TIMOR-LESTE AGRICULTURE MARKET SYSTEMS ANALYSIS CONSULTANCY REPORT

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Introduction

Timor-Leste is a small tropical island of 1.1 million people, with approximately 75% of its population living in rural areas[1] and 63% of its population engaged in some sort of crop production[2].

Of the nation's 14,874 sq km of land, 4% is planted in permanent crops such as coffee and only 10% is arable with irrigation available on only 346.5 sq km; 86% of the land is too steep to use[3]/ Due to lack of access to land or distance, farmers engage in the traditional practice of slash and burn and cultivate particularly maize and cassava in the steep hills.

Total GDP in 2012 was $10.63 billion[4], with a strong dependence on oil reserves and oil revenues. Non-oil GDP was $4.48 billion in 2014. However, non-oil GDP is increasing: 6.6% in 2012, 5.4% in 2013[5] and 7.1%[6] in 2014, although this is largely due to government spending[7].

Timor-Leste's GDP composition by sector is 5.2% agriculture, 72.8% industry, and 22.1% services (2014 estimates)[8].

As of 2013, the country labor force comprise a total of 213,000 people with a total of 189,800 people employed for pay or profit. The workforce is distributed by sector; services 45.1%, Agriculture 41% and Industry 13%[9].

Nutrition

In Timor-Leste, malnutrition is a serious issue, impacting a large portion of its population resulting in reduced growth and limiting children's development, placing it among the worst in the world from a nutritional perspective.[10] As of 2013, 38.1% of children between 0-23 months suffered from chronic malnutrition. While the government of Timor-Leste indicated that major advances have been made in most districts, Covalima, Bobonaro and Oecusse Districts continue to present most cases[11].

Gender in Agriculture

Traditional gender biases impact day-to-day life in Timor-Leste, and is a sensitive issue. While some progress has been made, adult female illiteracy still stands at 32%, compared to 21% for men, and more men are in higher education (83 women for every 100 men). While female representation on Suco Councils stands relatively high (supported by a quota which says that two out of five council representatives must be women), only 2% of Suco Council Chiefs are women. Nearly 40% of women in Timor-Leste over the age of 15 have experienced physical violence. Of

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[1] MAF Strategic plan 2014-2020
[2] 2010 Census
[3] "Timor-Leste," CIA World Factbook, https://www.cia.gov/library/publications/the-world-factbook/geos/tt.html.
[4] Asian Development Bank, http://www.adb.org/countries/timor-leste/economy
[5] https://www.cia.gov/library/publications/the-world-factbook/geos/tt.html
[6] http://www.adb.org/countries/timor-leste/economy
[7] Ibid.
[8] https://www.cia.gov/library/publications/the-world-factbook/geos/tt.html
[9] http://www.statistics.gov.tl/wp-content/uploads/2015/04/LFS_2013_ENGLISH_VERSION.pdf
[10] http://seedsoflifetimor.org/timor-leste-agriculture/
[11] http://timor-leste.gov.tl/?p=9523&lang=en

women who have been married, 34% have experienced physical violence from their husbands and many have not been able to obtain justice[12]. Due to the traditional patriarchal system and the use of dowry system, husbands tend to see their wives as property and/or being their subordinates[13].

In agriculture gender equality in Timor-Leste is very difficult to clearly assess. While believing that the cases of violence might still be prevalent, the division of work and control of income appears to be more equal. While men and women have different roles, both work in the fields. Research on commercial vegetable farmers shows that the resulting income is seen as income for the entire family, and that women have more control in decision making over its use[14].

[12] http://timor-leste.gov.tl/wp-content/uploads/2011/07/Timor-Leste-Strategic-Plan-2011-20301.pdf
[13] Jica Country gender Profile, http://www.jica.go.jp/english/our_work/thematic_issues/gender/background/pdf/e10timor.pdf
[14] USAID DAC, The fresh Vegetable Value Chain in Timor-Leste

Market System Analysis

Methodology of the Market System Analysis

This market system analysis was conducted to identify trends in the agriculture market system particularly in the last two years. This consultancy tries to collect data from government institutions, and meet with various actors within the market system. The meetings with local businesses provided concrete day-to-day business operations, linkages, expectations and limitations.

During this consultancy although formal letters were sent to different ministries and departments in order to acquire statistics of domestic production, importation and exports of agriculture products until the end of this consultancy, we were unable to receive complete information from the local government.
This consultancy focused on the information that was possible to collect from other reports previously done, meetings and interviews with key stakeholders.

Current Situation

The current situation of the market system for agricultural products is a difficult one. As the following discussion will show, Timor-Leste agriculture market system has limitations and constraints at nearly all levels. There is poor reliability between farmers and traders particularly the ones that operate at the district level. Lack of access to information, poor infrastructure, and lack of cash flows, combined with poor capacity both at the farmer and trader level, have created a market system that is inconsistent, opportunistic, and highly fragmented.

