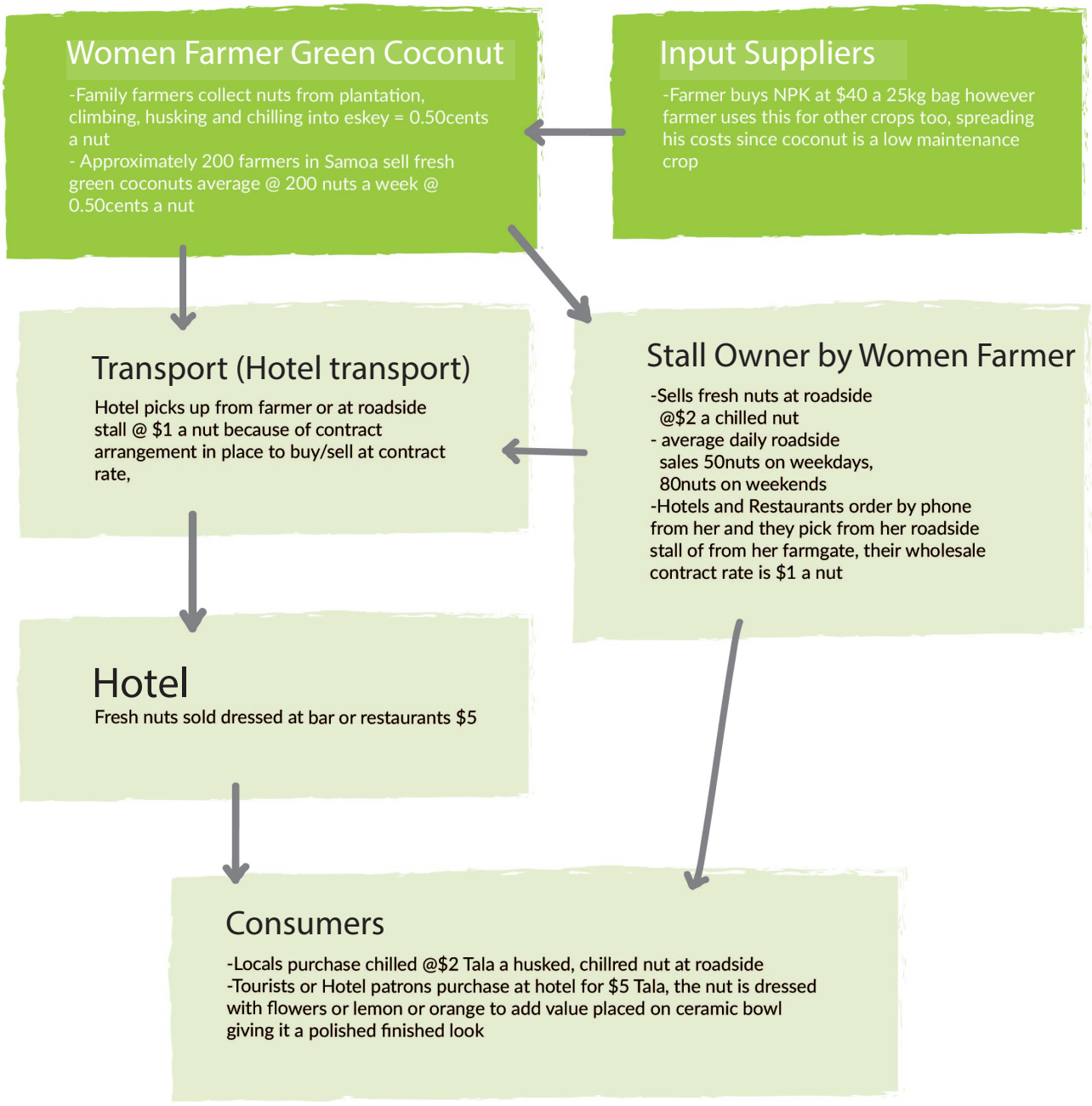
Notes

4. Green Coconuts Samoa: Value Chain Mapping and Analysis

Step 1: List of actors involved in the value chain

Main actors Those who buy and sell the product as it moves along the chain	Supporting actors Those who provide services to facilitate the movement of the product along the chain
Women Farmer / sons	Input Suppliers
Women Farmer at Roadside Stall	Sack and packaging suppliers, straw suppliers, ice suppliers
Hotel / Retailer	Ministry of Agriculture
Consumer	

Step 2: The value chain map



Step 3: Identifying what each actor contributes to the final product and the returns they receive

Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives [Share of the final selling price to the Consumer]	Actor risk
Farmer	High quality green nuts climbed by women farmers sons from the field and de-husked	Cost of collection and de-husking Cost of family's labour managing coconut plantation [inputs and labour]	The selling price of the fresh green coconut at the farm gate minus cost of family's labour and inputs **Estimated farmer share of the consumer purchase price: 45%**	High: Natural disasters, weather, pest and disease, theft, rejects
Women Staff Owner	Storing and making product available to consumers	Collection of nuts for storage for orders for hotel order Cost of operating roadside stall and storage of product	Price to retail at Roadside Staff minus family labour costs **Estimated Women Stall Owner share of the consumer purchase price: 30 %**	Moderate: High supply of suitable nuts and reject level of young nuts damaged during husking process
Hotelier as Retailer	Storing and making product available to consumers	Cost of operating hotel catering and bar services to retail green coconuts and storage of product	**Estimated retailer share of the consumer price: 25%**	Moderate: High turnover rate of product
Consumer	Important person in the whole chain with purchasing power of the product will keep everyone in business			

Fresh green coconut shares

Rideside Stall

Contributes: Market Sales from Roadside to clients, storage of nuts chilled, and husked ready for serving
Share: 40%

Farmer

Contributes: To harvesting, husking and preparation of nut for sale,
Share: 10%

Farmer

Hotelier / Restaurant
Contributes: Transport picks up nuts from farm gate, Purchases from farmer or Roadside stall at contracted price of $1 a nut
Share: 50%

Step 4: Assessing the market

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Quality (Flavour, freshness, taste)	10 — Freshness and chilled green coconut is highly favoured by road side customers of Nofoalii, Samoa. They are able to easily drive, stop and be served by the Staff owner. The Staff owner also is able to sell wholesale from the roadside too to a local hotel nearby for its patrons
Availability of coconuts	10 — The ability to be available 24/6 at the roadside and to always have fresh coconuts in stock is marked high, there was only one instance where stock was low due to Cycone Gita, but stock has since picked up because of the variety of coconuts on the plantation where the dwarfs were not affected and could continue to provide nuts
Price	6 — The roadside price for a fresh green coconut is $2 Tala, this is the price locally except at hotels or restaurants. As fresh coconuts are always readily available, the price is not a serious factor and it is competitive enough against fizzy drinks and retail drinks which encourages locals to drink green coconuts regularly. $2 is very affordable also to school children who stop on the roadside on their walk home after school to also purchase green nuts to drink.
Packaging	6 — The natural look for the green coconut is preferred, with a clean straw, the occasional flower for the tourist is on-hand to make the coconut look a little bit more dressed

Step 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Family Farmers	• Ideal growing conditions • Improving access to areas with poor access • Low management required for already established coconut trees • High demand from roadside sales • Ideal growing conditions • Opportunity to expand current plantation size by being part of the MAF program for replanting of coconut trees • Opportunity to certify coconut farm/ plantation to organic	• Overgrowth of shrubs and trees make it hard to continually climb and collect fresh nuts • Number of damaged nuts during harvesting and husking • Low returns/ profitability from fresh coconut sales compared to other income generated activities for coconuts • The threat of pests such as the Rhinoceros beetle is a serious issue in Samoa and continues to have a negative impact on the coconut industry • Old and senile trees	• Promotion and training for coconut based agroforestry system • Opportunity to join a farmers organisation to be able to be exposed to training on management, collecting and harvesting of fresh green coconuts • Reassess effectiveness of current Rhino beetle control programme, improve on sanitary measures to reduce the spread of Rhino beetle • Opportunity to replant quality and properly identified varieties • Access to tools to improve collection and harvesting activities e.g Wheelbarrow •Subsidise coconut replanting programme
Women Stall Owner	• Superior product in terms of quality, taste, flavour and sweetness • Loyal Samoan community in relatively large numbers willing to purchase from roadside stall • Recently upgraded roadside Stall and the purchase of large eskey for storage of chilled fresh coconuts	• Competition from other end users (mature nuts and domestic coconut market) • Potential for high level of rejects due damage on harvesting and husked fresh nuts • Multiple buyers competing for a limited number of coconuts • Given the nature of the product contamination risk is high	• Opportunity to source green coconuts from other farmers to extend her value chain as a Distributor • Diversification into UHT processing for cottage industry to meet market demands.
Hotelier	• Popular drink at Hotels bar and Restaurant, served fresh, chilled and dressed • High demand from local clientele and tourists	• Lack of supply from farmer as their own supply is priority including sales at Roadside Stall	• Opportunity to source from other farmers but current supplier has been consistent with hotel orders and payment arrangements work for both parties [i.e fortnightly invoices]

Step 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmer	• Supply of wheelbarrow and climbing mechanism to increase labour and harvest efficiency • Training on rhinoceros beetle mitigation • Access to Value chain training to better understand the other actors, their roles and the certification/ quality requirements • Support for information and planting materials to diversify farm income • Opportunity to join Samoa Farmers Association to be exposed to training and management of coconut farm	• Design and implementation of national coconut replanting programme • Capacity building including learning exchange with other farmers and training by MAF for green coconut handling exposure
Women Stall Owner	• Increase collection of green coconuts by entering into contract farming with other coconut farmers to increase stock thus effectively increasing sales • Marketing and promotion with Hotel on story of women farmer selling directly to Hotel	• Opportunity to divest into other coconut products eg serving fresh green coconuts with coconut ice cream
Hotelier	• Work with farmer to promote and market story of women farmer to harness community support	• Work with farmer for Agritourism tour by hotel to farm

Notes

5. Fresh Pineapple in the Solomon Islands: Value Chain Mapping and Analysis

Aruligo suppliers are an informal group of farmers and traders from mainly three settlements; Duidui, Horabao, Vatukulau on the north west of Honiara.

A majority of these farmers are originally from the Weather Coast on Gudalcanal Island; following a natural disaster in that district in the 1970s, many families were relocated to Aruligo.

The main crops produced by this group are pineapple, watermelon, rock melon, cocoa, copra; other minor fruit crops include carambola, improved Thailand guava, and mango. Pineapple and watermelon represent the majority of supply.

The pineapple value chain was chosen as it is applicable to a majority of the farmers at Aruligo and it is easily replicable for other crops.

There are around 12 primary farmers that make up this informal group. Production and handling practices of the group are of a relatively high standard which is evident in the final product that is delivered to the market; this is despite the many stages of transport of the fruit.

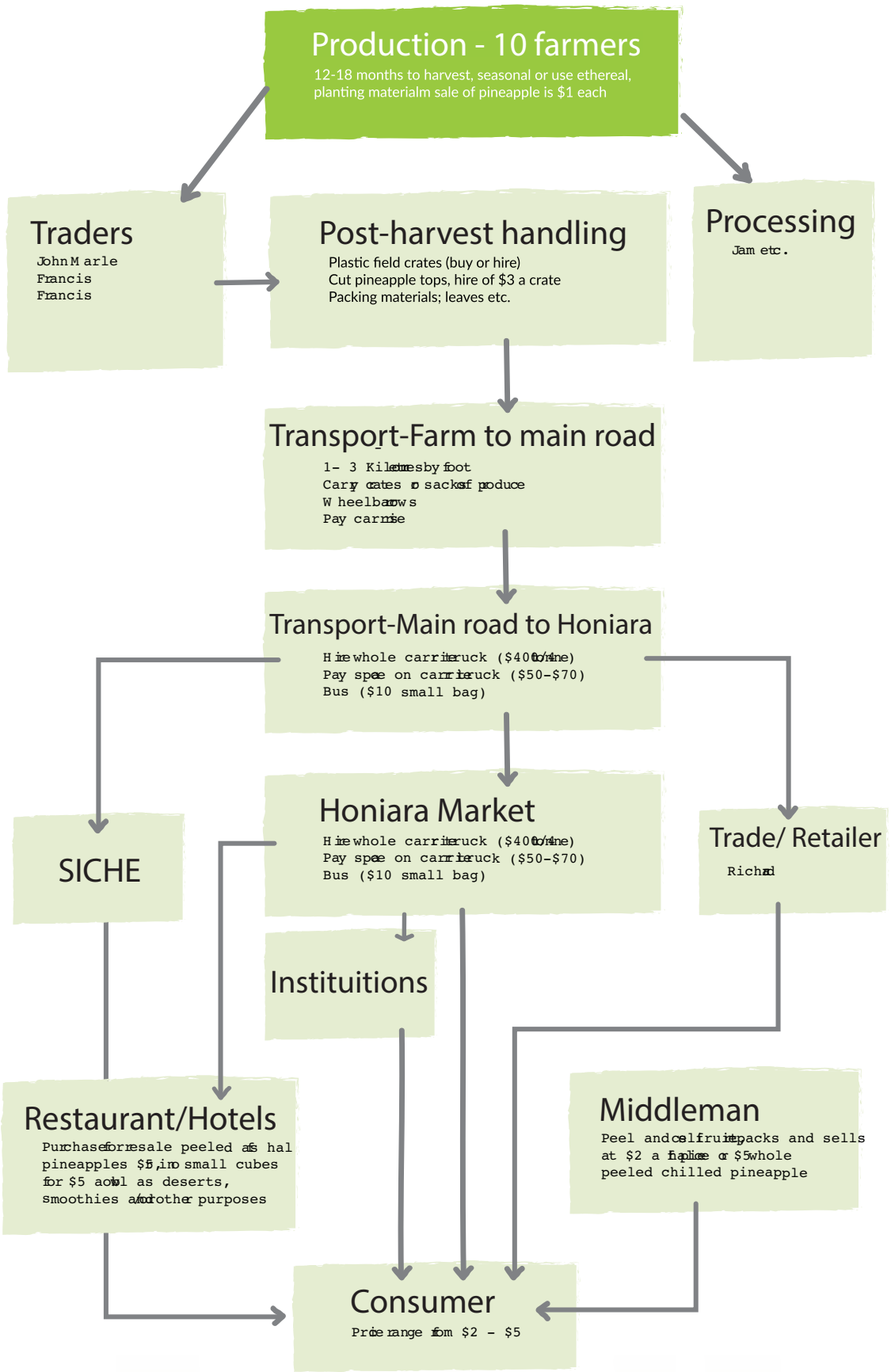
Many of the technologies applied seemed to have originated from a lead farmer in the group John Marle. The use of field crates by Aruligo farmers is further evidence of their desire to produce high quality fruit. The group said that the crates were invaluable in the arduous task of moving the produce from the farm down to the main road for transport into Honiara.

The outlets in Honiara appreciate the superior quality of the fruit that is delivered by the group and as such the Aruligo name is quite renowned for good quality and good flavour. More than 90% of the group's produce is sold on the Honiara Central Market [HCN].

Part 1: List of actors involved in the value chain

Main actors **Those who buy and sell the product as it moves along the chain**	**Supporting actors** **Those who provide services to facilitate the movement of the product along the chain**
Farmers of Aruligo	Transportation [to HCN]
Honiara Central Market	Ministry of Commerce & Trade
	Ministry of Agriculture
Retailer /School Canteens	Golden Manufacturers Suppliers
Consumers	Ministry of Education

Part 2: The Value Chain Map



Part 3: Identifying what each actor contributes to the final product and the returns they receive

Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price to the Consumer	Actor risk
Farmer	Farm produce — Pineapples, water melon, rock melon, cocoa, copra; other minor fruit crops include carambola, improved Thailand guava, and mango	Managing and operational cost of farm [inputs and labour] Collecting and harvesting of fruits from farm Transportation of fruit from farm to main access road	The selling price of the pineapple less labour, transport and inputs **Estimated farmer share of the consumer purchase price: 46%**	High: Rotten and damaged pineapples, weather, pest and disease, natural disasters, theft,
Honiara Central Market (HCM) Vendors	Purchase from farmers, Delivery of product to distributor / hotel / retailer	Purchase of pineapples from farmers farm gate	The wholesale price minus farm gate price and cost of inputs **Estimated Processor share of the consumer purchase price: 10%**	High: Damage of pineapple during transporting to HCM
Hotels / Restaurants / Middlemen / Institutions	Purchase from HCM Cleaning, grading, slicing and repackaging Storing and making product available to consumers	Operating of retail outlet costs and storage of product Cost of transport from HCM	Price to retail **Estimated retailer share of the consumer price: 44%**	Low: Damage of shipment
Consumer	Purchase of product — Final person and key person in the whole chain			

Honiara Central Market

Contribution: Provides a central point for sellers and buyers, sells tables to vendors @ $3 a table

Share: 10%

Farmer

Contribution: Provides fresh pineapples, hires labour and crates, harvests from inland farm, walking 1-3km by foot to a point, then transports to HCM

Share: 46%

Middlemen/ Hotels

Contribution purchases pineapples from farmer, has stall at HCM @ $3 a table a day, peels pineapple, repacks in clear plastic and sells $2 half or $5 whole

Share: 44 %

Part 4: Assessing the market

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Quality	10 — Quality of the fresh pineapple is what the customers all spoke about stating that it was quality that mattered first before price, the pineapples from the Aruligo farmers have a renowned brand where local clients seek out the fresh pineapples from this area.
Size	10 — Size of pineapples matter, this is a serious factor when purchasing pineapples by retailers, hoteliers and normal patrons who frequent Honiara Central Market. The bias that the bigger the size the more the value for money that the customer gets is why customers prefer and rate size high
Price	6 — The price for local Aruligo pineapples sells for $1 a pineapple, and is the normal price with all farmers, sold in bulk at the market in Honiara.
Taste / Sweetness	6 — The taste and sweetness of the local pineapples available at the market is taken for granted so there is not much emphasis on the taste because according to customers, all pineapples taste alike and are all sweet alike, it doesn't affect their options of purchase especially if the clients know that the pineapples are from the Aruiligo area. It is expected that all pineapples from this part of the Solomons taste sweet.