Timor-Leste market system is characterized by a few permanent traders that have contracts with farmer groups to deliver specific crops. The large majority of local traders still operate in a sporadic opportunistic way. For example, traders will drive to surrounding districts and look for whatever it is available and determine then which products to buy at what price.

Each district has several markets with permanent retailers, and once a week each major town will have a specific market day. Many farmers will bring whatever quantity of product that they are able to carry and try to sell it in bulk to local traders. Those traders then bring the products to Dili and try to sell them in the open markets or large supermarkets in the capital. At the local district markets it is also normal to have farmers selling small amounts of their production.

Many farmers have seasonal cash crops that they produce including coffee, copra, vegetables and fruit. A lot of these products are seasonal with some for home consumption with some surplus being sold at the local market. Other products such as coffee or copra are mainly exported.
Farmers in general have difficulty selling their products while the local traders or wholesalers also run into difficulties when trying to buy local products. In an attempt to get better prices in the capital, farmers individually will rent local trucks to bring their produce to Dili hoping to sell directly to small wholesalers and retailers.

The majority of farmers in Timor-Leste still plant their crops based on traditional beliefs leading them to only plant crops at certain times of the year. This frequently leads to all farmers in the same area planting exactly the same product at the same time of year, leaving them in a poor situation of not being able to obtain better prices for their produce at the moment of sale.

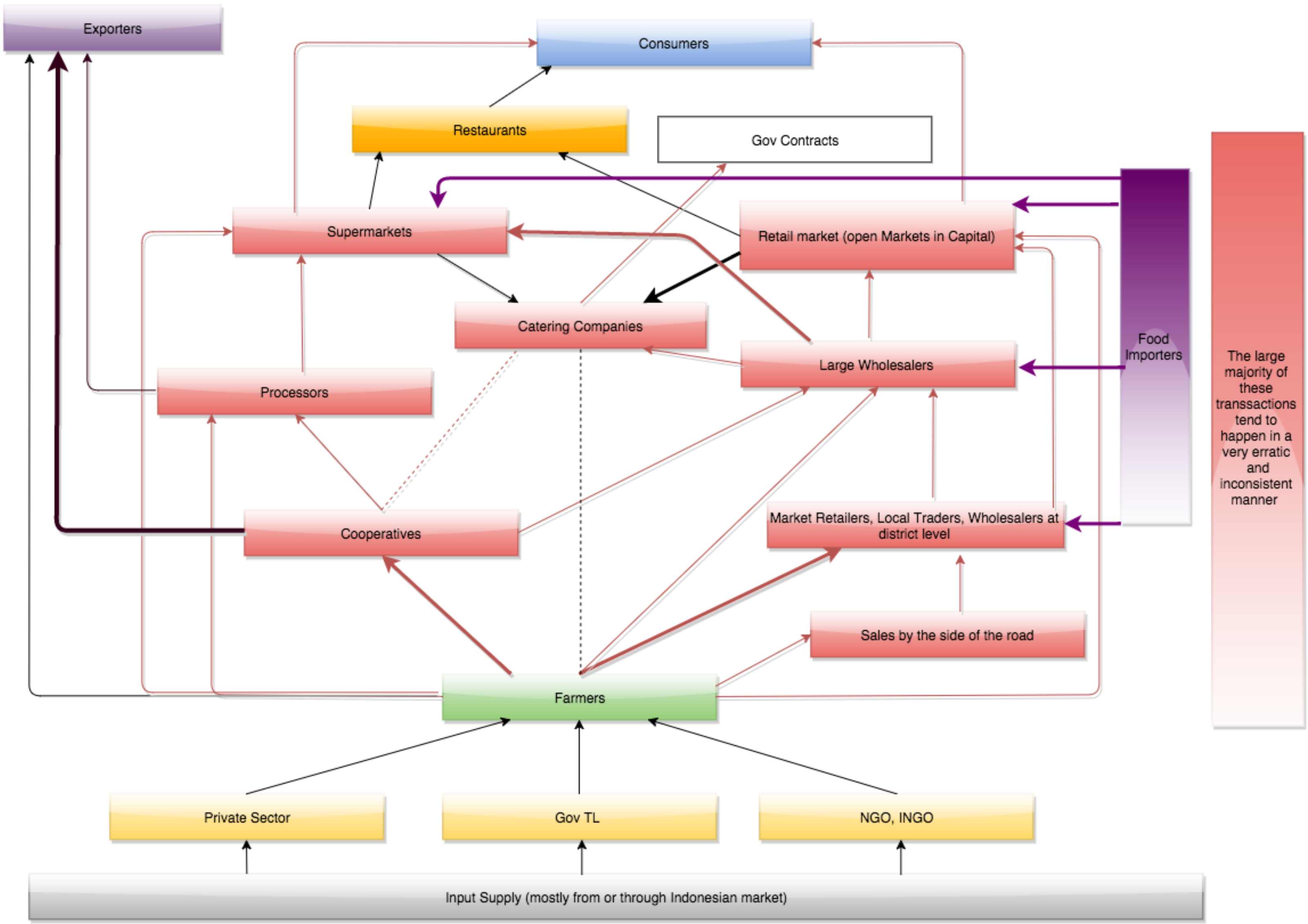
Wholesalers commonly report that they would like to buy bigger quantities of produce in the districts. However, although they find farmers’ capacity to supply produce unreliable, wholesalers also report difficulties with cash flows and access to finance that would allow them to buy produce in larger amounts.

All of the aspects mentioned above, combined with very poor road infrastructure and high transport costs often limits the number of traders that might attend the local market. This leaves farmers with produce that cannot be sold that is then abandoned or sold at a very low price.

All of these issues are obviously very important and in desperate need to be addressed. One issue needs special attention and that is the lack of information within and from the market system. This represents a huge limitation for farmers, traders, supermarkets and also policy makers. Policy makers and potentially also projects from international organizations will have a very difficult task to address all or even some of the issues within the market system if they do not have access to correct data that would enable them to analyze, advocate and implement proper policies that will ultimately benefit all the actors within the agricultural market system.

Figure 1 gives an overview of the current market system, followed by a narrative which discusses the various steps in more detail notwithstanding the issue of limited data referenced earlier.

Fig 1: Market System Diagram



Market System Segmentation/Actors

Input Supply

The input supply industry plays a key role in agriculture development of any country. Timor-Leste used to have just a couple of shops -in most cases stationary shops - that would also sell agriculture inputs, mainly small amounts of vegetable seeds and some pesticides. Today, the input supply industry in Timor-Leste has seen progress. A total of 11 input supply shops are currently registered in Timor-Leste, as indicated in Table 1 below. Several shops have opened in Dili. And, thanks to efforts by different private sector and international organizations, several agriculture input shops (Loja Agrikulturas) are now also open in Baucau, Aileu, Bobonaro, Ainaro districts[15]. Some of the shops operate only as retailers and others are wholesalers supplying to smaller shops, and also retailers to local consumers[16]. Many of these shops do not hold large permanent inventory. In most of these shops the capacity of shop owners or employees is limited or completely lacking. This prevents them from properly providing advice to farmers. The majority of products purchased tends to be vegetable seeds, fertilizers and synthetic pesticides.

One local shop reported that in 2013 they sold products to 400 to 500 customers per month, generating $3000 in monthly sales[17]. According to the Ministry of Finance figures, in 2013 a total of $186,000 worth of fertilizers was imported. However, the same body did not have figures for the imported pesticides[18].

Table 1: List of Loja Agrikulturas

No	Loja Agr name	Municipality
1	Serafim	Dili, Balide
2	ALu	Dili, Bemori
3	Loja Agrikultura	Lospalos
4	Soi Briliante	Manu Fahi
5	Loro Matan	Manufahi, Turiscai vila
6	SASA star	Ainaro Vila, Merkado lama
7	SAHABAT	Ainaro Vila, Merkado lama
8	Sinar Kasih	Ainaro, Hatudu
9	Gunilabe	Bobonaro, Maliana Merkadu
10	Herdadi	Ermera Antigo, Igreja oin
11	Loelaek	Ermera Gleno, Perikanan sorin[19]

Agriculture inputs application is obviously essential to any country to become self-sufficient in certain crops or increase and improve production of crops for consumption or even for the markets.

[15] Pilot Project of Sustainable Inputs and Services Rapid Assessment Report, Mercy Corps and Seeds of Life, 2014
[16] Data provided by USAID Avansa Agrikultura Project Business advisor staff.
[17] Pilot Project of Sustainable Inputs and Services Rapid Assessment Report, Mercy Corps and Seeds of Life, 2014.
[18] http://www.statistics.gov.tl/wp-content/uploads/2014/10/External_Trade_2013.pdf
[19] Table provided by USAID's Avansa Agrikultura project staff

Although with the clear increase of products available in Timor-Leste, it is also essential that all industry stakeholders understand the pros and cons of organic and synthetic pesticides and fertilizer use. The local government and the industry itself, in order to thrive, will have to make sure the proper mechanisms and technical assistance is provided to anyone handling these products in order to minimize risk.

Finally, the input supply system must be further supported by appropriate government institutions and policies, to prudently regulate this sector in order to guarantee the quantity, availability and quality of the essential agriculture inputs. For example, currently the GOTL regulates the import of fertiliser by requiring that importers must have a letter of approval issued from the quarantine authorities. This is technically an incorrect procedure and a constraint on the availability of fertilisers in Timor-Leste. Freeing up this import process and managing it through customs procedures, would ensure that these inputs get into the country. Further the quality, the origin, and basic rules on storage, purchase, transport, and application of these products in the various cultural crops could also be promoted to improve the effects of these inputs.

Producers

Producers (farmers) are divided into different categories due to limited access to markets, lack of access to land, or limitations accessing sufficient labor force to farm the land. These categories include:

Subsistence Farmers

Subsistence farmers usually produce staple crops such as maize, rice, cassava and, depending at the time of year, vegetables. These crops are grown to satisfy the immediate family needs throughout the year. Most of these crops normally are used for household consumption although throughout the country every time that there is a surplus or due to family emergencies farmers will occasionally sell some of their products. These farmers will in most cases also have small amounts of cash crops that they sell annually.