Part 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• High demand for pineapples and other fruits from the Aruligo area • The Aruligo area is well known for production of fruits with farmers producing year round supply to the HC Market • Ready market at HCM that farmers know their produce will be always be sold • The pineapples grow naturally after planting by farmers without much need for agronomy practise because of the ideal growing conditions • Low management and input by the farmers • Opportunity to source quality planting material to interested farmers or to expand current plantation size and the same time replacing senile trees • Large amounts available during seasonality	• Poor road access resulting in significant labour to harvest fruits and to transport fruits to the collection point • Pest and disease to fruits relatively unknown as pineapples and fruits grown abundantly and wildly within the agroforestry context • Poor crop knowledge by farmers including variety types, pest and disease management	• Improve road access • Identification of varieties and work with MAFF Research for clean planting material • Investment in a Pineapple Research program to encourage training and farmer to farmer exchanges • Farmer training on the management on good practises, pest and disease management and collecting and harvesting of fruits [post-harvest] • Access to tools to improve access for harvesting and collecting purposes • Assistance in sourcing of bulk crates to assist with harvesting productivity
Honiara Central Market	• Ideally situated in downtown Honiara for easy access to farmers/buyers/retailers • Central collection point for pineapples • Government initiatives available for market vendors that can partner with farmers	• High level rejects between farm and HCM due to transportation issues and distance	• Rally Government to assist subsidize grants for crates for farmers to assist with transporting produce to market
Hotels / Restaurants / Retailers	• Purchasing directly from vendors or farmers at HCM • Repackaging for their market requirements • Superior product in terms of quality, size, taste, sweetness and local produce • Large Hotel industry willing to purchase local produce • Government opportunities in place for Import substitution to tap into for program assistance	• Have a negative outlook on farmers and their inconsistent delivery, so purchase from HCN • Don't have direct relationships with farmers to purchase direct from farmers • Prefer to purchase from HCM in lieu of purchasing from farm	• Opportunity to enter into contracts with farmers to supply produce directly to hotels

Part 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmer	• Farmer trainings on varieties of pineapples and agronomy practises to better farmers pineapple yields • Access to Value chain Awareness training to better understand the other actors, their roles and the certification/ quality requirements • Support for information and planting materials to diversify farm income • Pest and disease management assistance • Join with other farmers to form a farmer organisation for farmers benefit including negotiating nett wholesale price for purchase of pineapples at farm gate • Obtain clean planting material for pineapples	• Opportunity to develop and design pineapple program with support from partners in implementation • Design and implement a programme to expand farmer production • Promote organic certification in the Aruligo area with current existing farmers • Establishment of a Farmers Organisation of growers for peer to peer learning and farmer exchange
Honiara Central Market	• Host meetings of sellers and buyers (VC) to iron out production issues for better production yields	• Lobby with Government for subsidized crate assistance for carting of produce to HCM • Opportunity to invest in crates and rent to farmers since HCM is the centre point of meeting for all buyers and sellers.
Hotels / Restaurants / Retail	• Enter into contracts with farmers for direct purchases of pineapples • Marketing of local pineapples in establishments and promotion	• Education on health benefits of local fruit juice • Lobby Government for subsidized assistance for promotion of local fruits

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6. Chips from Tongan Staple Foods - Cassava, Sweet-Potato and Breadfruit Seeds Study: Value Chain Mapping and Analysis

Small-scale commercial processing of chips has been carried out sporadically in Tonga for at least 20 years since the mid-1990's. Over the past 3 years, the number of commercial chip-processors increased to 4, in July 2017. There are also a number of part-time processors, who may progress to full-time commercial processing in the future.

For clarification, the term, 'chips', is used by consumers for what is defined in the food-processing trade as 2 separate items, 'fries' and 'crisps'. In the trade, 'fries' are what is served with 'fish'n'chips', and 'crisps' are thin-sliced snacks. In this report, 'chips' means thin-sliced snacks.

Chips have been made in Tonga, from cassava [manioke], taro [talotonga], sweet-potato [kumala], bananas [siane], plantains [pata and hopa] and breadfruit [mei]. Chips that are currently being made for commercial sale are being made from cassava, sweet-potato and breadfruit [in season]. Taro chips are also being made for sale, but in very small quantities comparatively.

The three largest, active commercial chip-processors in Tonga are:
- 150 Snacks [owners/managers - Tamiano and Nunia Finau];
- Tupu'anga Factory Ltd [owners/managers - 'Alipate and 'Emeline Mafile'o];
- Believing in Grace [BIG] Incorp [owner/manager — Luseane Taufa].

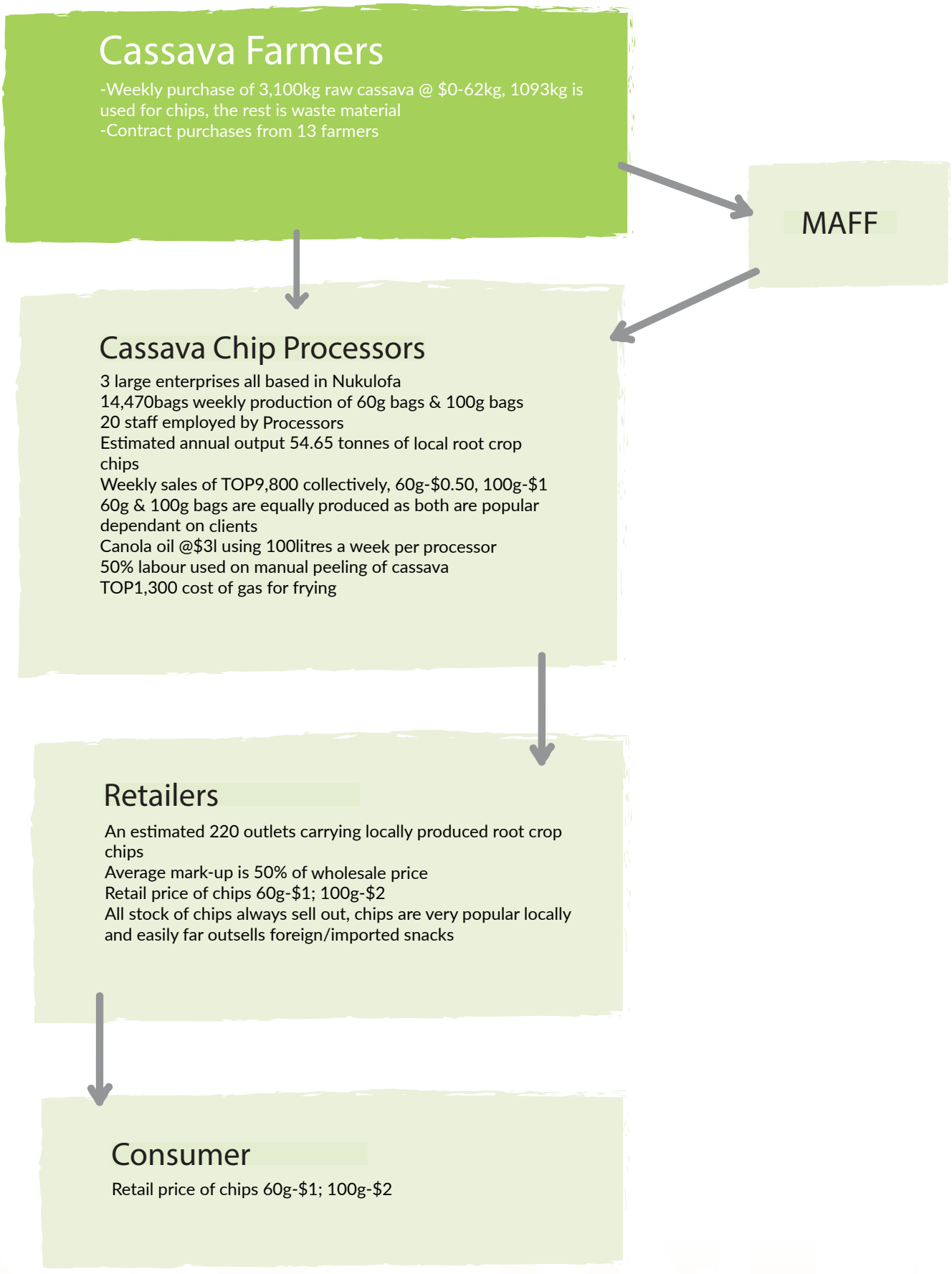
The three businesses process chips at their own sites in Nuku'alofa. The three processing businesses are very young. 150 Snacks and Tupu'anga have been processing since 2015. BIG began processing in 2016.

All three processors make cassava chips weekly, two of the processors also make breadfruit chips in season. One processor makes chips from cassava, breadfruit and sweet-potato. None make chips from bananas/plantains or taro.

Part 1: List of actors involved in the value chain

Main actors **Those who buy and sell the product as it moves along the chain**	**Supporting actors** **Those who provide services to facilitate the movement of the product along the chain**
Farmers/suppliers	Transportation [to Exporter]
Agrana [Processor]	Ministry of Commerce & Trade
Ashabhai / Westcoast Distributors	Ministry of Agriculture
Retailer /School Canteens	Golden Manufacturers Suppliers
Consumers	Ministry of Education

Part 2: The Value Chain Map



Part 3: Identifying what each actor contributes to the final product and the returns they receive

Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price to the Consumer	Actor risk
Farmer	Farm produce — Cassava, Taro, Sweet Potatoes and Breadfruit when in season	Collecting and harvesting of root crops on farm includes farm crates, washing and grading Managing and operational cost of farm [inputs and labour]	The selling price of the cassava, sweet potato and/or breadfruit when in season less labour and inputs **Estimated farmer share of the consumer purchase price: 31.2%**	High: Weather, pest and disease, natural disasters, theft
Processor	Buy from farm gate, transport to processing centre grading, cleaning, processing and packaging of final product Delivery of final product to distributor Transporting final product to retailer Marketing and packaging	Collection of root crops from farmers farm gate, transporting to processing centre for cleaning, grading, processing, packaging, labelling cost. Infrastructure and maintenance cost, storage cost. Transport and shipping cost, advertisement and marketing of final product to retailer	The wholesale price less farm gate price and cost of inputs, price to retail **Estimated Processor share of the consumer purchase price: 50%**	High: Inconsistent and low production supply of root crops impacts final product. Poor quality product resulting in bad image for Brand. Bad quality of variety of root crops not suitable for chip processing however due to shortage in stock, the use of other varieties is still depended on with slight changes in the management of the processing Low: Damage of consignment
Retailer / shops, petrol stations, hotels, resorts and guesthouses	Storing and making product available to consumers	Operating retail outlet costs and storage of product	**Estimated retailer share of the consumer price: 18.8%**	Low: Damaged consignment
Consumer	Purchase of product — Key and final person in the whole chain			

Cassava chips share:

Processor

Contribution - Process raw cassava into chips, package, label and marketing to distribute to 220 retail shops
Share: 50%

Farmer

Contribution of raw cassava for processing into chips
Share: 31.2%

Retailer

Contribution-Stocks and sells to customer especially to school children. 60g-$1 ; 100g-$2
Share:18.8%

Part 4: Assessing the market

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Price	10 — The price for locally packed chips is competitively priced against imported snacks of the same chips but there is a loyal following by Tongan citizens for their food and snacks. The cassava snacks are very popular locally with school children who make up the snack market and is driving this market for processing and manufacturing. Snacks are available in retail, corner and fuel bower shops, that is easily accessible by school children after school.
Quality (taste. Flavour, freshness)	10 — The taste of the local snack with its crispness and freshness makes the difference to imported snacks. Tongans are proudly nationalistic and this can be seen in their buying and purchasing patterns where local snacks are favoured over imported snacks, only when there is nil stock, then imported snacks are purchased.
Availability	9 — Rated high as the demand is high and the processors are being pushed to process more cassava chips as dictated by the local market. The Process have increased their production to continue to meet the local market demand however there are systems and methods that they can invest in to increase their production and working with farmers to increase cassava production.
Packaging	7 — Originally, the packages were in clean plastic bags, and inferior quality compared to imported snacks but this didn't make an impact on its sales volumes with clients still preferring it and purchasing it because of its taste, and that it's a local product made by Tongans in Tonga.
Labelling	6 — Packed and labelled domestically by cottage industry processing (ie Family run processing centres based in the processors own land in their own residential housing) The packing is manually packed and labelling is manually affixed to the snack packs, but this is secondary still to the clientele.

Part 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• Cassava is the largest root crop grown locally in Tonga as it has ideal growing conditions and is very climate friendly and resistant to weather changes • Low management required where an acre of cassava just needs 2 weedings annually • Easily able to replant as there is plentiful planting material where farmers freely exchange planting material without issues for pest and disease • High demand for local content of snacks • Large amounts available all year round depending on variety and time of planting but average of 12 months per crop cycle for farmers • Ability to generate sales either to Cassava Chip processors, to the local market or to frozen export market, farmers have a choice of markets	• Poor road access for farmers who have remote farms and is a challenge for harvesting • Low returns/ profitability per crop but selling it bulk to processors, market vendors attracts a steady income for farmers • Overgrowth of shrubs and grass if not maintained however the crop requires very minimum maintenance	• Assistance in sourcing of bulk wheelbarrow to assist with labour productivity • Identification of varieties that suit chip processing and work with research for clean planting material • Access to tools to improve access for harvesting and collecting purposes, harvesting cassava is labour intensive and back breaking • Improving road access
Processor	• Direct collection of cassava and transportation to factory • Ideally located in Nukualofa which is central for all farmers and transporting to retail shops • Has contract farming for its farmers for steady constant supply of cassava to the 3 processors • Opportunity to continue to grow local market segment • Government initiative available for Import Substitution program • Superior product in terms of quality, taste and 'local' flavour	• Competing with direct market sales by farmers which gives farmers higher yield • High level rejects and wastage of 25% of total cassava purchased from farmers • Increase costs if change in packaging costs i.e new packaging requirements attracting a higher cost initially in introduction • Multiple buyers competing for supply during the season • Quality of chips is heavily dependent on the methods of processing of the cassava supplied	• Opportunity to group farmers into a farmer organisation and specific training be provided for VC Awareness and farmer to farmer learning exchange for better farm management methods • Support for marketing and promotion of products to increase production for import substitution • Processors can provide privatised advisory and quality extension services to its farmers for increased production • Placement of clean planting materials with farmer base on the variety that is best for chip processing • Hotel industry opportunity willing to purchase local produce o bulk

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Retailer	• Superior product in terms of quality, taste, and 'local' flavour • Very nationalistic local market demand	• High demand for volumes of product, the need to increase quantity • Price and flavour competitive with imported snacks • Poor packaging and labelling manual and labour intensive	• Opportunity for Processors to partner and use buying power to purchase and import own Canola Oil for its constant supply but more so can save up to 20% in production costs • Lobby for support to Government or Donor/Partner support for Agribusiness to subsidize Processors in small grants to purchase slicing machine, deep fryers, commercial packing machine to upgrade the facilities of the Processors.

Part 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmer	• Obtain clean planting material for the correct variety of cassava suitable for cassava chip processing • Access to Value chain Awareness training to better understand the other actors, their roles and the certification/ quality requirements • Support for information and planting materials to diversify farm income • Join with other farmers to form a farmer organisation or join an established farmer organisation	• Design and implement a programme to expand farmer production • Encourage the cassava farmers to join an established Farmers Organisation of growers for peer to peer learning and farmer field exchange
Processor	• Development of new contract farming arrangements to include more farmers • Opportunity to work with Tonga MAF to identify right variety of cassava and develop a clean planting material network for distribution to farmers to increase farmer production	• Lobby with Government once production improves for tax on imported snacks to support competitiveness of local production • Increase collection to other islands of Tonga or setup collection centre to spread the benefits at community level • Negotiate with Shipping Lines for collection of root crops from other island in Tonga • Enter into Partnership with the other Processors for group purchasing power to import own raw materials • Invest in slicing machine, commercial deep fryers, commercial packing machines to bring down cost of production •Invest in marketing consultant to design packaging and labelling that will make it competitive in look and feel with imported snacks •Work with Research Programs to work out and decrease overall wastage percentage
Retailer	• Marketing of local snacks and promotion to local clientele	• Lobby with Processor, for Government assistance and subsidies to Farmer projects to increase cassava root crop demand

7. Fruit Juice in Fiji Case Study: Value Chain Mapping and Analysis

There are opportunities for processing fruits and vegetables in Fiji. These include pawpaw (jam & juice), tomatoes (tomato juice and canning of peeled tomatoes), pineapple (juice and fruit canning), coconut products (cream, timber, and specialty oil), Grain Sorghum Stalk (duruka), mixed vegetables, guava (jam), mango jam/juice, herbal kava products. The raw materials are available in large quantities locally during seasons throughout the year.

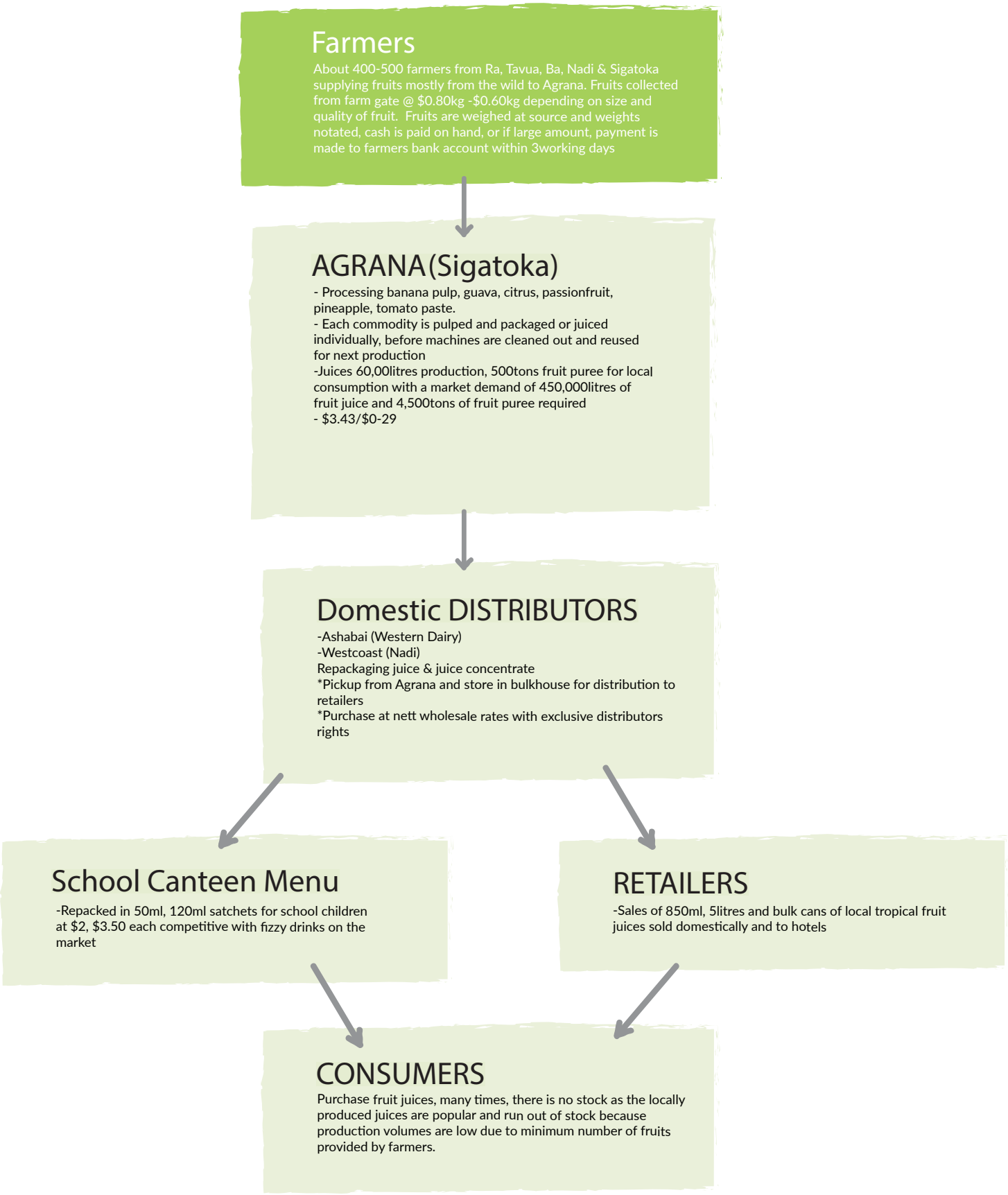
The local fruit industry is dominated by mango, papaya, breadfruit, pineapple which requires a lot of cold storage support and value adding. To meet the growing demand for fruits and vegetables in the tourism sector, major hotel operators import from Australia and New Zealand as local producers are unable to meet the quantity and quality requirements. (Fiji 2020 Agriculture Sector Policy Agenda).
Agrana Fruit (Fiji) Ltd produces a range of fruit juices. They buy from farmers, bananas, mangoes, guava, citrus, passionfruit's, pineapple and process them into juices and puree. There is a high demand from the hotel sector for juices and purees but farmer production to Agrana is their main issue despite the fact that there are seasonal fruits in plentiful supply year-round at the market

During peak production season, Agrana employs up to 90 staff. Agrana exports approximately 95% of its banana puree to the EU markets. Agrana is working with a non-government organisation, Partners in Community Development Fund (PCDF) to train some identified farmers to supply fruits to Agrana. It is an Australian headquartered company with a Fiji office operating out of Sigatoka, they lease a bulk house where it runs its processing operations from, they have an extension officer who works with farmers on agronomy practices for the fruit crops they require and a quality control officer who also visits farmers to advise on quality of products and post-harvest management.