Semi-Commercial Farmers

Semi-Commercial farmers will grow certain crops with intent to sell. These farmersgrow vegetable and fruit,, coffee, and/or candlenut, among others. The Timor-Leste Coffee Cooperative alone is known to have 22,000 associates that harvest and sell coffee, pepper, cloves, cassava and vanilla to the Cooperative[20]. Gaja Mada Company purchases candlenut from a group of 990 farmers, although that is not the single source of supply[21].

Semi commercial farmers are probably the largest group, as many people in Timor-Leste will have some land that will provide them with an annual cash crop of coffee, candlenut, fruits, coconut etc. These farmers tend to pay very little attention to these cash crops throughout the year, besides the occasional weed cleaning and obviously harvest. Many of these farmers will produce once or twice a year an annual crop that they will try directly to sell to local wholesalers. In some cases, they will attempt to sell it by the side of the road to wholesalers or even in small amounts to individual consumers that are passing by.

[20] Information collected from meetings with David Boyce from NCBA-CCT.
[21] Information collected when meeting PT. Gajah Mada Manager Kenny Mintura.

Commercial Farmers

Commercial farmers are the smallest group. Although they also produce staple crops for household consumption, at the same time they are producing for the commercial market. These farmers are mainly producing vegetables and engage in some sort of contract farming directly with supermarkets like Kmanek, Dili Mart and W4, and for wholesalers like Farmpro and Josefina Farms. It is estimated that there are 600 farmers growing produce to supply produce to the supermarkets listed above[22].

In 2014, USAID DAC had 448 farmer households that were part of the program for the entire year. Of those, 42% were seriously committed to continuous commercial production, completing sales on a monthly basis. For those farmers, average income was $1,394 – almost five times the average rural income of $292[23](Table 2). Table 2 summarises this data based on 12 months of collected data from three supermarkets and 373 farmers in 2014.

Table 2: Annual Farmer Income 2014— With Sales in all 12 Months

	DiliMart	Kmanek	W4	All Farmers
$ Mean	830	1,438	0	1,394
$ Median	859	1,204	0	1,180
$ Min	354	224	0	224
$ Max	1,388	6,233	0	6,233
# Farmer	16	171	0	186

Source: USAID DAC Project Final Report February 2015

Table three summarises the composition and statistics of horticultural production discussed in Table 2, based on greenhouse or field farming systems.

Table 3: DAC 2010-2014 Results

	People	Production (kg)	Value
Field	547	1,068,126	$837,324
Greenhouse	34	101,424	$105,845
Total	547	1,169,549	$943,169

*376 male and 171 female (greenhouse farmers are also outdoor farmers)

Source: USAID DAC Project Final Report February 2015

Local wholesalers/Traders

This section defines different types of traders or wholesalers operating within this agriculture market system.

[22] Information collected from meetings with Kmanek, Dili Mart, W4 supermarkets and Josefina Farm.
[23] USAID DAC Project Final Report February 2015

Wholesalers/Traders

As mentioned above, the available data is inconsistent and probably unreliable. Based on USAID's DAC Project, just in Dili, Aileu, Ainaro and Ermera District, there are 75 local traders[24] operating in vegetables. These are traders that operate in various ways, from engaging directly with farmers at the farm gate to just visiting district markets and buying whatever product will guarantee the highest return. There is great variation on how the wholesalers operate and conduct their business. There is no data on the exact number of wholesalers for all agriculture products. Wholesalers themselves have a difficult task to guarantee product as it is hard to get reliable farmers not selling to other traders who may show up earlier or provide a better price[25]. This includes those that 'pole vault' or do not honour their contracts with buyers.

Farmer/Wholesalers

As discussed above, some farmers become the wholesalers for their own produce. They rent a truck, transport their produce to the markets, and directly sell their produce. This is product of either lack of buyers at their region or in hope to be able to get a better return for their crop.

Associations

The number of associations in Timor-Leste is unknown. There are several larger players, such as CCT (22,000 associates) and HADISTAL (Horticulture Association District Aileu - 500 associates) which are both registered as associations. Besides these two, there are many more that will operate in production, processing and as aggregators of various agriculture products. There is little understanding of the volumes that all associations trade, and the level of activity throughout the year.

Retailers

Open Market Retailers

These are the retailers that operate particularly in the Dili and district main markets. They buy their products from wholesalers or farmers. According to recent Market Development Facility (MDF) estimates, there are 1200 to 1300 vegetable retailers[26]. It is hard to assess how many of these retailers do this activity consistently throughout the year, especially in the districts.

Female vegetable seller tend to dominate the outdoor markets in Dili and the Districts. In Dili, 77% of the outdoor market vegetable vendors are women.

Table 4 shows the vegetables that provide the highest margins to the retailers[27].