Part 1: List of actors involved in the value chain

Main actors Those who buy and sell the product as it moves along the chain	Supporting actors Those who provide services to facilitate the movement of the product along the chain
Farmers/suppliers	Transportation [to Exporter]
Agrana [Processor]	Ministry of Commerce & Trade
Ashabhai / Westcoast Distributors	Ministry of Agriculture
Retailer /School Canteens	Golden Manufacturers Suppliers
Consumers	Ministry of Education

Part 2: The Value Chain Map



Part 3: Identifying what each actor contributes to the final product and the returns they receive

Actor	What the actor contributes to the final product	The cost of the actor's contribution	The reward the actor receives Share of the final selling price to the Consumer	Actor risk
Farmer	Farm produce — Banana's, Tomatoes, Mangoes, Pineapples	Managing and operational cost of farm (inputs and labour) Collecting and harvesting of fruits on farm includes farm crates, washing and grading	The selling price of the fruit [banana, tomatoes, mangoes, pineapples] less labour and inputs **Estimated farmer share of the consumer purchase price: 24%**	High: Rotten and reject fruits, weather, pest and disease, natural disasters, theft
Agrana [Processor]	Buy from farm gate, transport to processing centre grading, cleaning, processing and packaging of final product Delivery of final product to distributor Delivery and exporting of final product to importer	Collecting of fruits from farmers farm gate for cleaning, grading, processing, packaging, labelling cost. Infrastructure and maintenance cost, storage cost. Transport and shipping cost, advertisement and marketing of final product.	The wholesale price minus the farm gate price and cost of inputs **Estimated Processor share of the consumer purchase price: 40%**	High: Inconsistent and low production supply of fruits impacts final product. Poor quality product resulting in bad image for Brand. Costs associated with returning of contaminated shipment
Distributor	Transporting final product to retailer Marketing and repackaging	Cost of transport to retailer	Price to retail **Estimated distributor share of the consumer purchase price:16%**	Low: Damage of shipment
Retailer / School Canteen	Storing and making product available to consumers	Operating retail outlet costs and storage of product	**Estimated retailer share of the consumer price: 20%**	Low: Poor quality of product, and low turnover rate of product
Consumer	Purchase of product — Key and final person in the whole chain			

Agrana: 40%

Retailer: 20 %

Farmer: 24%

Distributor: 16.5%

Part 5: Assessing strengths and weaknesses along the chain and identifying way to take advantage of strengths and minimize weaknesses

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Farmers	• Fruit trees grow naturally in the wild without much need for orchard development in Fiji so it has ideal growing conditions • Low management required for already established fruit trees • Easily able to certify it organic farm/ plantation • High demand for local content for Fruit Juice • Drive by policy makers / Government to replace imported Juices with local substitute • Opportunity to source quality planting material to interested farmers or to expand current plantation size and the same time replacing senile trees • Large amounts available during seasonality • Ability to generate sales from previously road/market sales to a more targeted market approach to producer	• Low returns/ profitability from collecting fruits and sales compared to other income generated activities • Pest and disease to fruits relatively unknown as many trees grow wildly and within the agroforestry context • Wild and overgrown trees • Overgrowth of shrubs and trees making it hard to collect fruits • Poor road access resulting in significant labour to harvest fruits to get it to the collection point	• Replanting into orchards with better agronomy practises • Identification of varieties of fruits and work with research for clean planting material • Investment in a Fruit Research program to encourage training and farmer to farmer exchanges • Farmer training on the management [includes trimming of fruit trees] for collecting and harvesting of fruits [post harvest] • Access to tools to improve access for harvesting and collecting purposes •Improve road access •Encouragement of intercropping [crops & livestock] for more efficient labour utilisation in weeding • Assistance in sourcing of bulk wheelbarrow to assist with labour productivity • Subsidise program for fruit tree orchard development

Agrana [Processor]	• Ideally situated in Sigatoka near the 'salad bowel of Fiji' for easy access to produce • Sole producer and manufacturer of locally produced Fruit Juices in Fiji selling to Hotel industry • Direct collection of fruits and transportation to factory, providing privatised advisory and quality extension services to farmers • Placement of clean planting materials with farmer base • Opportunity to introduce contract farming to farmers for steady constant supply of fruits • Global brand with bases in other countries thus the opportunity to learn and exchange from its other operations on best practise • Small compact operation with state-of-the-art equipment • Certified HACAPP, Grown in Fiji, Made in Fiji brands • Management experienced in the Fruit production sector • Opportunity to grow and replace the import juices market for the hotel sector • Government initiatives available for Import Substitution programs	• Competing with direct market sales by farmers which gives farmers higher yield • High level rejects between farm and factory due to wild harvests and distance • Increase costs to packaging costs i.e new packaging requirements attracting a higher cost initially in introduction • Multiple buyers competing for supply during the short seasonality season • High risk of contamination / pest / disease because of the nature of the product ie Fruit • Quality of juice is heavily dependent on the quality of the fruits supplied	• Recent investment in machinery and infrastructure for expanded production and improved efficiency and packaging • Opportunity to introduce contract farming and certification arrangements to include more farmers and increase supply • Opportunity to group farmers into a farmer organisation and specific training be provided for VC Awareness and farmer to farmer learning exchange for better farm management methods • Support for marketing and promotion of products to increase production for import substitution
Distributor	• Purchasing directly from producer of Fruit Juices • Repackaging for several markets' dependant on market needs • Very limited scope for product losses • Superior product in terms of quality, taste, sweetness and added 'local' flavour • Large Hotel industry willing to purchase local produce • Government opportunities in place for Import substitution to tap into for program assistance • Packaging suitable for hotels who purchase in bulk for their fruit juice requirements	• Low volumes compared to high market demand, so the need to still import in Fruit Juices to cater for local hospitality and tourism sector demand • Large volumes are imported in single consignments often requiring storage before being sold to retailers with limited storage facility • Potential for container contamination requiring fumigation • Potential for product contamination • Not competitive in price with imported Fruit Juices	• Opportunity for local Fruit juice to be competitive in price compared to imported Fruit Juice • Rally Government to assist subsidize programs to increase production due to large market demand for local Fruit juice • Recent Government mandate for no fizzy drinks, the opportunity to repackage to school canteen production

Actor Participant in the value chain	Strengths and opportunities	Weaknesses and threats	Action needed
Retailer	• Superior product in terms of quality, taste, sweetness and 'local' flavour • Packaging for school canteens very favourable as flexi packing suitable for school children market	• Low volumes of product, the need to increase quantity • Price and flavour [does not have fizz] not competitive with fizzy drink which is the preferred market demand • Not fashionable for children to drink fresh local drink compared to imported local fruit drink	• Lobby for support to Government to subsidize farmer programs to increase production for increased volumes of product • Promotion of local produce and health benefits compared to fizzy drinks

What the consumer cares about	Performance of value chain in meeting demand [score from 1 — 10] and why
Price	8 — The price for local fruit juices is competitive compared to imported fruit juices to the Hotel sector in Fiji, and more recently to the School Canteen market with a new distributor repackaging to school size drinks since the banning of fizzy drinks.
Quality (taste. Flavour, freshness)	10 — The taste of a local fruit drink with its freshness makes the difference to the clients as opposed to imported fruit juices, the natural sweetness and flavour is a key selling point for Agrana, also the fact that the juices are made from organic fruits adds to the attractiveness with the element of supporting local farmers and communities strikes a cord with customers
Packaging	6 — This product is a wholesale product that can be repacked for a different market or served bulkily in more attractive looking serving jars / jugs / dispensers by hotels. For re-packaging, a distributor repacks it into 250ml sachets for easy sales to school canteen for children's drinks, this packaging is convenient for the school children and is easily disposable with a drinking spout to the side of the sachet, offering convenience with bright colours to attract the school children market.
Labelling	6 — Served in cans in 850ml and 5 litres is meant for the wholesale bulk market where hotels in Fiji serve these drinks to their guests by pouring it into glass dispensers for display purposes hence the rating is low however, the labelling with a local name and local image of local fruits is attractive to the local market with its 'Made in Fiji' and 'Grown in Fiji' trademarks that sets it aside from imported juices assists the local market with distinguishing it when it is on the retailers shelf.

Part 6: Developing a plan to improve the value chain

Actor	Short-Term Plan	Longer-Term Plan
Farmer	• Access to Value chain Awareness training to better understand the other actors, their roles and the certification/ quality requirements • Develop contract farming with Processor • Support for information and planting materials to diversify farm income • Pest and disease management assistance • Fruit Tree agronomy practises training (Includes trimming) • Join with other farmers to form a farmer organisation for farmers benefit including negotiating nett wholesale price for purchase of fruits at farm gate • Obtain clean planting material for fruit trees to grow production	• Opportunity to develop and design Fruit tree orchard development in Fiji with support from partners in implementation • Design and implement a programme to expand farmer production • Promote organic certification in Fruit Orchard development or with existing farmers • Establishment of a Farmers Organisation of growers for peer to peer learning and farmer exchange
Agrana Processor	• Development of contract farming and certification arrangements to include more farmers • Continue clean planting material for distribution to farmers to increase farmer production	• Lobby with Government once production improves for tax on imported juices to support competitiveness of local production • Increase collection to other islands of Fiji or setup additional plant in Vanua Levu
Importer	• Roll out marketing and promotion of local fruit juice to encourage local purchase against overseas purchase by local customer clientele	• Education on health benefits of local fruit juice • Lobby Government for subsidized assistance for promotion of local Fruit juices in school canteens
Retailer	• Marketing of local fruit juices and promotion to hotel industry and school canteens	• Education on health benefits of local fruit juices compared to fizzy drinks • Lobby with Processor, Importer for Government assistance and subsidies to Farmer projects to increase fruit supply demand

Notes

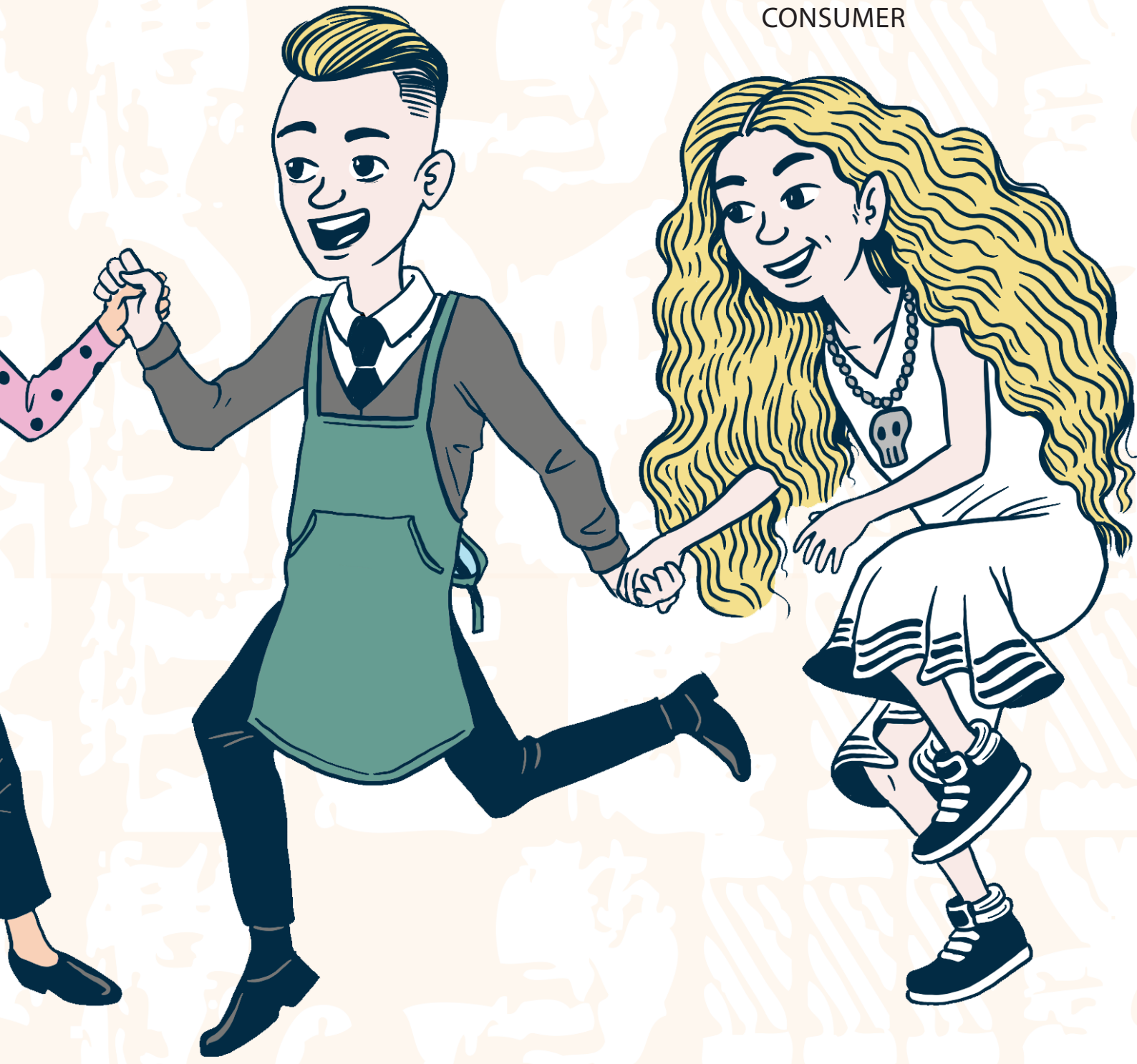
Notes

PRIYA
EXPORTER

CLEMENT MELE + THEIR DOG TUI
PAPAYA FARMERS

ANNIE

INTERNATIONAL
CONSUMER



DEREK

INTERNATIONAL
RETAILER

4 Key Lessons from Pacific Island Value Chain Studies

There are a number of key lessons that can be drawn from the experience of value chain development in the Pacific Islands which are incorporated into practical messages for value chain training. Twelve [12] key lessons are summarised below.

The key lessons are:

1. The most successful value chains have been built around niche markets and/or seasonality.
2. Gradual stepwise development is a feature of successful niche market value chains.
3. Bulk commodities are now shifting slowly toward niche market exports.
4. Premium quality products are imperative for the commercial viability of niche market exports from small remote locations.
5. In successful value chains, agribusinesses "pull" the products through the chain.
6. There is a need to respond to the "tyranny of isolation" and diseconomie of scale, if farmers from outer-island and interior locations are to benefit from value chains.
7. Technology plays an important role in providing market access and improving efficiency.
8. There is a need to provide smallholder farmers with the necessary information and technical skills.
9. Market access constraints for export market value chain development are very difficult to resolve.
10. There is a role for public-private partnerships in value chain development.
11. Longer term financial viability can depend on more sustainable production practices being adopted.
12. Continuing donor and technical assistance is likely to be needed for many chains to reach sustainable profitability.

Key Lesson 1:
The most successful Value Chains in the Pacific Islands are likely to be built around Niche Markets and/or Seasonality

A niche market is a small but different part of the overall market for the product.

Example 1:
Vanuatu pepper exports to Europe

Smallholders from the outer islands of Vanuatu can produce premium quality pepper. However, they cannot compete in European markets with bulk pepper producers from Kerala in India or Sri Lanka.

Volumes from Vanuatu are too low and costs are too high to compete in the pepper commodity market. For the Vanuatu pepper value chain to survive, it requires a selling price three [3] times higher than bulk pepper from Sri Lanka and India.

To compete, Vanuatu's pepper exporters must offer a small part of the pepper market something special that enables them to secure a much higher price for the small volume of pepper supplied.

To achieve this, Vanuatu offers selected buyers a premium quality product that is beautifully packaged and certified [organically grown, food-safe pepper sourced from the romantic islands of Vanuatu].

VS

Example 1:
Vanuatu pepper exports to Europe vs Bulk Pepper from Sri Lanka

Example 2:
Samoan Lime Exports to New Zealand based on Seasonality

From September to March, New Zealand cannot produce Tahitian limes — thus the local price is very high during this period. Samoa can produce quality limes all year round. During the September to March window, they are exported to New Zealand when the price is sufficient to offset the high cost of air freighting small volumes.

Imported Tahitian limes selling in an Auckland supermarket in September for an exceptionally high price.

Example 3:
Fiji built a Major Export industry around Exporting Ginger to the US during the Hawaii "off season"

In Fiji, [southern hemisphere] ginger is harvested between July and October which is the off season for Hawaii ginger [northern hemisphere]. Thus US ginger importers combined Hawaii and Fiji ginger value chains to secure year round supply.

Fiji mature ginger curing in August, destined for Los Angeles

Hawaii mature ginger curing in February, destined for Los Angeles

Example 4: Fiji Red Papaya

Fiji Red papaya, with its unique quality characteristics, has been able to develop niche markets in New Zealand, Australia, Japan and hopefully in the future, the United States. The development of these markets was facilitated by the establishment of a non-chemical quarantine treatment facility owned and operated by the industry. Premium quality provides the basis for establishing and expanding these markets.

Premium quality "Fiji Red" papaya

Non-chemical quarantine treatment at Nature's Way Cooperative

Example 5: Solomon Islands Cut Flowers

The large increase in the expatriate community in the Solomon Islands following the crisis of 2001 substantially increased the demand for high price cut flowers in the Honiara municipal market.

The large donor community in Honiara regularly buy flowers to decorate their homes.

Flower growers make a good return from selling cut flowers at the Honiara market.

Key Lesson 2:

Gradual Stepwise Progression a Key Feature of Successful Niche Market Value Chain Development

Most successful Pacific Island agricultural value chains have developed in a gradual progression. These chains often start with an entrepreneurial investor with a concept. Vanuatu spice exports and Fiji fresh ginger exports [McGregor 1988] provide examples.

The key lessons from these examples are:

- Building products and markets is an incremental step-by-step process involving continuous feed-back between seller and buyer.
- The importance of long-term exporter/buyer relationships — a close relationship based on trust must be developed.
- Successful value chains need to be market driven, but you first need a product to develop a market. The skill of the entrepreneur is to be able to first identify and finance products that the market will want. These products can then be tested in the market and adjusted and developed accordingly.
- The role of the local market (particularly tourism based) in developing and testing products that can later be exported.
- The role of smaller nearby export markets such as New Zealand in serving as a learning process before venturing to larger and more difficult markets such as Australia, United States or Japan.
- The importance of participatory marketing studies where the actual marketing entrepreneur takes the product to actual buyers.
- The value of repeat participation of small Pacific exporters in appropriate industry networking events such as Fine Food Fairs.
- Third-party consultant market studies are of limited value. However, organisations such as PITIC (based in Auckland and Sydney) play an important “marriage broker” role placing Pacific Island exporters and potential buyers together.

Where it all began years ago in a kitchen in South Santo

The first packaged products sold to tourists in Vanuatu

Today —premium Vanuatu vanilla is sold around the world

Key Lesson 3:

Pacific Island Bulk Commodities are now slowly Shifting toward Niche Market Exports

Pacific Islands commodities such as cocoa, coffee and coconut products have been traditionally sold on bulk international markets. On these markets it is the interaction of numerous anonymous buyers and sellers that determines the price. If you supply the minimum quality [usually a sea freight container load — 10 tonnes], you receive the price that has been determined at that time for a specified quality standard [different quality standards receive different prices].

If you have the product, you deal with a commodity trader [not the end user] and you get the international market determined price on offer. The marketing study requirements are limited to knowing who the traders are, where they are located, their shipping requirements and the quality requirements of the market. For such bulk markets, an incremental growth strategy for the value chain is not relevant. The quicker the exporter can move from supplying one container [10 tonnes] to 100 containers [1,000 tonnes] the better. The market can absorb all that can be shipped at the prevailing market determined price.

Example 1:
Bougainville Cocoa Sold on World Market

The price for bulk traded cocoa is determined by numerous buyers and sellers trading in New York. It is not necessary for a cocoa exporter based in Bougainville or Malekula to establish a relationship with these traders.

Bougainville cocoa being shipped to the world market

Coffee, Sugar and Cocoa Exchange in Manhattan

Recent years have seen a shift in some Pacific Island commodity chains toward extending through to the end user to obtain a higher price for the relatively small volumes exported. Niche markets are created by differentiating Pacific Island products for final consumers through origin, fair trade and organic certification, and further processing or packaging, such as producing Pacific Island chocolate from Pacific Island cocoa or packing beans in individual packets.

Example 1:
Niche Market Cocoa from Malekula Vanuatu

(1) Organically certified cocoa beans from Malekula Vanuatu ready for shipment to French chocolate maker

(2) Fiji cocoa being marketed to tourists

French chocolate maker selling the Vanuatu 'name' directly to the retailer and the final customer

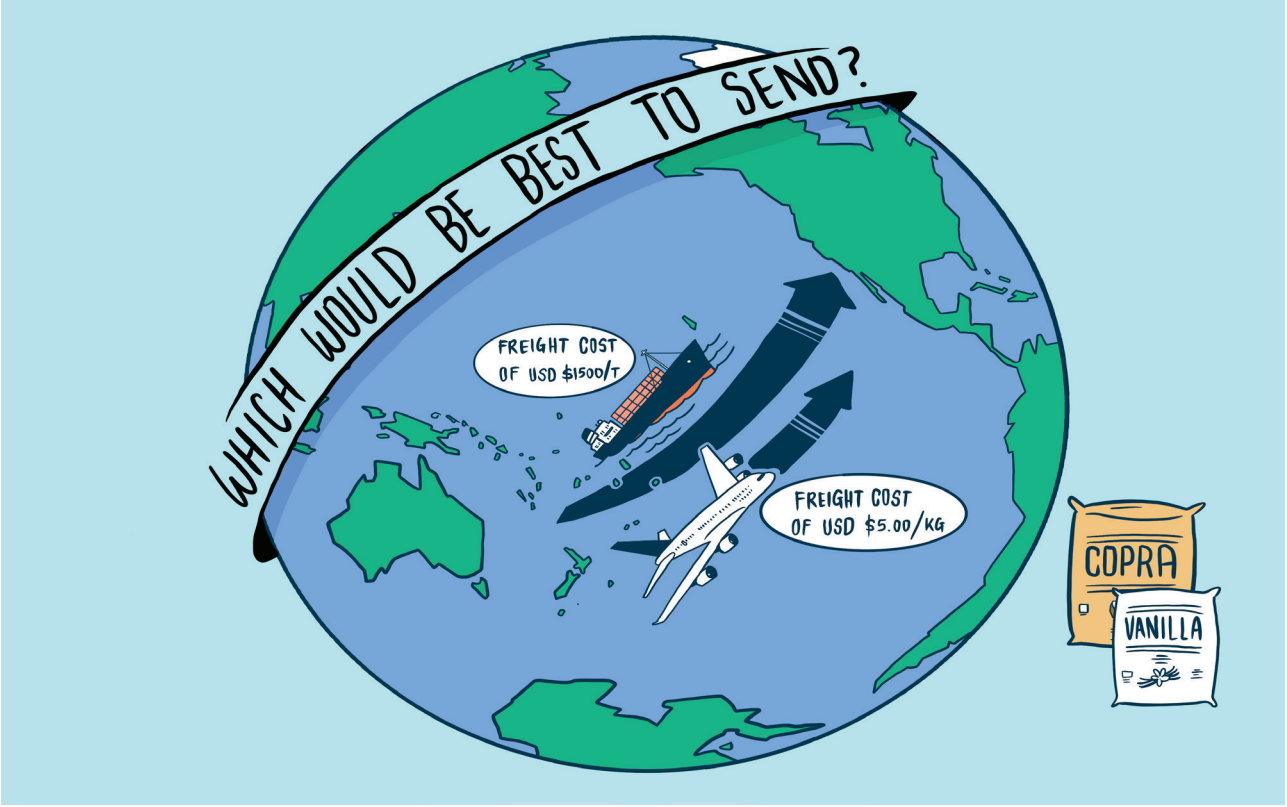
By selling directly to end users, significant value can be added. This should flow on to all the actors in the value chain. However, unlike bulk commodity markets, success depends on establishing and maintaining long-term relationships with the buyer who markets your product at the end of the value chain. For example, the French organic chocolate brand, Kaoka, had established a long-term relationship with the Vanuatu Organic Cocoa Cooperative Association [VOCCA] to supply organically certified cocoa beans.

These beans were manufactured into Vanuatu origin chocolate — with the name Vanuatu featuring prominently on the retail label (McGregor, Wotas and Tora 2009). At its peak, over 200 tonnes of organically certified cocoa were exported to France. Regrettably, the Vanuatu organic cocoa value chain collapsed when this relationship broke down, which in turn led to the collapse of the Cooperative. Vanuatu has now returned to selling its cocoa on bulk commodity markets at significantly lower prices.

Key Lesson 4:

Premium Quality Products are Imperative for the Commercial Viability of Niche Market Exports from Small Remote Locations

Transport costs for Pacific Island products are high along the entire value chain due to factors such as isolation, poor infrastructure, diseconomies of scale and lack of competition. These costs tend to be the same regardless of the quality of the shipped product. The only way profits can be made along the value chain is to sell high quality products that can secure the highest possible price. Profitability can be further enhanced by adding value through such things as packaging and various forms of certification [organic, fair trade, origin, food safety] sought by the market.



Key Lesson 5:
In Successful Value Chains, Agribusinesses "Pull" the Products through the Chain

Farmers or farmer groups have not been successful in "pushing" products through the value chain.

A successful agribusiness is linked to the market and knows what the consumer wants. The consumer, via the agribusiness, that is said to "pull" the product through the chain. This compares with farmers who are removed from the market but still think they know what the market wants, and try to "push" the product through the chain.

Donors and NGOs have nearly always focused their attention at the farmer end of the value chain ignoring the needs of the businesses that buy the product and pull it through the chain. This can be to the detriment of the entire chain including the farmers.

Successful value chains are "pulled" by the consumer

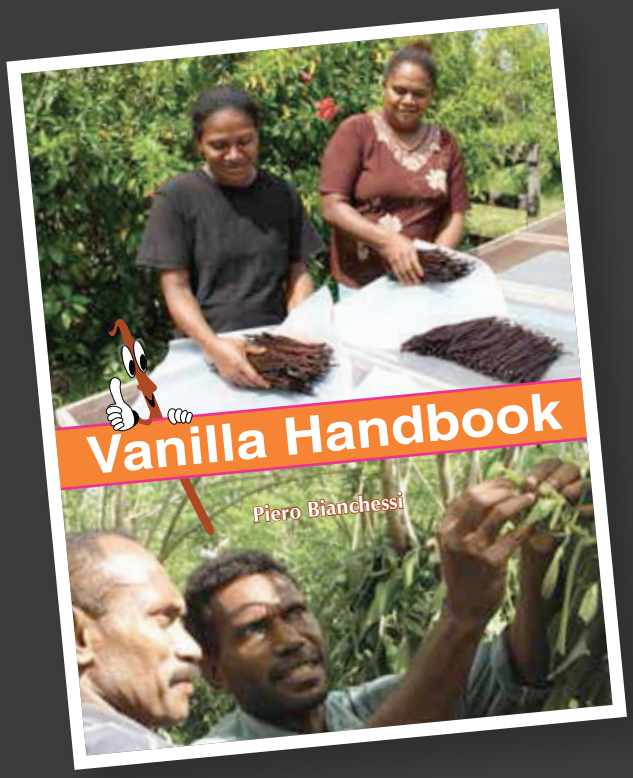
Successful value chains are "pulled" by the consumer

Key Lesson 6:

There is a Need to Respond to the "Tyranny" of Isolation and Diseconomies of Scale if Farmers from Outer-island and Interior locations are to Benefit from Value Chains

In countries like PNG, Solomon Islands and Vanuatu, a high percentage of the people are isolated from the main urban centres and international ports and airports. The "tyranny of isolation" means that many of these people do not participate in agricultural value chains. The Vanuatu spices value chain case study has shown that it is possible to overcome this "tyranny of isolation" provided the following three necessary conditions are met:

- the right product [high unit value and non-perishable];
- the right type of marketing and processing enterprise ["pulling" the product through the value chain] and,
- the right support mechanism [providing correct and appropriate information to farmers].



The right product — shelf stable high value vanilla from Tanna, Vanuatu

The right support — Venui Vanilla and CTA training materials and a market outlet for remote farmers on the islands of Vanuatu.

Key Lesson 7:
The Role of Technology in Providing Market Access and Improving Efficiency

New technologies and processes have been fundamental in the development of Pacific Island value chains. A prominent example was the introduction of High Temperature Forced Air [HTFA] quarantine treatment technology in Fiji. HTFA was the catalyst for the current papaya and breadfruit export value chains.

Key features of the introduction and operation of this technology were:
- Donor technical assistance.
- Operation by the private sector [the industry] — a major departure from past arrangements.
- A public private sector partnership to mobilize the necessary resources.

Samoan lime exports have also been based on the introduction of a new quarantine technology/process [the New Zealand non-fruit fly host quarantine treatment protocol].

In Fiji, further down the value chain, the ready availability of plastic field crates has substantially reduced post-harvest losses and increased the returns from the growing and marketing of papaya. The adoption of this simple technology would benefit all fresh produce industries throughout the region — including those servicing domestic markets.

In Fiji, the access to air freight capacity sharply deteriorated in 2013 and costs rose, threatening the viability of fresh export industries. Applied collaborative research has illustrated that it is technically and economically feasible to sea freight papaya to New Zealand and the research focus has now shifted to sea freight to Australia. Reliance on air freight for exports is always risky when flights are used primarily for tourists. Natural disasters or political disruptions can affect the number of visitors and reduce the number of flights and, hence, cargo space availability.

The development of the Fiji breadfruit value chain requires technology to move from wild harvesting to fruit grown in small commercial orchards. In-field and mass propagation techniques are being developed together with appropriate orchard management systems.

The introduction of new sustainable land management technologies has been necessary for the Fiji taro value chain in the face of deteriorating soil fertility. The viability of Vanuatu's spice exports has depended on the introduction of state-of-the-art value adding and packaging technology for vanilla that is being sourced from village-based farmers in the remotest locations.

Pallets of 'Fiji Red' papaya ready for a sea freight trial to New Zealand.

The introduction of plastic field crates by Nature's Way Cooperative has led to a significant uptake in this technology and an improvement in quality

Key Lesson 8:

The Need to Provide Smallholder Farmers with the Necessary Information and Technical Skills

Pacific Island value chains all involve smallholder farmers, who are usually village based. Such farmers invariably have poor access to the technology required to meet market requirements. This limits their ability to effectively participate in value chains. Some key information and skill areas identified include: pest and disease control, soil fertility maintenance, post-harvest handling of produce and food technology.

Government research and extension entities have faced difficulty in providing technical information and skills required by farmers to produce high value horticultural and spice products. Yet there has been an unwillingness on the part of agribusinesses to provide these essential services — because of the small number of farmers.

In Vanuatu, the value chain for high value spices is able to reach village farmers in the remotest locations via the "Spices Network" that provides the necessary technical skill and information. This successful outreach has been based on a long standing relationship between a processing and marketing company and a farmers' organisation. Without these, the value chain would not exist.

The Samoa Farmers Association [SFA] is playing a similar role in the development of lime exports by providing high quality planting material, tree husbandry and post-harvest handling advice.

In the Fiji papaya and breadfruit case studies, NWC has stepped in to start providing extension and applied research services on behalf of the industry as a whole. This has been through the adoption of a public private partnership [PPP] approach. Donor assistance was necessary to facilitate the process.

The taro case study showed that the most critical information required by Taveuni farmers was to understand the management of their soils to ensure sustainable production. This involved the introduction of innovative extension models driven by farmer organisations within the value chain itself. Targeted donor assistance in support of the process has been critical.

Marcotting breadfruit: A skill necessary for the commercial propagation of breadfruit

Key Lesson 9:

Market Access Constraints for Export Market Value Chain Development are very Difficult to Resolve

The problem of access for Fiji taro, papaya and ginger to the Australian market illustrates the difficulty in developing value chains based on exporting to large neighbouring countries that have domestic industries producing the same product or other products that might be susceptible to pests or diseases found in the exporting country. Substantial and appropriate technical assistance is required to allow for even a modest degree of "playing field levelling" in dealing with quarantine related market access issues.

Key Lesson 10:

The Role of Public Private Partnerships in Pacific Island Value Chain Development

Sustainable successful value chains in the Pacific Islands have been without exception, private sector driven. However, the Fiji papaya and breadfruit value chains illustrate the need for effective public-private sector partnerships. In the context of the Pacific Islands, the public sector includes both national governments and donor agencies. Public sector involvement has been necessary due to large capital and resource requirements relative to the size of the agribusiness entities involved. The example of quarantine treatment facilities is highlighted in the case studies.

A public private partnership [PPP] was required to establish Fiji's industry operated quarantine treatment facility which now provides state of the art quarantine, grading and packing facilities to the industry

Key Lesson 11:

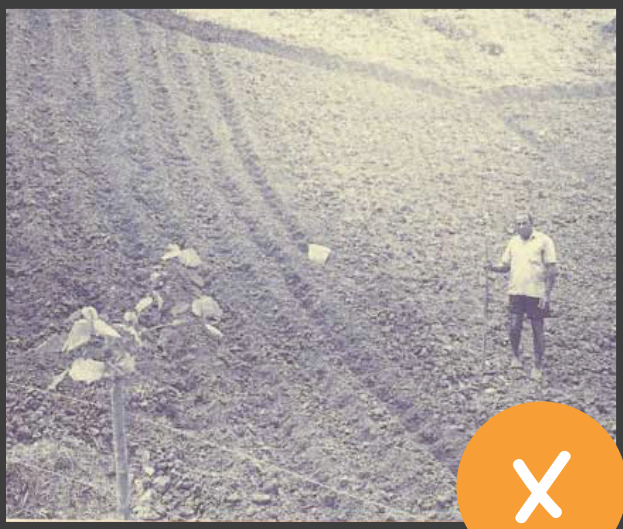
The Need to Adopt more Sustainable Production Practices to stay in Business

Some of the initially successful Pacific Island value chains have floundered because of environmentally unsustainable production practices. Prominent examples are Fiji ginger and taro, Samoan taro and Tongan squash. The adoption of a "green growth" approach by the value chain is an imperative for long run commercial survival as demonstrated by the pictures below illustrating unsustainable and sustainable ginger and kava production.

Kava has in recent years become a major income generating industry in Fiji, Samoa, Tonga and Vanuatu. The kava price boom was the result of severe cyclones in Vanuatu and Fiji and the rapid growth in demand from the United States. Responding to the high prices, many farmers have been quick to chop down all the trees and are intensively planting kava hoping to maximize their income.

These farmers are now enjoying unprecedented profits. However, these profits will soon evaporate unless the farmer adopts proven sustainable production practices. Kava, like taro, is a heavy miner of nutrients from the soil. What has been removed has to be replaced — otherwise the yield for the next crop will fall sharply.. Worse still, the crop destroyed by disease [kava die-back]. Adopting sustainable kava production practices insures that the farm household to continue earn worthwhile income from their land.

Four year old kava roots being sold at the Lenakel Market (Tanna Vanuatu) in Oct 2018 for 40,000 vatu (approx.. USD 350)



Step land being prepared for ginger planting on steep land with contours running up the slope at Waibau in Fiji in 1985. Within a few years the land was obsolete for agriculture with the soil washed away and the farmer out of business.

Ginger planted along the contours with rows of vetiver grass to conserve the soil. Following the correct rotations the farm household is able to maintain a sustainably profitable ginger enterprise

Land cleared of all its tree on the Fiji island of Taveuni for the intensive planting of kava

Yields from next crop grown will be substantially lower and current crop exposed to the risk of kava die-back

A poster promoting broad acre mono-culture kava production in Fiji. A farmer adopting such systems can expect declining yields and kava die back disease in the future.

Healthy 2 year-old kava crop planted as part of an agroforestry system in Taveuni Fiji. The farmer can expect a worthwhile income from the kava crop into the future.