Table 4: Comparisons of gross margins

Vegetable	Average Gross Margin	Kilos Sold 2012 – Dili Market Estimate	Sales Revenue 2012 – Dili Mkt Estimate
Cauliflower	203%	2,236	$9,125
Papaya Flower	168%	10,463	$52,925

[24] Lista Traders all Distrito 23 May, USAID DAC project
[25] Interview with traders in Dili, Faustina Moreira, Joanina Soares and Carlito de Sousa
[26] Market Development Facility, sector Assessment Report and Growth Strategy for Agribusiness, Processing and Rural Distribution – Timor-Leste
[27] USAID DAC, Fresh Vegetable Value Chain Timor-Leste 2013

Vegetable	Average Gross Margin	Kilos Sold 2012 – Dili Market Estimate	Sales Revenue 2012 – Dili Mkt Estimate
Chayote	158%	430,176	$98,685
Chili	149%	39,763	$150,334
Papaya Fruit	139%	201,905	$150,451
Large Chili	129%	23,156	$53,704

Source: USAID DAC Fresh Vegetable Value Chain Timor-Leste 2013

Supermarkets

There are eight large supermarkets in Timor-Leste including Kmanek, Dili Mart, W4, Lita, Leader, Pateo, LandMark and Jacinto. These supermarkets sell a large range of imported and local agriculture products. Some of these have a preference to buy local produce. However, they report a lack of reliable quantity and quality of produce, and the inability to obtain certain products, which makes it difficult to be fully committed to only buy local products[28].

Processors

There is very little information on the real number of processors in Timor-Leste. Based on available data at the IADE (Institute for Business Support) there are 27 enterprises registered in Timor-Leste involved in food processing within the section of "Primary Industry (Including Agriculture And Fisheries)"[29] and 566 companies registered as processors, from dairy products, tempeh and tofu, salt, spices, coffee and wheat and flour[30] in a separate section "Food And Beverages Production And Sales." The data does not include any revenue figures. However, it is possible that the actual number of processors is much smaller since it is hard to see if these companies are still active or if they are registered multiple times under different focus areas.

There is also a large number of agriculture products being processed in small amounts such as banana chips, cassava chips, virgin coconut oil, fish, and salt among others, but unfortunately it is unknown the exact number country wide. Many of these processors sell their products at the district level in local markets and local shops. However, some of these products also reach the capital Dili being sold in many of the local large supermarkets and small shops. Such producers and processors are not usually communicative about their business and results. The Annual Agribusiness Survey planned to commence in year two under USAID's Avansa Agrikultura Project, must examine this and get a better understanding of what is relay going on.

Catering Companies

Based on IADE enterprise directory there are a total of 145 registered catering companies. All such companies are registered as "catering and restaurant" not allowing to determine which ones are seriously dedicated just to catering, or indeed to their role in food processing.

The catering companies bid on government contracts to provide meals to the military (F-FDTL), the national police force (PNTL), and the National Hospital. They report spending $20,000 to $30,000 per month on fresh produce. The companies generally send staff to the local outdoor

[28] Information based on interviews with Kmanek, Dili Mart and W4 staff.
[29] http://www.iade.gov.tl/en/tis/enterprises/directory/1/6/
[30] Ibid.

markets to purchase vegetables on a daily basis. The items that they cannot get at the local markets, such as broccoli and red cabbage, they purchase from supermarkets[31].

The companies operating in this business do not have any pre-established arrangement with any large wholesalers. Based on the companies' information, there are no wholesalers that can guarantee the amounts and quality required. At the same time, the wholesalers expressed that there is no incentive to supply produce to the catering companies based on the prices they are willing to pay[32].

Restaurants

Dili has a vast number of large and small restaurants of various gastronomic specialties. According to the IADE database there are a total of 215 restaurants operating in Timor-Leste[33]; howeverthis number might be distorted from reality. IADE database is probably one of the few databases that tries to maintain some record about existing companies and that allows easy access. However, the companies cannot be desegregated by main activity, thus limiting the ability to understand the real core business of each company. Many companies may be registered under several activities that may not logically go hand in hand, such as "Construction, Food Processing, Catering, and Retail."

Based on USAID DAC data, $750 is spent on average on vegetables and fruits every month for each of the restaurants assessed in the capital. They do not have binding arrangements with traders although occasionally they will buy from them. Sometimes they will have an arrangement with traders for certain products, and go to the open local markets in Dili or the local supermarkets for the remainder of ingredients. This value ($750) represents both local produce and imported produce purchases[34].