Key Lesson 12:
The Continuing Role of Aid and Technical Assistance in Pacific Island Value Chain Development

In the early 1990s, the Pacific Islands Development Program (PIDP) at the East West Centre undertook a study of the impact of aid and development assistance of agricultural development in the Pacific Islands (McGregor et.al. 1993). The report concluded:

The provision of aid in the Pacific Islands is a complex and vexatious issue. Despite the increasing, numerous policy pronouncements from donors, aid had done little to accelerate private sector development in agriculture. At worst, project aid has actually weakened the position of the private sector by requiring the direct involvement of government agencies in production and marketing activities. Redesigned foreign aid has a crucial role in facilitating horticultural development in the region.

Two decades on, a significant amount of the aid to the sector continues to be misdirected and ineffectual. However, there is now some willingness amongst donors to directly support the private sector, particularly if it involves an industry organisation. Focused aid and technical assistance has played a critical role in all the value chain case studies. In varying degrees, their very existence has depended on this support.

Fiji would not be exporting fruit fly host products (papaya, mango, eggplant and breadfruit) had not USAID transferred the HTFA quarantine treatment technology to the fresh produce exporting industry. Samoa would not be exporting limes to New Zealand had not the Regional Fruit Fly Project transferred the technology to the Pacific for determining no fruit fly host status for products and assisted with market access submissions.

Fiji's taro export value chain was initiated and thrived for nearly two decades without any donor assistance. However, in recent years the industry has faced major problems associated with declining soil fertility and market access. Technical assistance, supplied through various agencies, is now making a major contribution to meeting the industry's identified need for environmentally sustainable production practices. Without this assistance, it is difficult to see how this value chain could be sustained.

The Vanuatu spices value chain has depended less on outside assistance. However, even here, key focused inputs have been critical in the development of the chain. The case study cites the importance of the support for the involvement of the agribusiness in Fine Food Fairs. This company could not have met the initial overhead costs of organic certification without donor assistance. The "Spices Network", created by a farmer organisation, the Farm Support Association (FSA), has been critical in extending the value chain to farmers of remote locations. The FSA has depended over the years on obtaining modest injections from various external funding sources.

The biggest market access challenge facing small agro-processing exporting enterprise is food safety (HACCP) certification. Because of the high overhead costs and the technical requirements of obtaining such a certification, it is unlikely that this can be achieved without significant donor assistance.

5 Key Messages for Pacific Value Chain Awareness

1. A value chain is only as strong as its weakest link
2. Without the customer there is no market, therefore no value chain.
3. Understand your customer
4. Products should be pulled through the value chain rather than pushed
5. Relationships and Information are critical
6. All actors must receive a sufficient reward for their contribution
7. It's better to work together to increase the size of the pie rather than fighting to increase your share of a smaller pie.
8. Without environmental sustainability there is no commercial sustainability
9. Being innovative can create demand
10. Understanding the others business is critical — Make their Business your Business

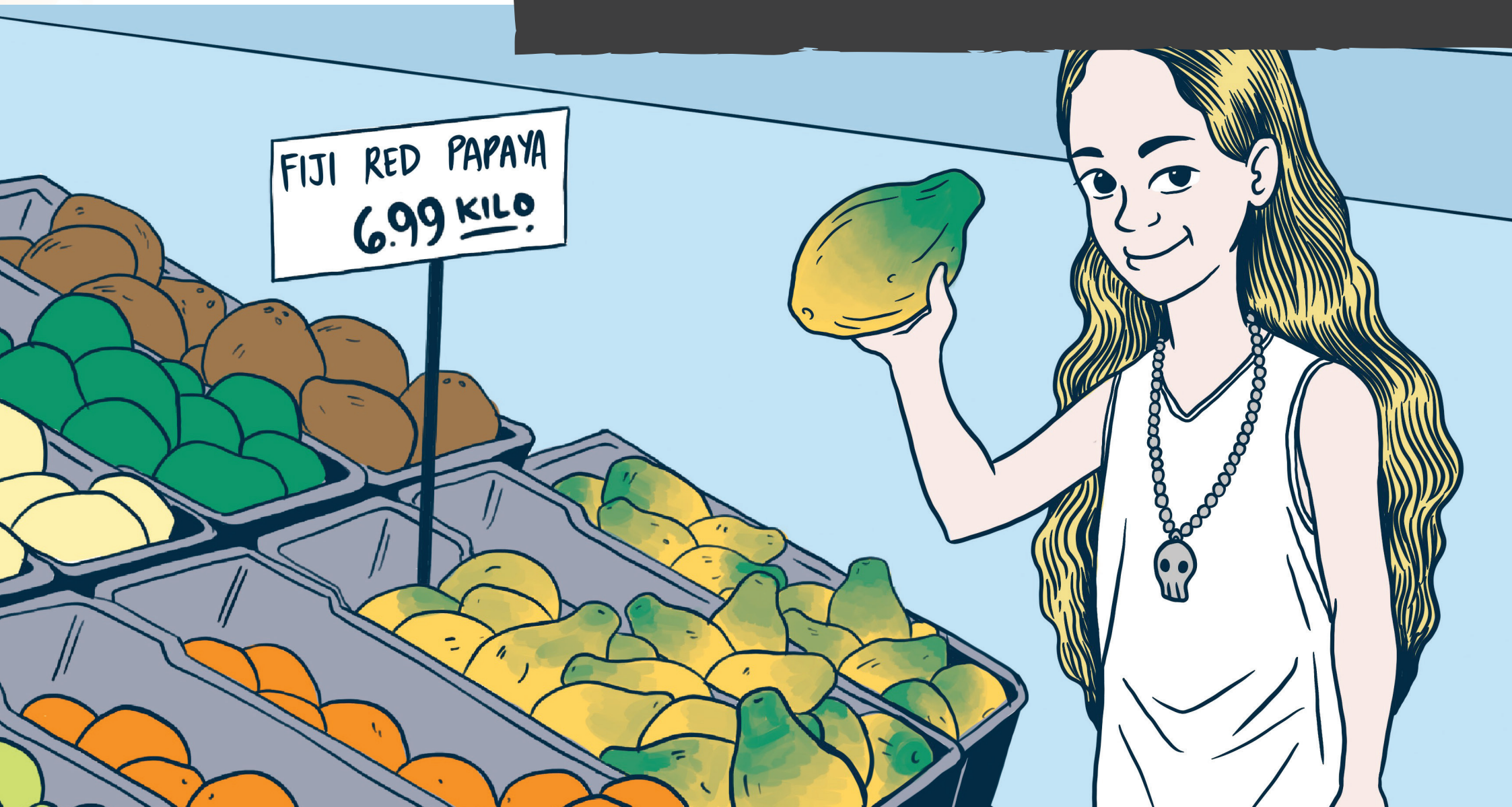
Key Message 1

A Value Chain is only as strong as its weakest link

Key Message 2

Without the customer there is no market,

therefore no value chain



Key Message 3

Understand your customer

Key Message 4

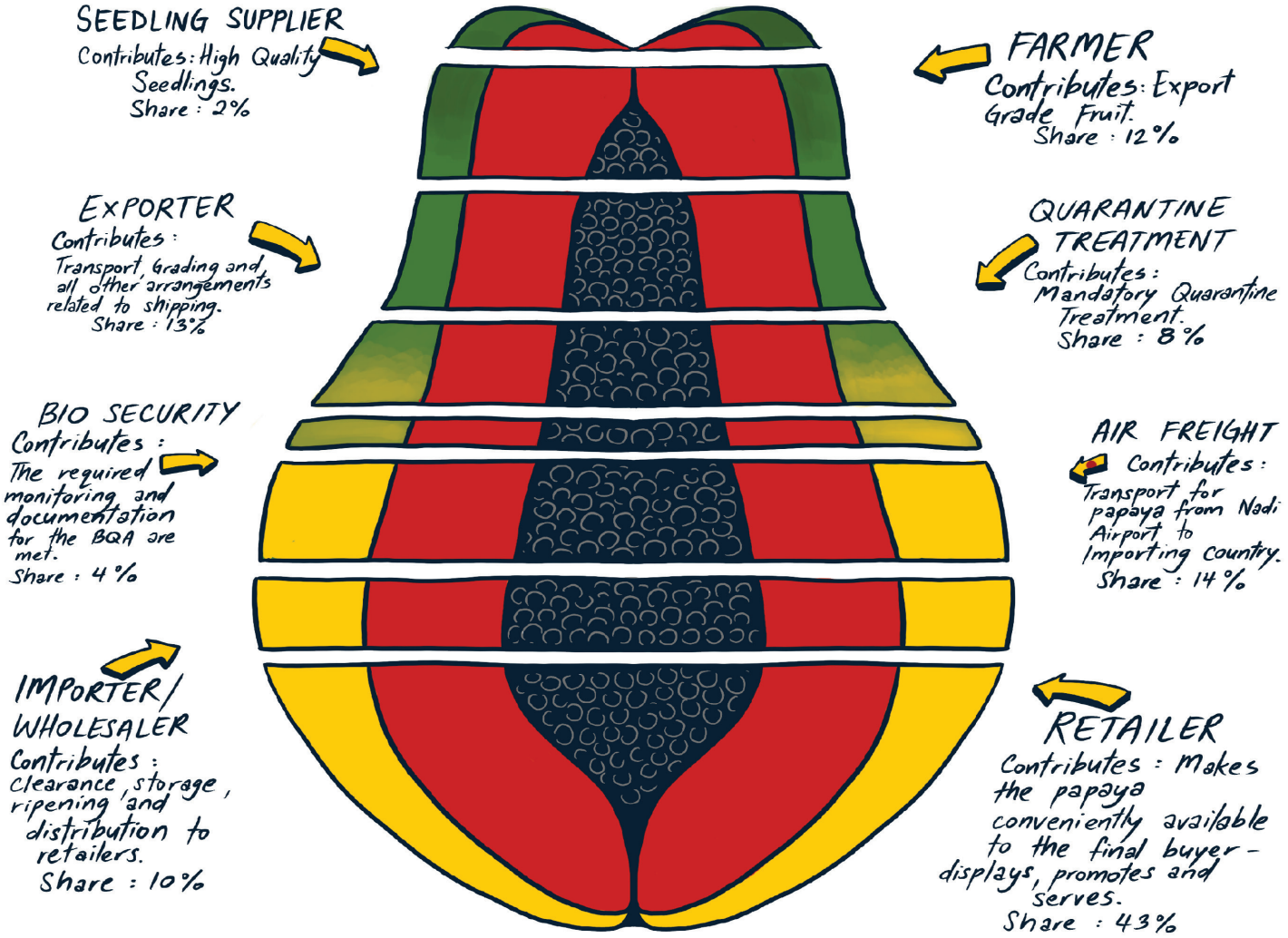
Products should be pulled through the value chain rather than pushed

Key Message 5

Relationships and information are critical

Key Message 6

All actors must receive a sufficient reward for their contribution



Key Message 7

It's better to work together to increase the size of the pie rather than fighting to increase your share of a smaller pie

Key Message 8

Without environmental sustainability there is no commercial sustainability

Key Message 9

Being innovative can create demand

Key Message 10

Understanding the others business is critical – make their business your business

Notes

6 Some Tools, Resources and Things to Look out for in Undertaking Value Chain Analysis

Tools for Analyzing Margins and Profitability

The key training message: A value chain is only as strong as its weakest link — each link has to be profitable for the chain to survive.

Gross margins for farm enterprises

What is a gross margin [GM]: A gross margin refers to gross income [i.e. value of production] minus the variable cost of that production.

Gross margin = Gross income - Variable costs

Variable costs are those cost that vary according to how much is produced [e.g. how many seedlings are purchased, how labour is hired etc].

Whereas, fixed costs are the same regardless of how much is produced [e.g. rent for the land you are leasing, or repayment on a bank loan is the same regardless of how much is produced].

Fixed costs are not included in measuring the GM for a particular enterprise — but should be included when considering the profitability of the total farm.

Farm management manuals often suggest that gross margins are expressed in terms of unit of land area [e.g. GM/hectare]. However, remember Pacific Island smallholders are probably more concerned with the returns from the work effort of the household [if the household does so much work on the production of a particular farm product how much money will we earn?].

Thus a better measure of “profitability” of a particular farming activity is the GM per unit of household labour effort [e.g. GM/day of household labour]. This can then be compared with alternative uses of the farmers time [including leisure and meeting cultural obligations].

An example of the gross margin existing farm enterprise in value chain:

A smallholder growing export quality black pepper on the island of Malo, Vanuatu

Model: Returns to labour from producing black pepper on the island of Malo (Vanuatu) from 300 vines (February 2014)											
Year	1	2	3	4	5	6	7	8	9	10	total
Production (kgs black dried and cleaned)	0	0	5	12	75	125	125	125	125	125	717
Sales (@ 650 vt/kg)	-	-	3,250	7,583	48,750	81,250	81,250	81,250	81,250	81,250	465,833
Cash expenditure											
materials for nursery	1,000										1,000
50% cost of material for drier			4,000		600		600		600		5,800
transportation of pepper[1]			200	200	2,075	3,325	3,325	3,325	3,325	3,325	19,100
Total	1,000	-	4,200	200	2,675	3,325	3,925	3,325	3,925	3,325	25,900
Cash flow (vt)	-1,000	-	- 950	7,383	46,075	77,925	77,325	77,925	77,325	77,925	439,933
Family labour (person days)											-
Clearing (planted with garden)	6										6
Cutting and planting support trees	3										3
Establishing and managing seedlings nursery	3										3
Planting seedlings	2										2
Mulching and compost	1	3	3	3	3	3	3	3	3	3	28
Weeding	7	7	7	7	7	7	7	7	7	7	70
Prunning support and vine		6	6	6	6	6	6	6	6	6	54
Snail control		2	2	2	2	2	2	2	2	2	18
Harvesting			0.5	1	1	1	1	1	1	1	7.5
Cleaning and drying			2	4	4	4	4	4	4	4	30
Marketing			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4
Sub-total	**22**	**18**	**21**	**24**	**24**	**24**	**24**	**24**	**24**	**24**	**226**
Average annual labour (person days)	**23**										
Average annual return per person day of labour (vatu)	**1,951**										

[1] based on a boat from Malo: 1,500Vt/bag 60 Kg. (but 200 Vt/person when carrying one back pack (probably up to 10 Kg)

An example of the gross margin existing farm enterprise in value chain:

A farmer looking to plant 50 breadfruit trees for export

Table 1: A financial model a farm household planting a 50 tree breadfruit orchard using family labor																	
Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Total**
number of trees @ 9 x 9 m	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
marketble yield per tree (# of fruit/tree)	0	0	0	15	30	50	60	100	150	150	150	150	150	150	150	150	
marketble yield per tree (kg)	0	0	0	22.5	45	75	90	150	225	225	225	225	225	225	225	225	
total marketable production (kg)	0	0	0	1125	2250	3750	4500	7500	11250	11250	11250	11250	11250	11250	11250	11250	
Sales ($) @ $0.42/kg 1.	0	0	0	472.5	945	1575	1890	3150	4725	4725	4725	4725	4725	4725	4725	4725	45833
Cash expenditure ($)																	
root suckers 50 @ $5 each	250																
Fertilizer																	
NPK 13:13:21 50kg @ $60/bag	160	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	
bait spray cost				20	20	20	20	20	20	20	20	20	20	20	20	20	
harvesting equipment & pruning equipment																	
stick picker @ $30 each)				30													
pruning saw (@ $45 each)		45															
plastic field bins @ $28/ each				560	560												
Total non labor cash expenditure	410	125	80	690	660	100	100	100	100	100	100	100	100	100	100	100	3065
Gross margin ($)excluding labor	**-410**	**-125**	**-80**	**-217.5**	**285**	**1475**	**1790**	**3050**	**4625**	**4625**	**4625**	**4625**	**4625**	**4625**	**4625**	**4625**	**42768**
Family labor (person days) 2																	
clearing	5																
cutting, lining and digging holes	7																
planting	1																
weeding/fertilizing	6	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
pruning	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	
bait spray application				10	10	10	10	10	10	10	10	10	10	10	10	10	
harvesting cap control and packing in field baskets (150kg/day)				2.2	11	22	22	22	22	22	22	22	22	22	22	22	
Total labor input	19	13	13	26.2	35	46	46	46	46	46	46	46	46	46	46	46	612.2
Average labor input/annum (days)	**38**																
Average annual gross margin per area (1 acre)	**2673**																
Average annual gross margin per tree ($)	**53**																
Returns per family day of labor ($/day)	**70**																
Footnotes																	
1. Using the current farmgate price (2014) for "wild" harvest fruit. A higher price is expected from orchard harvested fruit because of lower post-harvest losses																	
2. assumes only household labour is used																	

Key points to consider when undertaking grower gross margin analysis

- Realistic and accurate input-output estimates are essential [yields, inputs used to produce the product]. This is often not the case with generic gross margin reports which results in a misleading picture of profitability. Projects and companies trying to encourage farmers to grow new crops also have a tendency to exaggerate potential yields.
- Product and input prices are always changing so GM calculations must be updated regularly.
- Returns to labour are the most important consideration for smallholder farmers in the Pacific Islands (if I do so much work how much money will I make for my household compared with what else can I be doing with my time?).
- For some products, you will need to incorporate risk (eg. some years vanilla won't flower, in some years there will be no papaya sales because of a cyclone or a flood).
- Is the enterprise profitable to the farmer when prices are low? Are the profits in the high price years sufficient to offset the low profits (or losses) in the low price years?

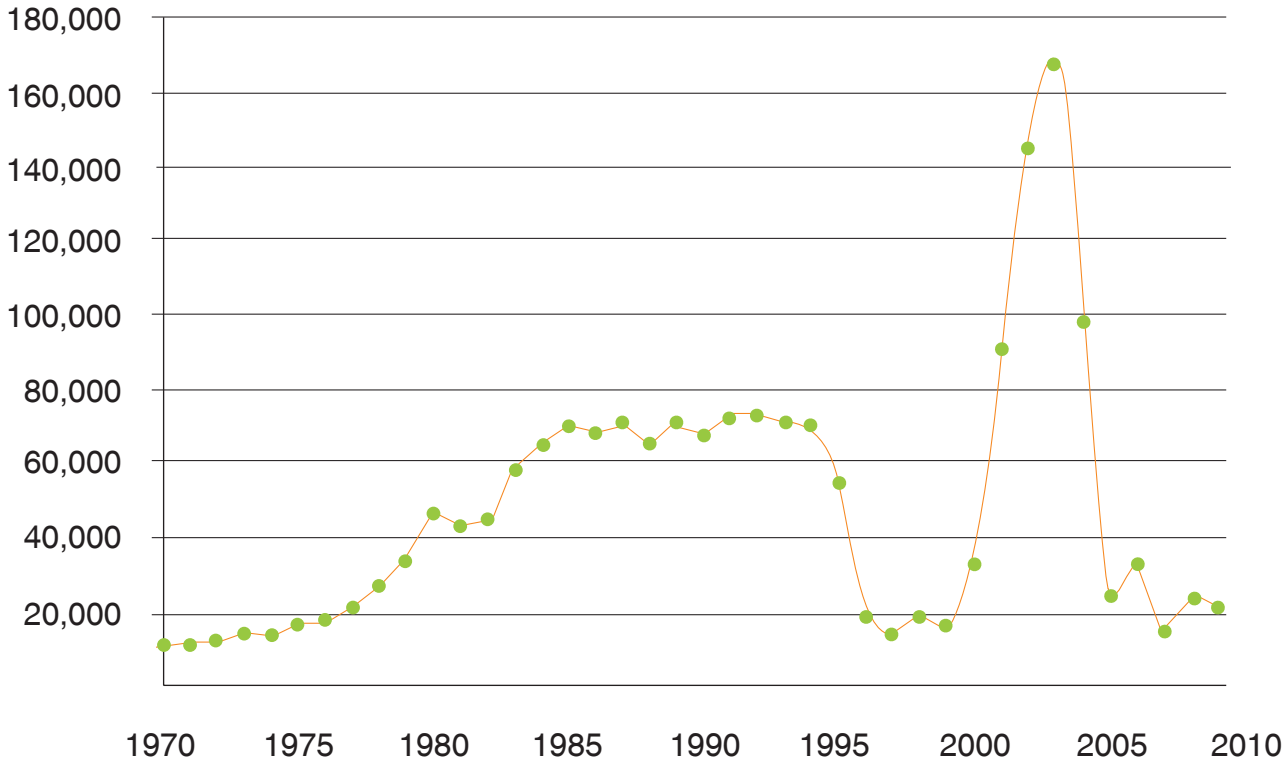
See the following example of PNG vanilla.

The PNG vanilla example:

The average world market price for vanilla in 2003 reached USD 170,000 [fob Madagascar] per tonne, up from only USD 18,000 per tonne in 1998. As a consequence, there was an unprecedented boom in smallholder-based vanilla production in Papua New Guinea [McGregor 2004].

The price paid to PNG growers increased from Kina 60/kg in 1998 to as high as Kina 750 — 800/kg in Sept 2003. World prices then collapsed. The PNG grower price is now around Kina 200 — 300 Kina kg, depending on quality.

At the time of the price peak in 2003 there were over 50,000 people growing vanilla country wide in PNG. Today there are probably less than 1,000 growers remaining and these are located in areas most agronomically suited to vanilla. Most growers left the industry when they found growing vanilla only gave a sufficient return to their effort when prices were extremely high.



Marketing margins and profits

Some definitions

- **Total marketing margin:** The difference between the average price paid by consumers for the finished produce [retail price] and the price received by farmers for the equivalent quantity of the raw material of the product [farm gate price]. This is expressed as a percentage.
- **Exporter marketing margin for the product:** The difference between the fob price [the price loaded on the aircraft or vessel] and the price paid to farmers for the equivalent quantity of the raw material of the product [farm gate price]. This is often expressed as a percentage of the retail price.
- **Exporter "profit" for the product:** The exporting marketing margin less the cost of getting the product from the farmer onto aircraft or vessel. This is the equivalent to farmer's gross margin and is sometimes called the exporters' marketing gross margin.
- **Wholesaler/importer marketing margin for the product:** The difference between the price the product is sold to the retailer [the wholesale price] and the fob price for the product. This is often expressed as a percentage of the retail price.
- **Wholesaler/importer "profit" for the product:** The wholesaler/importer marketing margin less the cost of getting the product from the exporting port [airport] to the retailer.
- **Retailers marketing margin for the product:** The difference between the retail price and the price paid to the wholesaler/importer. This is often expressed as a percentage of the retail price.
- **Retailers "profit" for the product:** The retailer marketing margin less the cost of getting the products from the wholesaler into the hands of the final consumer.

Example of taro export from Taveuni, Fiji to New Zealand

The cost and returns from exporting a sea freight container of Taveuni (Fiii) taro to New Zealand (week ending Sept 27, 2013)

	FJD/kg purchased	FJD/kg exported	FJD /30 kg bag exported	Total (FJD)
Taro purchased from Taveuni (15 tonnes)	1.20	1.50	45.00	18,000
Agent cost @ 15c/kg	0.15	0.19	5.63	2,250
Fright Taveuni - Suva packing shed	0.09	0.11	3.38	1,350
Washing and grading (12 tonnes) - 20 person day @ $20/day		0.03	1.00	400
Utilities (water,electricity, rental)		0.05	1.50	600
Telecommunications		0.01	0.30	120
Poly bags (@ $0.6/each)		0.02	0.60	240
Loading container - 4 person day @ $20/day		0.01	0.20	80
Fees (Quarantine inspection and documentation @ $180)		0.02	0.45	180
Container movement		0.02	0.50	200
Allowance for possibility fumigation in NZ		0.04	1.25	500
Fob cost		**1.99**	**59.80**	**23,920**
Marketing gross margin (FJD)		**0.19**	**5.68**	**2,272**
Marketing gross margin (% of fob cost)		**9.5%**	**9.5%**	**9.5%**
Freight (Suva-Auckalnd)		1.50	45.00	3,000
New Zealand fees (Suva - Auckland)		0.02	0.63	250
New Zealand landed price		3.51	105.43	27,170
New Zealand wholesale price (10% marketing margin)		**3.87**	**116**	**29,887**

Key points to consider in analysing marketing margins

- The need to provide an accurate picture of the services and cost involved

Often growers hear of the final selling price for their product and compare it with the farm gate price they receive. Because the gap between the two is often large [particularly for export crops] it is common for farmers to feel as if they are being "ripped off" by traders and marketers. This view is also often held and encouraged by government officials, politicians and NGO staff. As a result it is often argued, and sometimes implemented, that government bodies and NGOs should become directly involved in marketing to protect farmers from this "exploitation". Alternatively, minimum price controls are advocated to protect the interest of farmers. If a competitive environment prevails, such accusations are not supported by facts but this perception prevails, often to the damage of all participants in the value chain.

For example, the South Pacific Trade Office previously widely distributed the wholesale price for Pacific Islands products sold in Auckland. The wholesale price of taro was usually some three times what farmers were being paid at farm gate on Taveuni. This caused considerable disquiet amongst farmers and government officials. However, the marketing gross margin table above shows a marketing margin of less than 10% [if the importer pays the freight] when all marketing services and costs are taken into account. Unlike the farmer who was paid immediately, it will be at least a month before the exporter receives payment, from which claims might be deducted. Such rates of return certainly cannot be regarded as excessive, given the risk involved and the expertise required to be a successful exporter. This type of transparent cost information makes the players along the value chain more content, which in turn enhances the performance of the value chain.

- The need to provide an accurate picture of the risks involved

Account needs to be taken of the perishability of fresh produce. For example, Pacific Islands taro to be imported into Australia must be devitalised to ensure it can't be grown [Case Study 1]. The physical damage inflicted transforms the product from a relatively non-perishable product to a highly perishable product. The increase in perishability precludes sea freighting taro as a realistic marketing option and substantially increases costs. Even with air freighting, devitalisation can result in complete rejection of shipments - the cost entirely borne by the exporter.

Interpreting marketing margins and "profits"

The key training message: The margin for each actor in the chain must be sufficient to cover the cost involved in transferring the product from one stage of the chain to the next and provide a reasonable return for those providing this service. The presentation of a trader's share of the final price can give a misleading impression unless you know the costs involved.

"High" margins at any stage in the value chain suggest that the industry might be improved (increased total income and more equitable distribution of the income generated by the chain) by the entry of more participants at that particular stage. But what does 'high' mean?

Remember, a margin needs to sufficiently compensate the value chain actor (the farmer, marketing agent, exporter, wholesaler, etc.) for the costs incurred and the investment made.

Other things being equal, margins need to be larger:

- the higher the cost incurred;
- the larger the investment made;
- the longer the time lag between the time of the investment and the income received;
- the bigger the risks involved;
- the greater the expertise and skills involved.

Cost-benefit analysis

A cost benefit analysis [CBA] identifies and puts $ values [quantifies] all the positive factors resulting from an investment in the value chain.

All these positive factors are then added up and called the benefits [B]. The CBA identifies, quantifies, and subtracts all the negatives- the costs [C].

The difference between the benefits [B] and the costs [C] indicates whether the planned investment or change in the value chain is worthwhile. Remember a $ earned or spent in the future is worth less than $ earned or spent now.

Thus benefits and costs can be expressed in present value terms to allow for better comparison [this is called discounting to allow for time value of money]. The discount rate (interest rate — [i]] reflects what the value chain actor could earn by investing the money elsewhere [e.g. putting the money in a bank savings account].

It suggested that 5% is a good discount rate to use when undertaking a CBA for Pacific Island value chain analysis.

An example of a value chain CBA: A Fijian papaya farmer looking to invest in plastic crates to transport his product from the field to the exporter's packing shed.

Objective: To reduce post-harvest damage to the farmer's papaya and thereby reduce the rate of rejects at the exporter's packing shed.

The cost of the investment: The purchase of 40 plastic crates @ a cost of $40/crate = $1,600. This is a fixed capital cost — there are no other costs involved.

Benefits: The farmer currently has four (4) tonnes of fruit rejected annually due to post-harvest damage [bruising, cuts etc.]. This fruit would otherwise be suitable for export and could have been sold to the exporter for $0.90/kg [$900/tonne]. Thus, his annual loss [income foregone] is $3,600.

By investing in plastic crates it is estimated that the annual loss due to post harvest damage can be reduced to only 1 tonne. Thus, the annual benefit from investing in the plastic crates is $2,700. The expected life of the crate is 5-years. Thus, the total benefit arising from the investment in the crates is $13,500.

The present value [PV] of this benefit [discounted at an interest rate [i] of 5%] is $11,373.

Comparing the benefits with the costs: A cash flow table is prepared to compare the benefits and costs of investing in 40 plastic crates. Over the 5-years the benefit [B] — cost [C] is $9,900.

If the cash flow is discounted by 5% the net present value [NPV] [discounted benefits minus discounted costs] is $7,773. A better picture of how worthwhile the investment is to calculate the benefit cost ratio [B divided by C; B/C]. In our example of the farmers investment in plastic crates the B/C is 3.75 and if we discount the benefits to obtain their present value the B/C is 3.16.

Thus for the farmer, purchasing plastic crates is seen as a very worthwhile investment with the benefits being more than three [3] times the cost.

Year		1	2	3	4	5	total
Cost (C) of crates ($)		3,600					3,600
Benefits (B) from using crates ($)		2,700	2,700	2,700	2,700	2,700	13,500
Present value cost (PVC) (i=5%)		3,000					
Present value benefit (PVB) (i=5%)		11,373					
B-C	$	9,900	2,700	2,700	2,700	2,700	9,900
Net Present Value (NPV) - PVB minus PVC	$	7,773					
B/C (not discounted)		**3.75**					
B/C(discounted i=5)		**3.16**					

Useful resources

SPC/CTA Value chain portal. http://www.aglinks.net/

Shepherd, Andrew, 2003. Market research for agroprocessors. Marketing Extension Guide No. 3, FAO. ftp://ftp.fao.org/docrep/fao/007/y4532e/y4532e00.pdf

FAO 2004. Helping Small Farms Think About Better Growing and Marketing: A Reference Manual. FAO Pacific Farm Management and Market Series No 3. FAOSA Apia

McGregor, A.M. 1999. Linking market development to farming systems in the Pacific IslandPacific Islands. FAO Sub-Regional Office for the Pacific, Apia

Shepher, Andrew (1993, revised 2007) A guide to MARKETING COSTS and how to calculate them. FAO Rome

UK Department of International Development (DFID) (2008). Making Value Chains Work Better for the Poor: A Toolbook for Practitioners of Value Chain Analysis.

What to look for when Analysing Vulnerability and Sustainability of the Value Chain

Some things you need to look out for in assessing vulnerability and sustainability of the value chain, include:

- Keyperson dependency
- Dependency on a single market
- Input supply weaknesses
- Environmental vulnerability

Key person dependency along the value chain

A major problem with small Pacific Island agro industries can be keyperson dependency (KPD) at critical points along the value chain.

This is particularly the case with specialized niche businesses involving value added processing, where a small investor with the required expertise, capital and motivation established the business.
The business is usually too small and unsuitable for corporate investors. Larger corporate investors are usually less subject to KPD.

However, these larger corporate entities are seldom interested in investing in Pacific agriculture, with the exception of crops like oil palm that can be grown on a large scale. Value chain analysis can help identify points of KPD and help inform practical solutions.

The Vanuatu spice value chain case study provides an example [Case Study 4].

Dependency on a single market

Westlake [2014] notes that agricultural value chains in Pacific Island countries may depend on a single foreign market or on export markets with similar sanitary and phytosanitary requirements.

Such chains are vulnerable to a single unpredictable event which results in the loss of that market. For example in the 1980s, substantial investment was made into an improved variety mango plantation adjacent to the Nadi airport targeting the New Zealand market.

However, at the time the mangoes started to come into production, New Zealand began importing bananas from Ecuador. Ecuador has the same mango season as Fiji and was able to ship high quality mangoes together with the bananas at low freight rates.

This “piggy backing” meant that Fiji’s improved variety mangoes were no longer competitive.

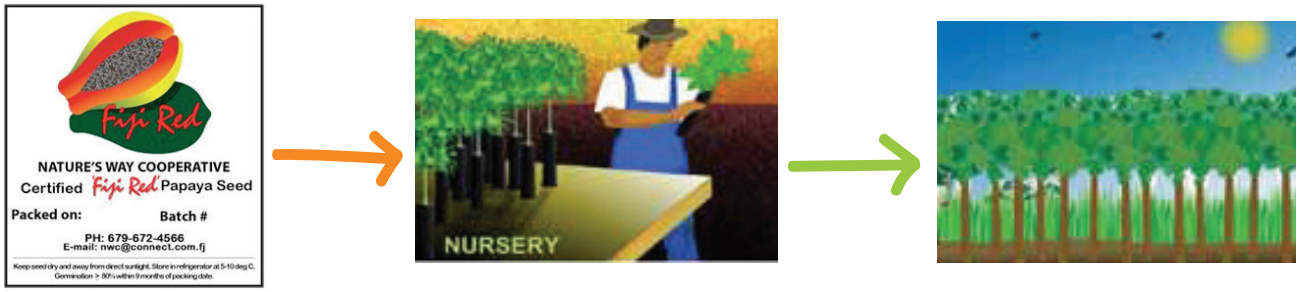
Input supply weakness

Input supply is often a major weakness in Pacific Island value chains. Some weaknesses to look out for:

- The availability of high quality seeds and seedlings that produce the product required by the market and well suited to the growing conditions faced by farmers.
- The availability of suitable containers to transport produce from the field to the packing shed.
- The availability of high quality packaging material at affordable prices.

Example of the Fiji papaya export value chain.

Problem: A market study undertaken as part of the value chain analysis identified a substantial market in New Zealand, Australia, US and Japan for Fijian papaya that has a high level of sweetness and the flesh is red in colour. However, to satisfy and sustain this market it was essential for farmers to plant the correct seedlings and for fruit to be transported from the field to exporters packing shed in plastic crates to ensure the fruit was not damaged.



Solutions: Natures Way Cooperative:

- Introduced the “Fiji Red” certified seed scheme
- Bulk imported plastic field crates and made these available to farmers and exporters at a reasonable price

Farmer packing fresh fruit in buckets and sacks.

Farmer packing fresh fruit in crates sourced from Nature's Way Cooperative.

Environmental vulnerability

A value chain analysis may find that a particular value chain is profitable for all the actors. However, you need to determine if parts of the chain are environmentally vulnerable and what are the implications for long term sustainability of the value chain.

The example of the Fiji fresh ginger export value chain

A Pacific Island Development Program [PIDP] study of the Fiji fresh ginger export industry found this to be a highly successful value chain that provided an example of the successful development of a non-traditional export industry [McGregor 1988].

All actors along the chain received a good return from their participation. The farmer's gross margin was over $35/person per day of household labour used in growing this short term crop. This exceeded the returns from growing most other crops at the time. The exporter's gross margin usually exceed 20% of the fob price of ginger [the price of ginger loaded on the ship in Suva].

However, the PIDP study identified a major weakness in the value chain that threatened its long term sustainability.
To ensure adequate drainage and to minimise labour inputs, farmers grew ginger on steep land planting up the slope [rather than planting along the contour with rows of soil conserving vetiver grass].

This farming system initially provided the farmer a very high return to labour. However, within two [2] to three [3] plantings, yields fell dramatically due to soil erosion and many of these farmers are now out of business.

A farmer at Waibau, Fiji in 1988 with land prepared to plant ginger for the remunerative export market. Due to the resulting soil erosion most of this area is now obsolete for ginger and other root crops and farmers are out of business.

Assessing Markets

What is a market?

The market is the consumers who purchase the product. Marketing is the process of getting the product from the farmers to the consumers.

For the purposes of this guide, the term "market" has two components (drawing on Shepherd 2003): — one deals with consumers themselves and the other deals with competitors who also supply the market :

- The term market embraces the characteristics consumers want from a product and the requirements of the retail shops and their wholesalers who service these consumers.
- Component 2 (competitors): The term "market" also embraces the actions of competitors, such as how they set their prices, organize their distribution and decide on promotion. Understanding competitors is just as important as understanding consumers.

What is market research?

Market research is the process of investigating a market in order to find out the sales prospects for a product and how to achieve success with selling the product. We need to find out about the consumers of the product and the competitors who are also supplying the product.

Presenting market research findings

Andrew Shepherd (2003) provides the following useful hints:

Arrange for research results to be written down even if you are only carrying out a small study.
Presenting research results in an organized way makes it easier to evaluate the findings of the research and enables you to easily identify inconsistencies or contradictions that require further research. The structure of a report, which does not have to be very long, will vary according to the product and market and the amount of detail required. A suggested format is:

- Brief background and description of proposed product.
- Existing products and consumer attitudes to those products.
- Strengths and weaknesses of competitors.
- Existing market size in target area, by type of outlet, by product, by container or package size, etc. with estimates of the potential market for new product(s).
- Important characteristics of the market, such as price, quality and packaging, and your ability to compete.
- Consumer response to tasting panels.
- Distribution methods recommended for your product and costs of distribution.
- Promotional techniques used by competitors.
- Promotional tools preferred by the distribution chain.
- Conclusions regarding suitability of your product for the market, with recommendations of the best ways to price, promote and distribute it.

Some information and tools for undertaking market studies

Published market data

Published market data is a good starting point for undertaking market studies.

Examples of published market data:

- **Trade statistics.**

This can tell you how much is being imported and for what value, [the landed price of the product in the country] and from where is it being supplied. Monthly data will provide an indication of the seasonality of the product [see case study 5: Samoan lime exports to New Zealand]. This provides basic information about your competitors. Trade statistics are usually available on-line and often for free. The Forum Secretariat's Trade and Investment Offices in Auckland and Sydney can help you obtain trade statistics. - www.forum.org/pages.../forum-trade-offices

- **Commodity trade statistics.**

These are available on a user pay basis from companies such as the Public Ledger that supply accurate prices of commodities that have a readily identified international market [eg. coffee, cocoa, coconut oil, sugar]. They are not useful in supplying data for niche markets which are the interest of most Pacific Island value chains.