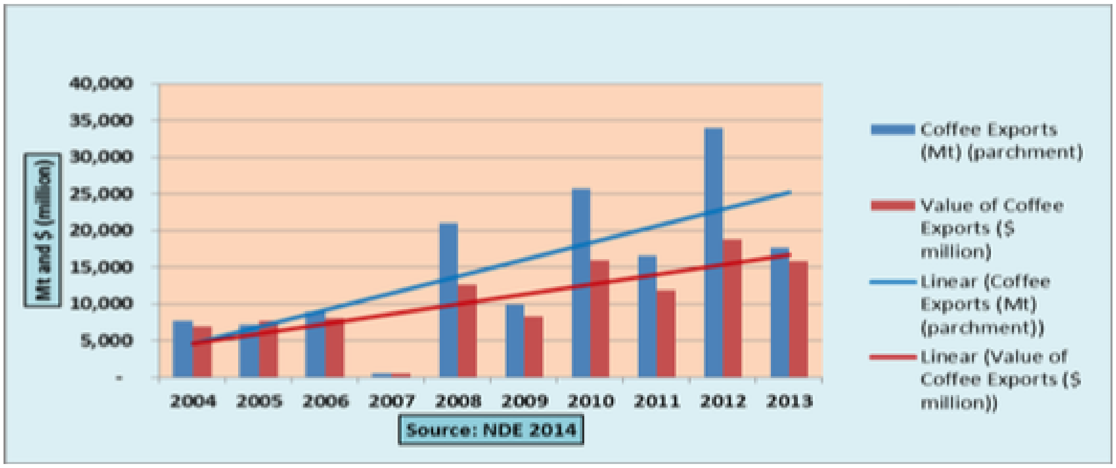
Exporters

The total numbers of exports is unknown. It is known that industrial crops, particularly coffee represents 23% of the export earnings and accounts for 80% of Timor-Leste non-oil exports[35]. Companies like CCT, Elsa Café, Timor Global and Parsic are some of the biggest exporters of coffee.

Besides coffee there are some exporters trading organic candlenut products (nut and oil) and copra. Both of these products were described as "the more they would have access to, the more they would export,"[36] indicating there is unmet demand for the products on the export market.

[31] USAID DAC, The fresh Vegetable Value Chain in Timor-Leste
[32] Ibid.
[33] http://www.iade.gov.tl/en/tis/enterprises/directory/21/172/
[34] USAID DAC, The fresh Vegetable Value Chain in Timor-Leste
[35] MAF Strategic Plan 2014-2020
[36] Information collected from meetings with ACELDA and Gaja Mada Companies

Figure 2: Coffee Exports



Source: Situational Analysis of the Agriculture Sector in Timor-Leste: Draft for Development Partners

Companies like Gaja Mada and Acelda export copra, candlenut, tamarind and devils tongue (*Amorphophallus konjac)* in large quantities mainly to West Timor. Gajah Mada reported to have exported 110 tons in 2014 of devils tongue [37].

Table 5: Export data reported by companies in tons

Company	Candlenut		Copra	
	2014	2015	2014	2015
Gaja Mada	180	120	300	500
Acelda	500*	NA	NA	NA

* 120 Tons processed into Oil and exported to Hawaii, remaining exported to West Timor as nut.

Table 6: Exports in value

Coffee and Other Commodity Exports	Value ('000)				
	2009	2010	2011	2012	2013
Coffee	8,291	15,879	11,919	18,813	15,781
Teak wood/Ai Teka	41	312	85	10,926	17
Candlenut/Kami'i	60	60	40	125	143

Source: http://www.statistics.gov.tl/wp-content/uploads/2014/10/External_Trade_2013.pdf

Importers

Timor-Leste has long been a country that relies extensively on imports for food security such as rice. For example, based on data from Ministry of Finance between April and September 2014 a total of 58,759 tons were imported[38].

[37] Information collected from meetings with Gaja Mada Company

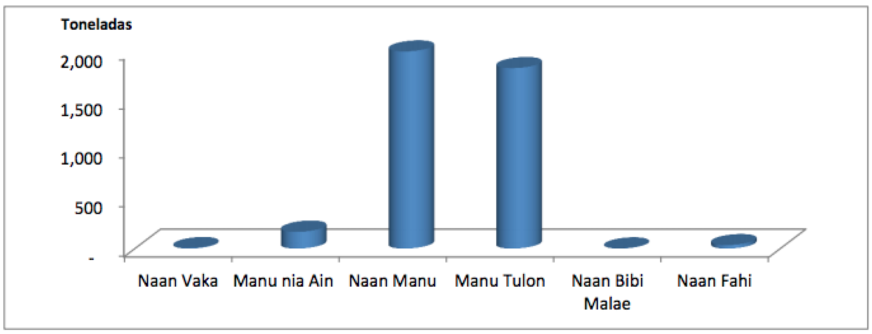
[38] MAF Timor-Leste Food Security buletin July-September 2014

Besides staple food imports, a large number of other products are imported to Timor-Leste. These include fresh and processed fish, fresh and processed vegetables, frozen meat but also other grains (soya beans) to supply emerging industries like tofu and tempeh production and also fortified noodles being produced in the country by Timor Global[39]. The majority of fresh and processed fish, fresh and processed vegetables, frozen meat imports is destined for the large supermarkets. Some vegetables, such as Irish potatoes, onion (Bombay or even small red onion) and garlic will reach district markets.

Figure 3 depicts imports in just the first trimester of 2015 resulting in more than 2, 000 tons of frozen chicken and almost 2,000 tons of eggs.