- **Consultant studies**

Marketing consultants are often hired to undertake market studies. Consultants are usually hired by donor entities to undertake market studies on behalf of the entire industry. For example the EU funded Facilitating Agricultural Trade [FACT] project funded the New Zealand, Australian, US and Japan papaya market studies on behalf of Fiji and other future Pacific Island papaya industries. A particular value chain or individual exporter may hire a consultant to undertake a market study. However, this rarely happens in the Pacific Islands because of the high costs relative to the size of the enterprises involved.

Remember: A high quality consultant's report can provide a very useful guide to the market that is being targeted by the value chain. However, a consultant's study is no substitute for exporter[s] going to the market with an actual product in "hand". It can enhance the credibility and the value of a consultant's study if people who will be actually involved in selling the product are involved.

Exporters visiting market

A good consultant's market study can be a useful start and guide. However, there is no substitute for actual sellers going to the market and talking to actual buyers. An exporter can find out first-hand what the importer/wholesaler wants and can see what the competitors are doing. The importer/wholesaler can see that there is a real person with an actual product. If at all possible, give potential buyers the opportunity to see and sample your product. This personal contact is how the all-important long term relationship between buyers and sellers is created.

The taste panel test of the potential market for Samoan rambutan in New Zealand

In the 1990s the Samoan Fruit Tree Development Project introduced an Aimproved variety of rambutan into Samoa. In terms of New Zealand quarantine standards, rambutan was shown to be a non-fruit fly host and was likely to be granted market access if a formal market access request was made. In advance of a request being made, formal consumer taste panel tests were undertaken to determine the actual nature of the market. (Samoa Ministry of Agriculture Forestry and Meteorology 2001).

It was expected that Samoan rambutan would be a luxury fruit sold to consumers with higher disposable income.

These were identified:
HortResearch (NZ)'s Sensory and Consumer Science Unit were commissioned to undertake a consumer acceptance assessment of Samoan rambutan amongst higher income consumers. In February 2001, 15kgs of various Samoan rambutan varieties were sent to HortResearch in Auckland under a special quarantine arrangement. The consumer acceptance panel involved 62 consumers from the Auckland area. These were mostly of European descent, of whom 21% had previously tried rambutan.

The results: Those that had previously eaten rambutan judged the samples to be "be about the same quality as previous rambutans they had experienced". Overall, rambutan received a score lying between "like slightly" and "like moderately". The opinion of the colour, appearance, flavour and texture all scored between "like slightly" and "like moderately". Most of the consumers found rambutan inconvenient to eat. These reactions would suggest that it would take time to develop the market for this new exotic fruit.

More significantly, 80% of the consumer panel indicated they would like to purchase rambutan. The major reason for purchasing rambutan would be for special occasions and most consumers would use rambutan on a "fruit platter or cheese board or as garnish/decoration". The majority of these consumers indicated that they would expect to purchase rambutan from an Asian fruit and vegetable store and would expect to pay $NZ3.50 for a punnet of 5 rambutans (approximately $NZ17.5/kg).

Clive Wickham of Carter and Spencer International (CSI) thought a wholesale price of $NZ4-5/kg (retailing at $NZ12.95/kg) would be a reasonable price for planning purposes. Wickham observed the Samoan rambutan sent to HortResearch for market testing, and commented: "The variety that is popular is the one where the seeds come away from the meat easy. Given that the market should be good". The Samoan rambutan industry now had basic price information for planning export market development.

Remember: The Pacific Islands has a long standing reputation of being the "Land of Samples" in our traditional Pacific Rim markets. The exporter needs to establish credibility in a somewhat sceptical market. Face-to-face contact between buyer and seller can be an important first step in creating this credibility and for the exporter to be taken seriously. The Forum Secretariat's Trade and Investment Offices in Auckland, Sydney, Tokyo and Beijing can be helpful in identifying potential buyers and arranging meetings (www. forumsec.org/pages.../ forum-trade-offices) .

Trade missions and trade fairs

Government and regional agencies often organise trade mission to existing and potential markets. Such missions are usually led by Ministers of Trade or Foreign Affairs and even Prime Ministers, with senior civil servants participating. It is common for business leaders and other representatives of the private sector to participate. A broad range of industries is usually covered in these missions. Participation in such missions can be useful in terms of "networking" and making contracts. However, they tend to be too generalised and too politically orientated to be of much value for most niche market orientated Pacific Island value chains.

On the contrary, participation in industry and product focussed trade fairs can be particularly useful in evaluating and establishing a market. The value of these business orientated trade fairs is that they assemble in one place the type of business who will buy your product. As illustrated by Case Study 4 (Vanuatu Spices) participation in the annual Australian Fine Food Fair has been important for emerging Pacific Island niche market exporters wishing to penetrate the Australian market (www.finefoodaustralia.com.au/ about.asp?id=53). As Jeremy Grennel, Export Services Manager for the Pacific Islands Trade and Invest notes "Such fairs are a very cost effective sales and marketing platform. With their tightly focused profiles and carefully targeted audiences they represent an ideal opportunity to match the needs of buyers and sellers (Fiji Times May 27 2014).

The Vanuatu spices experience has shown that repeated involvement in such fairs is necessary to have sustained impact.

Consumer taste panels

Once you have a reasonably good idea about what you think consumers want in your product it can sometimes be useful to conduct consumer taste panel tests to determine more precisely:

- who are your most likely buyers;
- what are they looking for in the product; and,
- how does your product compare with that of competitors.

Taste panel tests are undertaken by specialist experts following clearly defined scientific and statistical procedures. While yielding valuable information, such studies can be expensive relative to the size of small Pacific island industries. Thus its important to consider the benefits and costs of such studies. The box shows the example of the use of a consumer taste panel to evaluate the potential market for Samoan rambutan in New Zealand.**In-store promotions**

Once you are confident you have a product that that meets the requirements of the consumers you are targeting in the market, consideration can be given to in store promotion to boost the demand for your product. This should be done in collaboration with your wholesaler and retailer.

Remember:

- You need to be confident of the quality of your product, including labelling and packaging. A negative reaction from consumers will be a serious set-back for the development of the value chain.
- You must have the supply to meet the jump in demand that will result from a successful in-store promotion. Not being able to meet the orders that you hope will arise, will undermine your credibility and will be a set back for the development of the value chain.

You should err of the side of caution and delay in-store promotions until you are really ready, even if donors are willing to provide funding support.

Useful resource on the subject

Shepherd, Andrew, 2003. Market research for agroprocessors. Marketing Extension Guide No. 3, FAO. ftp://ftp.fao.org/docrep/fao/007/y4532e/y4532e00.pdf

What to Look out for in Assessing Competitiveness of the Value Chain

Defining the competitive advantage of a particular value chain

There are two types of competitive advantage for value chain producing a particular product when compared with other value chains producing the same product:

- Type 1: Being able to offer consumers a differentiated/better product. If customers perceive a product or service as superior or more desirable, they become more willing to pay a premium price relative to the price they will pay for competing offerings.
- Type 2: Being able to offer consumers a lower price because of a relatively lower-cost advantage.

The competitive advantage of Pacific Islands value chains are usually based on type 1 considerations. They tend to have a disadvantage when it comes to type 2 considerations — their costs are usually higher than competing value chains. However, both type 1 and 2 factors need to be taken into account in determining the overall competitivess of the value chain.

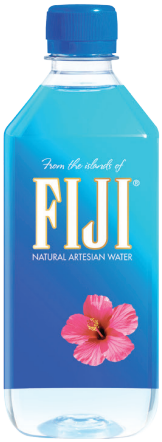
For bulk commodity exports, where the going market price is received, the competitiveness of the value chain will depend entirely on cost- provided the quality requirements of the market are met.

Examples of type 1 competitive advantage

The competive advantage of the Pacific Island agricultural value chains targeting niche export markets is often based on unique agro-climatic, physical and cultural characteristics that permit the receipt of prices that are sufficiently high for the value chain to be competitive despite other constraints that might exist.

Some key type 1 factors that Pacific Island exporters have or could base their competiveness on are:

- **Seasonality** — For example Samoan lime exports to New Zealand (case study 5). Fiji's ginger exports to the United States and Tonga squash exports to Japan are or were built around seasonality.
- **Suitable agronomic/environmental conditions** that enable the production of a premium quality product — For example Fiji papaya (case study 2)
- **Exotic and/or desirable product origin** — The classic example for the Pacific Islands is Fiji Water For agricultural products examples include Vanuatu spice, (case study 4), Tanna coffee and Tahitian noni.



Remember: Being able to take advantage of exotic and/or desirable origin usually requires considerable investments in certification (origin, organic,"fair trade", etc.), promotion, labelling and packaging. In your value chain analysis you need to consider if the benefits of this investment are sufficient to justify the costs (benefit cost analysis).

Examples of type 2 competitive advantage

Solomon Islands virgin coconut oil [VCO]

Most PICs are developing value chains for virigin coconut oil targeting niche export markets based on premium quality and exotic product origin. Solomon islands also has had a type 2 competitive advantage compared with other Pacific Island exporters based on lower labour costs, and thus VCO producers have been willing to accept a lower price for oil (AusAID 2006).

Samoan taro exports to New Zealand before taro leaf blight

Samoa dominated the New Zealand market in taro prior to the arrival of taro leaf blight in 1993. Samoa produced a variety preferred by the market. However, Fiji could also produce the same variety. Samoa dominated the market because it is a lower cost producer and could offer the product to the market at a lower price. The arrival of taro leaf blight in Samoa meant that Samoa could not produce this particular variety, enabling Fiji to take over the market.

What to Look out for in Assessing Risks in the Value Chain

The Pacific has a long history of value chain developments that have not been sustainable (see Shepherd et.al 2013). A number started out successfully with rapid expansion only to contract just as rapidly and in some cases to go of business altogether. Some prominent examples are:

- Fiji fresh ginger exports to the US (competitive advantage based on seasonality — competive advantage lost due the entry of lower cost ginger becoming available in Thailand and China and disease problems in Fiji. Fiji no longer exports fresh mature ginger to the US)
- Tongan squash exports to Japan (competive advantage based on seasonality — this was substantially reduced due largely to production problem in Tonga. A minimal amount of Tongan squash now exported to Japan)
- PNG vanilla exports (During 2003-04 PNG became the 3rd largest vanilla exporter in the world. World price collapsed and most growers left the industry and PNG is now an insignificant exporter)
- Samoan taro exports (competitive advantage based on product quality in terms of market requirements and costs of production was lost by taro leaf blight).
- Vanuatu organic cocoa exports to France (competive advantage based on exotic and/or desirable product origin). The value chain collapsed when the relationship between the importer and cooperative collapsed and Vanuatu now only exports cocoa to the bulk markets.

Risks you need to consider in value chain analysis

This section will discuss some of the potential risks that need to be taken into account in analysing value chains and how these factors can be incorporated into the profitability analysis and enterprise planning strategies for the various actor's.

- **Market risks.** Over dependence on a single market or buyer

Example - Fiji improved-variety mango exports to New Zealand:

Fiji previously had a market for improved-variety mangoes in New Zealand based on seasonality. Fiji mangoes are available for export to New Zealand between Nov and Dec, when no other mangoes are available in New Zealand. Up until the late 1990s this provided a good market niche for Fijian exporters and a substantial investment was made in an orchard to take advantage of this seasonal niche market. From January through March mangoes were imported from the Philippines shipped in with bananas. Fiji could not compete with mangoes from the Philippines. However, Fiji lost its niche market in New Zealand when New Zealand began importing bananas from Ecuador. Ecuador also ships mangoes with bananas — but unfortunately Ecuadorian mangoes are available in November and December and Fiji lost its niche market and the investor went out of business.

- **Supply risks** [including disease and climate extremes].

Example - Samoa's taro exports:
Prior to 1993 Samoan taro dominated the New Zealand market and taro was by far Samoa's biggest export earner. However, the arrival of the disease of taro leaf blight in 1993 saw the cessation of taro exports for more than 2 years.

Market access risks [establishing and maintaining markets].

Example - Fijian papaya market access to the United States:
A 2009 market study identified a remunerative market for organic papaya from Fiji in the US. As a result of this study investment was made in organic papaya production to exploit this market on the understanding that market access for Fijian papaya into the US would be quickly obtained. Fiji already had market access for papaya into New Zealand and Australia, using a US-developed quarantine treatment technology. However 5 years on market access is yet to be obtained and this investment and the organic papaya export value chain is at risk.

- **Key person dependency risks.**

Example - Vanuatu spices export value chain
[Case Study 4]

- **Climate change and other long-term trends.**

Example - vulnerability of Vanuatu and Fiji taro production to taro leaf blight as the result of increasing minimum night time temperature

Vanuatu and Fiji and some other Pacific island countries currently do not have the disease taro leaf blight that decimated taro production in Samoa, Solomon Islands and parts of PNG. It has been show that the incidence of the disease is highly correlated with minimum night time temperature. Thus, with climate change there is increasing risk of this devastating disease becoming established in those countries that currently don't have the disease.

Useful resource on the subject
Taylor, Mary, McGregor, Andrew and Dawson, Brian, (2014) Vulnerability of Pacific Agriculture and Forestry to Climate Change. Secretariat of the Pacific Community, Noumea, New Caledonia.

- **Political instability.**

Example - Solomon Island cocoa and coconut oil and Bougainville cocoa exports during their respective "crises"

Strategies you need to consider to reduce risk

There are various types of strategies that can be considered. These include:

- "No regrets" investments to minimise the impact of a future calamity. Some examples:
  - » Fiji papaya export value chain (Case Study 2), farmers investment in climate change mitigation measures.
  - » Support for the Fiji taro export value chain (Case Study 1) in breeding of taro leaf blight resistance.

A benefit cost analysis should consider such strategies that take into account the likelihood of the future event occurring, the consequences to the value chain and the cost of the investment.

- Diversification of markets and buyers
- Succession plans to minimise keyperson dependency

7 Optimising the Performance of Producer Organisations for Value Chain Development

Promoting farmer inclusive business development — expanding the toolbox

Farmers and their organizations are key actors in the development of agri-food systems, feeding and nourishing growing populations and realising economic and environmental sustainability. Through collective action, they can improve their position and performance in the value chain.

Optimizing the Performance of Producers' Organizations — The OPPO Approach

OPPOrtunities — Optimising farmers' own plans and resources

The "Optimising the Performance of Producers Organisations (OPPO)" approach aims at developing the capacity of farmers'/fishers' organisations and small and medium enterprise (SMEs) in the agri-sector, by equipping them with the knowledge, skills and tools that can be used to professionalize and improve their organizational performance, business relations and consequently their position on value chains.

Emphasizing the importance of farmer entrepreneurship, inclusion and action, we propose 8 practical OPPO tools as options for analysis and action planning, aiming at enhancing farmer benefits in terms of food, income and trade.

Building Capacity for Change in Pacific Value Chains: Farmer Inclusive Business Development

Farming is business, farms are enterprises, farmers are entrepreneurs.

The 8 tools introduced in this section are selected from an extensive range of options that are taught as part of a 3-week OPPO course that is offered by the Centre for Development Innovation of Wageningen University and Research (WCDI) in the Netherlands. Within the framework of the CTA/IFAD/PIPSO project "Promoting Nutritious Food Systems in the Pacific Islands" (Innov4AgPacific), and in collaboration with PIFON, 7 Pacific farmer leaders and agricultural experts have followed the full training course.
They then tested the OPPO approach and selected tools in their context and developed farmers' business cases for their organisations. Lessons learned from their experience have been used to design and pilot an OPPO training module that has been tailored for other Pacific farmers and key stakeholders. It is accompanied by an OPPO workbook that contains the 8 selected tools.

The goal is to motivate and enable Pacific value chain stakeholders to become 'game changers' and proactively make a difference for thousands of family farms. Knowledge, joint learning, collaboration, trust and partnerships are key to successful innovation in Pacific agri-food systems.
Maryjane.

Maryjane Hou, Certification Officer, VCOPA, Solomon Islands explaining the virgin coconut oil value chain mapping and analysis.

McGregor, Andrew M 2007. The export of horticultural and high-value agricultural products from the Pacific Islands. Pacific Economic Bulletin Volume 22 Number 3 October 2007. McGregor, Andrew and Moses Pelomo [2018]. The Solomon Islands Quality Copra Oil Value Chain for the Domestic Market: The Chottu Coconut Products Case Study. SPC/EU Coconut Industry Development Project. McGregor, Andrew and Moses Pelomo [2018]. https://lrd.spc.int/publications/doc_download/2484-solomon-islands-coconut-value-chain-study

McGregor Andrew, 1990. Requirements for the Development of Development of New Export Crops: The Case of Papaya. Forum Secretariat Seminar on the Exporting of Fresh Produce to Australia, May 1990. Andrew McGregor (1988) The Fiji Fresh Ginger Industry: A Case Study in Non-Traditional Export Development. Research Report Series No 10. The Pacific Islands Development Program, East WestCentre,Hawaii https://scholarspace.manoa.hawaii.edu/bitstream/10125/21661/PIDPResRep010FijiFreshGingerIndustry1988%5Bpdfa%5D.PDF

Farmers as partners in agribusiness

Farmers are still often partially involved in the design and implementation of value chain development programs. Farmers are entrepreneurs and their organizations are key VC actors and business partners.

Through collective action, farmers and their organisations can better access agro-inputs and credit, improve production/productivity, create added value, access more remunerative markets and lobby and advocate for a more enabling policy and business environment. The aim is to build teams of private and public sector actors that work together for designing and implementing farmer-inclusive value chain development programs.

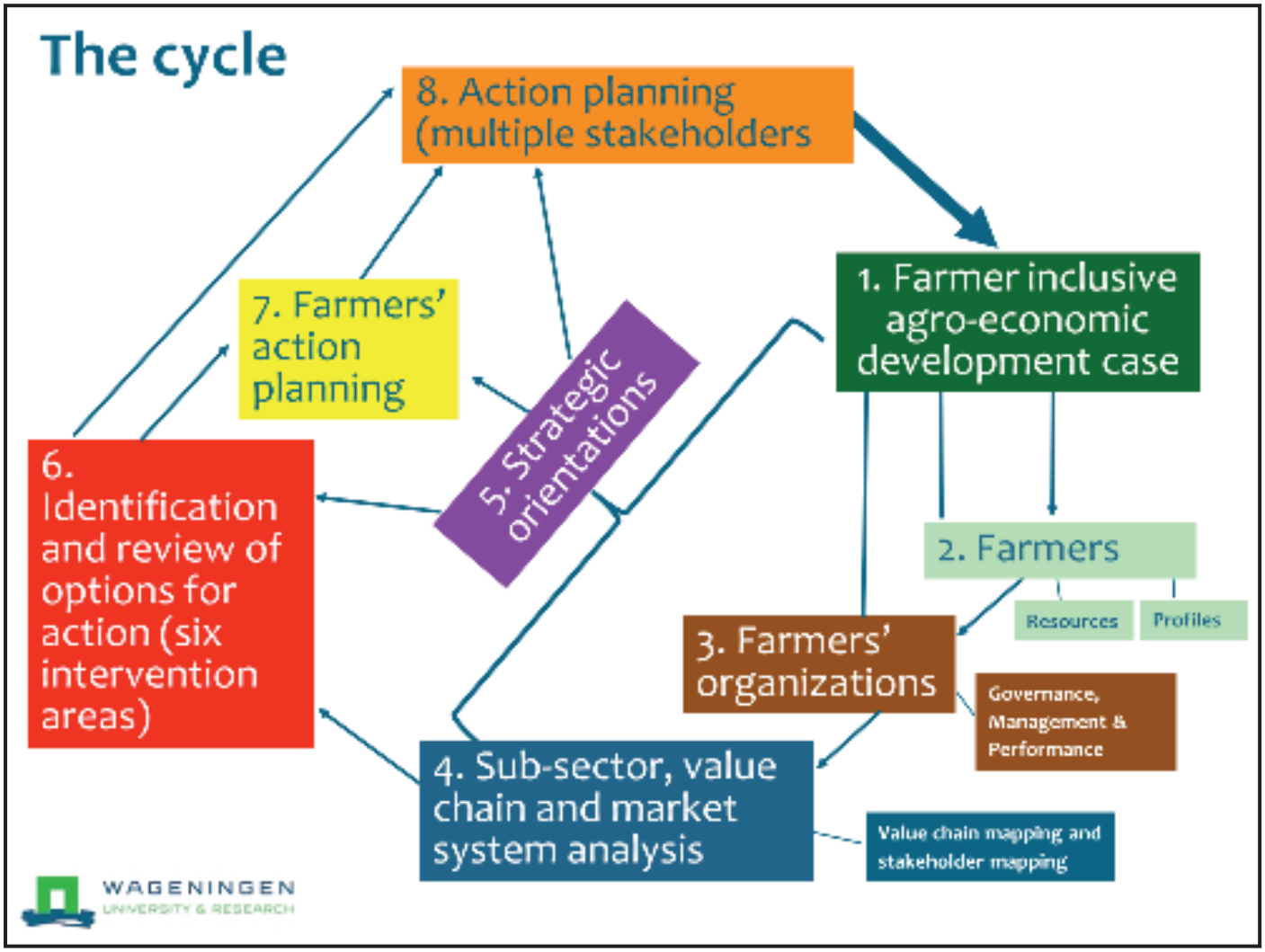
Routan Tongaiaba, Senior Agricultural Officer, Ministry of Environment, Lands and Agriculture Development (MELAD), Kiribati explaining the importance of data collection as basis for applying the OPPO tools and developing a farmer-inclusive business case.

Towards a farmer-inclusive VC development cycle

Ultimately, the aim is to arrive at av cycle for developing farmer-inclusive value chain business cases and/or development programs in the Pacific. This cycle is visualized in the figure below and has the following steps:

1. The starting point is to choose a practical case for farmer-inclusive value chain development
2. The next step is to focus on farmer realities and resources
3. This is then followed by an analysis of the current governance, management and performance of the farmers' organization(s)
4. A very important next step, is to analyse the case in depth, this includes sub-sector, value chain and market system analysis, leading, among others, to value chain and stakeholder mapping
5. Different inputs lead to the identification of key strategic orientations
6. The review of options for action, structured according to six intervention areas, is important for responding practically to the strategic orientations, and is input for operational planning
7. Operational planning starts first with farmers' action planning. Farmer agency is about farmers taking action themselves.
8. Farmers and their organizations cannot operate in isolation, nor address challenges and opportunitiesnalone, their planning needs to be aligned to the planningnof activities of other stakeholders, both from the private
9. and public sector. In this way, a team of actors work together to arrive at a successfully implemented case of farmer-inclusive value chain development.

Taylor, Mary, McGregor, Andrew and Dawson, Brian, (2014) Vulnerability of Pacific Agriculture and Forestry to Climate Change. Secretariat of the Pacific Community, Noumea, New Caledonia. The Pacific Island Farmers Organisation Network (PIFON) (2016). The Vanuatu Spices Network: Lessons from Twenty Years of Experience. https://www.pacificfarmers.com/wp-content/uploads/2016/06/Spice-Handbook-5.pdf



Cycle for Developing a Value Chain Farmer Inclusive Business Case.

PIFON members are discussing the OPPO approach and tools

OPPO - A Toolbox for farmer inclusion

The 8 OPPO tools make up a practical toolbox for farmers, fishers, SME's, farmers' organizations and facilitators to enhance farmers' involvement in the design, implementation and adaptation of value chain development programs. The 8 tools are described below and are to be further developed based on the Pacific context:

8 OPPO Tools	Use and Purpose
PART 1: Developing a farmer-inclusive business case - Information Gathering and Analysis	
1. Farmer- inclusive business case – key parameters	**About the tool:** This tool helps to initiate the development of a farmer-inclusive agribusiness case. A system of questions and answers, starting with 3 P's (product, place and producers) guides the development of a first basic document on a farmer-inclusive value chain development case. This document provides input for a concept note and for baseline information.
	For whom and why: • Farmer organisations/SMEs: Striving to improve revenues from farming, processing and marketing. • Companies, processors and/or traders: Seeking to source agricultural products (field crops, horticultural crops, livestock, fish) from small farmers and involve them in the value chain and market development process. • Private and public organisations (Farmer Organisations, NGOs, Government etc.): Emphasise the creation of employment for poor people and to the involvement of women and youth in farmer business development. Baseline development for project proposals.
	What you need to do: Collect data and provide specific answers to the questions. By doing so you have a first description of the farmers business case.

2.1 Farmer profiles – farmer life histories	**About the tool:** This tool aims to give a face to farmers, telling their story, identifying key issues and challenges from their perspective. Farmer profiles and life histories can be valuable input for proposals, reports and websites.
	For whom and why: Farmer Organisations, companies with Corporate Social Responsibility (CSR) policy, NGOs, donors, governmental organisations and others interested in farmer-inclusive VC development: Tailoring interventions suited to the needs of farmers and the resources they are operating with. Gathering evidence for lobby and advocacy activities.
	What you need to do: Conduct individual interviews with farmers, take photos and videos, and write a short attractive text.
2.2 Capital Pentagon / Resource Endowment	**About the tool:** Own capital is the starting point for farmer entrepreneurship. This tool is helpful for assessing the natural, physical, financial, human and social capital of farmers and to visualize these in a pentagon figure. The aim is to identify actions that would strengthen the farmers' resource endowment.
	For whom and why: • Farmer Organisations, other public/private organisations: Assess and understand whether farmers have the resources to grasp opportunities and develop innovation. • Individual Farmers/SMEs: Understand and assess own resources to best grasp opportunities and develop innovation.
	What you need to do: Reflect on farmers' capital endowment, analyse these and identify opportunities for strengthening the resources of farmers to develop entrepreneurship.
3. GMP – Assessing the Governance, Management and Performance of farmers' organisations	**About the tool:** The 'GMP' is a tool for assessing the Governance, the Management and the Performance of a farmer organization, according to 16 dimensions. The aim of the assessment is to define actions to improve the 'GMP' dimensions.
	For whom and why: Farmer Organisations and organisations working with FOs (e.g. governmental organisations, donors, NGOs): Identify needs with regard to the optimum governance and management (internal organisation) and Performance (services to members and business partners). Reflect on improving the performance of services to members.
	What you need to do: Review the points of attention for the 16 dimensions. This could be done in dialogue with the farmers' organisation, by preparing a questionnaire and ask farmer organisation members to fill it out. After entering assessment scores in the related Excel tool, the assessment can be visualized in a graph.

4. Sub-sector, value chain and market system and stakeholder mapping	**About the tool:** Any value chain development case requires the collaboration of many players. Four actor groups are distinguished: VC operators (main actors), VC supporters and enablers (supporting actors, from private and public sector) and externally funded facilitators (like donors and projects). The tool 'Market system stakeholder mapping' helps to identify these actors, to reflect on current roles and on option to improve stakeholders' performance and collaboration.
	For whom and why: • Farmer Organisations, Public or private organisations, donors Identify options for market prospection and access strategizing; market power and bargaining; operational management capacities; collaborating and coordination of chain actors and involvement in policy development and advocacy. Identify all the stakeholders that are directly and indirectly important for the business case.
6. Identification and review of options - Options for action	**About the tool:** This tool leads to the development of a 'basket of options' to improve access to agro-inputs, finance and markets, to innovate production and post-harvest activities and to partake in strategic decision-making processes. • At the production side, two intervention areas are important: improved access to agro-inputs and effective application of good agricultural practices. • At the post-harvest and market side, two other intervention areas are crucial: the promotion of post-harvest value creation and improved market relations and sales. • Two intervention domains are cross-cutting: improving the access to agri-finance (both for production, value creation and marketing) and lobby and advocacy for a more enabling policy and business environment.
	For whom and why: • Farmer Organisations and public/ private organisations The intervention areas are pillars for integrated agro-economic development programmes and they are also the six service areas that are generally distinguished for farmers' collective action. In each of the intervention areas, farmers have to work together with stakeholders, and those stakeholders have to collaborate with farmers and farmers' organizations.
	What you need to do: Together identify, strategize and decide on concrete actions for each intervention area.
7. Strategizing and action planning of	**About the tool:** This tool explains how farmer organisations, based on the thorough

6. Identification and review of options - Options for action	**About the tool:** This tool leads to the development of a 'basket of options' to improve access to agro-inputs, finance and markets, to innovate production and post-harvest activities and to partake in strategic decision-making processes. • At the production side, two intervention areas are important: improved access to agro-inputs and effective application of good agricultural practices. • At the post-harvest and market side, two other intervention areas are crucial: the promotion of post-harvest value creation and improved market relations and sales. • Two intervention domains are cross-cutting: improving the access to agri-finance (both for production, value creation and marketing) and lobby and advocacy for a more enabling policy and business environment.
	For whom and why: • Farmer Organisations and public/ private organisations The intervention areas are pillars for integrated agro-economic development programmes and they are also the six service areas that are generally distinguished for farmers' collective action. In each of the intervention areas, farmers have to work together with stakeholders, and those stakeholders have to collaborate with farmers and farmers' organizations.
	What you need to do: Together identify, strategize and decide on concrete actions for each intervention area.
7. Strategizing and action planning of farmers' organizations	**About the tool:** This tool explains how farmer organisations, based on the thorough analyses they made, can move from visioning (long term perspective), to strategic planning (medium-term perspective) to operational planning in different service areas through collective action.
	For whom and why: • Farmer Organisations: Identifying collective actions for organized farmers to achieve more.
	What you need to do: Developing long-term vision and strategic and operational planning for specific service areas.
8. Multi-stakeholder action planning for farmer-inclusive value chain development	**About the tool:** This tool suggests a five step approach for arriving at multi-stakeholder planning and action: (i) getting to grips with the business case; (ii) formulating SMART objectives; (iii) focus on key challenges and opportunities; (iv) action planning of different actors and alignment for stakeholder collaboration and (v) alignment of external support to the stakeholder action plans.
	For whom and why: • Farmer Organisations and public or private organisations: Contribute to farmers' and stakeholders' mind-set change and to smartly connect external public support to farmer entrepreneurship and agribusiness development for value chain development in specific agricultural sub-sectors in specific geographical areas.
	What you need to do: Develop a multi-stakeholder action plan, focusing on key challenges to address.

Jiu Daunivalu, CEO, Fiji Crop and Livestock Council explaining the different OPPO tools she applied in developing her business case 'Making Dalo FIT'

Additional tools to be considered

The 'Business Model Canvas' is a tool that is widely used in business contexts and is relevant for farmers' business as well. It helps to systematically think through a farmers/farmers' organisation business model. It is helpful for internal business planning and decision making and for the development of proposals and bank loan requests.

The key elements of a business model are: the value proposition, the value creation (key activities, resources and partners), the value capturing (customer segments, channels and customer relations) and the financial aspects (cost structure and revenue streams).

The tool 'Principles for inclusive business — assessment of supplier-buyer relations' would apply for farmer-company relations aiming at inclusive businesses. It supports evaluating farmer inclusiveness in a business relationship and to define actions to improve it. Smallholder inclusivity assessment is based on six principles: chain-wide collaboration, effective market linkages, fair and transparent governance, equitable access to services, inclusive innovation and measurement of outcomes.

Interactive learning as a way forward

CTA, IFAD and PIFON are committed to build capacity of Pacific producer groups to adopt inclusive business models to enhance governance, strengthen collaboration and improve trust among VC actors particularly, between producers-buyers, producers-government and producer-producer for upgrading priority 'nutrition sensitive' local food crops and fisheries value chains.

The 7 Pacific OPPO alumni* are ready to conduct future OPPO training workshops, business case development, value chain and organisational analysis, at national and regional level as well as apply lessons learned to enhance the agribusiness performance of their organisations and members.

PIFON and CTA propose an interactive learning process on the above-mentioned tools and areas of action. For each of these topics, a system of blended learning will be designed, composed of the following elements: Attractive short texts explaining the subject, with explanation of the tool and exercise and support with examples of OPPO alumni, short PowerPoint presentation, Filmed presentation of the subject (optional), Webinar, e.g. interaction between resource persons and interested professionals around the Pacific and providing feedback to people sending in results of exercises.

Join the Capacity Development group to learn more:
https://dgroups.org/cta/innov4agpacific/innov4agpacific-capacity

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Annexes

Annex 1: Key terms and definitions

Annex 2: A selection of other value chain guides/resources

Annex 1:
Key Terms and Definitions

Agricultural value chain - A way of describing the different 'links' along a chain required to take a product from the farm to the end consumer.

Cash flow — The difference between the flow of money over time from selling the product or the service and the flow of money spent on producing the product or service.

Competitive advantage of a particular value chain compared with other value chain producing the same product - Being able to offer consumers a differentiated/better product; and being able to offer consumers a lower price because of a relative lower-cost advantage.

Cost benefit analysis (CBA) — A process for calculating and comparing benefits and costs over time that are expected to arise from the proposed investment in the value chain.

Demand — How much consumers are willing to pay for the product at the market price.

Exporter marketing margin - The difference between the fob price (the price loaded on the aircraft or vessel) and the price paid to farmers (or trader) for the equivalent quantity of raw material that went into the product.

Exporter "profit" for the product - The exporting marketing margin less the cost of getting the product from the farmer onto the aircraft or vessel.

Farm gate price — The price farmers receive for their product if they sold it at their farm rather than further along the value chain.

Fixed costs — Those costs that are the same regardless of how much is produced. For example land rent or the cost of a building.

Gross margin for a farm enterprise - gross income (i.e. value of production) expressed in monetary terms minus the variable cost of that production.

Market — The consumers who purchase the product.

Marketing - The process of getting the product from the farm to the consumers.

Market research - The process of investigating a market in order to find out the sales prospects for a product and how to achieve success with it.

Niche markets - A niche market is small part of the overall market on which a specific product is focusing. For example the market for organically certified cocoa is a small part of the overall market for cocoa.

Opportunity cost — The money that could be earned from the resources used to produce the product or service if they were used to produce something else. For example the opportunity cost of a farmer's labour used in growing a particular crop is what he or she could earn using this labour to grow a different crop or the wages that could be earned working off the farm.

Price taker value chain - A value chain that has no influence on the final market price of the product. For example a Pacific Island exporter selling cocoa to the world market has no influence on the price.

Retailers marketing margin for the product - The difference between the retail price and the price paid to the wholesaler/importer.

Retailers "profit" for the product - The retailer marketing margin less the cost of getting the products from the wholesaler into the hands of the final consumer.

Risk — What could go wrong. For example your crop being destroyed by a natural disaster.

Technology — Using knowledge of tools, machines, techniques to solve a problem or improve a pre-existing solution to a problem. For example, the use of plastic crates are a technology to overcome the problem of product bruising.

Value chain actors - The people at each link along the chain required to move a product from the farm to the consumer.

Main actors - those who buy and sell the product as it moves along the chain. For example a farmer is a main actor.

Supporting actors - those who provide services to facilitate the movement of the product along the chain. For example a transport company is a supporting actor.

Value chain analysis — A way of looking at every step and actor along the value chain to identify both weaknesses to be resolved and opportunities for increasing profits for all involved in the chain.

Value chain map — A value chain map is a way of taking what is seen regarding the value chain and put it into a pictorial form that is more easily understood.

Variable costs - Those costs that vary according to how much is produced. For example the cost of labour is a variable cost.

W**holesaler/importer marketing margin for the product** - The difference between the price the product is sold to the retailer (the wholesale price) and the fob price for the product.

Wholesaler/importer "profit" for the product - The wholesaler/importer marketing margin less the cost of getting the product from the exporting port (airport) to the retailer.

Annex 2:
A Selection of other Value Chain Guides/Resources

Methodological guideline	Lead authors	Sponsoring organization
Participatory market chain approach (CIP 2006)	Thomas Bernet, Graham Thiele, Thomas Zschocke	International Potato Center (CIP)
Guidelines for rapid appraisals of agrifood chain performance in developing countries (FAO 2007)	Carlos A. da Silva, Hildo M. de Souza Filho	Food and Agriculture Organization of the United Nations (FAO)
Participatory market chain analysis for smallholder producers (CIAT 2007)	Mark Lundy, Veronica Gottret, Carlos Ostertag, Rupert Best, Shaun Ferris	International Center for Tropical Agriculture (CIAT
The operational guide for the making markets work for the poor (M4P) approach (DFID 2008)	Springfield Centre (specific authors are not specified)	Department for International Development (DFID), Swiss Agency for Development and Cooperation (SDC)
Chain-wide learning for inclusive agrifood market development (IIED 2008)	Sonja Vermeulen, Jim Woodhill, Felicity Proctor, Rik Delnoye	International Institute for Environment and Development (IIED)
Making VC work better for the poor: A toolbook for practitioners of value chain analysis (M4P 2008)	Tim Purcell, Stephen Gniel, Rudy van Gent	Making Markets Work Better for the Poor (M4P) Project, UK Department for International Development (DFID)
ValueLinks manual (GTZ 2008)	Andreas Springer-Heinze	German Agency for Technical Cooperation (GTZ), now German Agency for International Cooperation (GIZ)
VC development for decent work (ILO 2009)	Matthias L. Herr, Tapera J. Muzira	International Labour Organization (ILO)
Building competitiveness in Africa's agriculture: A guide to value chain concepts and applications (World Bank 2010)	Martin Webber, Patrick Labaste	World Bank
Pro-poor VC development: 25 guiding questions for designing and implementing agroindustry projects (UNIDO 2011)	Lone Riisgaard, Stefano Ponte	UN Industrial Development Organization (UNIDO), International Fund for Agricultural Development (IFAD), Danish Institute for International Studies (DIIS)
Value chain development wiki (USAID no date)	Not specified	United States Agency for International Development (USAID)

[1]CIAT's guide for value chain development was first published in Spanish in 2003. A revised version was published in 2007 in English and Spanish. The revised English version was assessed for this review.
[2]The guide reviewed here, UNIDO (2011), is part of a toolkit of value chain development for understanding and diagnosing value chains. See http://www.unido.org/fileadmin/user_media/MDGs/IVC_Diagnostic_Tool.

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