Figure 3: Poultry imports into Timor-Leste

Figura 15: Importasaun na'an durante trimestre primeiru tinan 2015



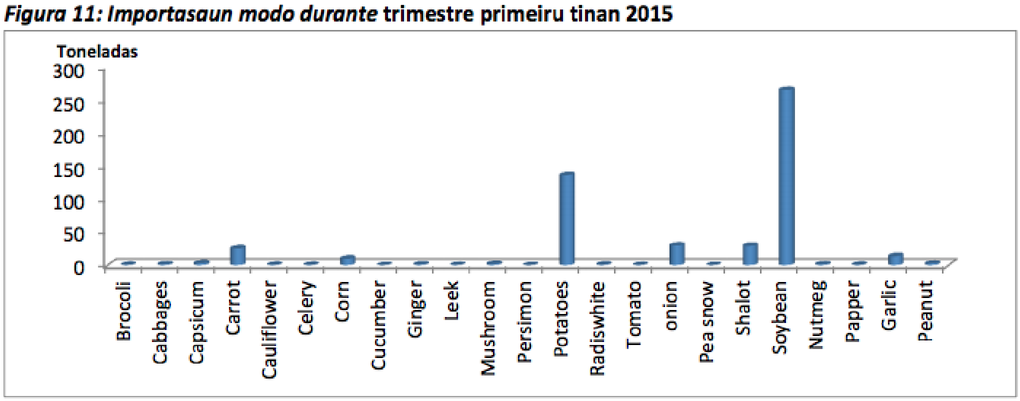
Fontes: Direcsaun Nacional de Quarantena e Bio seguranca (DNQB) Janeiro to Marsu 2015

Source: MAF Timor-Leste Food Security boletin July-September 2014

Figure 4 below shows the top five imports for the first trimester of 2015, including soybeans, potatoes, carrots, onion and shallots.

Figure 4: Imports of vegetables

***Figura 11: Importasaun modo durante* trimestre primeiru tinan 2015**



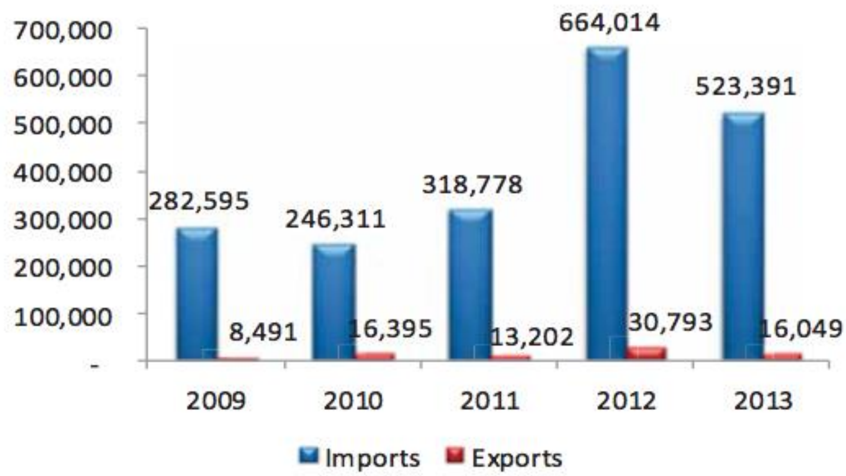
Fontes: Direcsaun Nacional de Quarantena e Bio seguransa fulan Janeiro to Marsu 2015

Source: MAF Timor-Leste Food Security boletin July-September 2014

[39] During the time of this consultancy was impossible to get in contact with Timor Global to aquire specific quantities required.

According to the MoF statistics, Timor-Leste still maintains a major trade deficit that has increased in recent years. Figure 5 illustrates the steady gap between exports and imports.

Figure 5: Trade balance statistics, 2009 to 2013.



Source: Ministry of Finance, National Directorate of Statistics.

National Agriculture Productivity

Timor-Leste covers 14,847 sq Km. Over half of this area is in serious risk of erosion or degradation due to rapid deforestation, shifting subsisting cultivation practices, poor irrigation systems and lack of water to irrigate production land. Up to 44% of Timor-Leste has a slope more than 40%. Combined shallow soils and slash and burn practices which increases erosion impacts[40].

Reliable information on agriculture production is a serious limitation and often focuses mainly on the two main staple crops, maize and rice. Traditionally these are also the crops that suffer major losses at postharvest and storage. The Seeds of Life (SoL) project recently released a maize variety, Noi Mutin that can increase yields by 40%. The Timor-Leste Maize Storage Program (TLMSP) reported losses in the post- harvest of maize of only 13.4%.[41] The 2015 production estimates indicate that total in-country rice production was 56,825 tons, with a total area under production of 29,693 ha. On average, production per hectare is 3.19 ton/ha. This covers only 43% of the national requirement and still presents a deficit of 75.339 tons[42].

For maize, the national estimated production was 125,609 tons, with a total area under production of 43,288ha and an average production of 2.9tons/ha. This resulted in reaching the national demand required of 83,421 tons for human consumption[43]. Vegetable and fruit production figures from 2015 was not available for review for this consultancy. However, the consultant was able access data from 2011. In that year, the Ministry of Agriculture and Fisheries (MAF) estimated that the 2011 production of vegetables was 29,234 tons and in 2012 was 34,012tons. This estimate

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[40] http://www.laohamutuk.org/econ/Rio20/TLReportRio20.pdf
[41] SOL, Complementarity between Maize Seed Production and Good Storage report
[42] http://maf.gov.tl/Departamento%20Kooperasaun%20Internasional%20no%20Seguransa%20Ai-han/Relatorio%20Inter-Ministerial/2015/FINAL%20Relatoriu%20Grupu%20Traballu%20Q1_2015.pdf
[43] Ibid.

included products sold and consumed[44]. The consultant triangulated this information with the estimates for 2012 completed under USAID DAC which are between 81,322 and 101,000[45].

Coffee is by far the largest cash crop produced in Timor-Leste. It provides some sort of annual income to around 22,000 farmers, with the average income of $224 (only CCT farmer members)[46]. The coffee sector in recent years has received great assistance in order to try rehabilitating the coffee plantations in Timor-Leste. Most of the plantations are very old and pruning was an activity that was not known by Timorese farmers who focused on weeding and collecting the coffee berries. In cooperation with MAF, several international and local organizations have been providing technical assistance to farmers to increase their knowledge of bush management and berry processing.

Production of other commodities is also visible in Timor-Leste, but in a much smaller relevance and in many cases with very little management by farmers. Farmers collect and harvest whatever is available and this includes teak, candlenut and coconut. In general, most crops produced in Timor-Leste generate low and inconsistent yields. This is mainly due to the use of traditional low productivity techniques, poor rural infrastructure, lack of access to basic inputs and markets and vulnerability to changing weather patterns.[47]

Technical assistance services

MAF currently has approximately 400 extension service providers in the field. Each one is responsible for providing technical assistance in one Suco[48]. Since the country has 442[49] Sucos this results in an extensionist having to cover more than one Suco. The general capacity of many of these extension service providers is very low and at the same time they have the responsibility to be the liaison between farmers and government, which entails many responsibilities such as the already mentioned technical assistance, distribution of free inputs provided by the government, and also collecting all data regarding areas under production and total production among other responsibilities which limits the capacity to focus.

Beyond the government structure there is a total of 789 national NGOs, CBO and international organizations registered on National Database for Humanitarian Project & Community Development with many of them based in the districts and also in Dili. A total of 157 are registered as Agriculture and Food Security operating in Timor-Leste[50]. The consultant was unable to verify if all are still active and how many staff in total is providing some sort of technical assistance and training to farmers.

[44] USAID DAC, Fresh Vegetable Value Chain Timor-Leste report
[45] Ibid
[46] Performance Evaluation of the USAID/Timor-Leste ConsolidatingCooperative and Agribusiness Recovery (COCAR) Project Final Report 30 March 2013 http://www.aid.govt.nz/webfm_send/782
[47] Strategic Plan MAF 2014-2020
[48] Information obtained through meeting with Yusufo Menezes RDP4 Camões, Program Manager
[49] https://en.wikipedia.org/wiki/Sucos_of_East_Timor
[50] https://projetutl.crowdmap.com/reports

Access to Finance

Access to finance is limited, and difficult to access particularly in agriculture, with credit institutions being sceptical to provide loans to farmers due to the potential of crop failure and also due to the institutions inability to properly assess the risk or no risk when providing the loans.

Vegetable producers have been able to get access to credit when conducting basic record keeping sheets of production and sales providing business history which increases the banks and microcredit institutions confidence to provide loans[51].

Based on the above mentioned National Database of Humanitarian & Community Development projects, there is a total of 9 microfinance and credit institutions operating in Timor-Leste[52]. At the same time, IADE database shows 28 registered enterprises operating in savings and loans[53]. Based on National Directorate of Statistics below we can see the total amount of credit for agriculture provided by quarter for the total year of 2014 and the first quarter of 2015.

Table 7: Loans provided for Agriculture and other Uses (US$000s)

	2013			2014				2015
Sector	Qtr 2	Qtr 3	Atr 4	Qtr 1	Qtr 2	Qtr 3	Atr 4	Qtr 1
Agricultur	1,149	744	533	1,334	1,253	6,341	8,280	8,389

Source: Ministry of Finance, National Directorate of Statistics - Trimestral Statistical Indicators, 1st Trimester of 2015

Business Development Services

Business and management skills are generally difficult to come across, especially outside of the urban centers. Many formal and informal groups have failed in the past due particularly to the limitation of local capacity to properly manage and run effectively production groups/cooperatives.

Basic math skills are sometimes limited in the districts and especially full management skills. UNICEF figure for the adult literacy in Timor-Leste from 2012 is 58%[54].

There are several organizations working to provide free or at a cost services (many times covered by organizations), that provide high quality record keeping, business management, decision making and marketing services. Based on the IADE website, there is a total of 14 business development service providers although once again here it is possible to see some confusing points where some of the bigger organizations are not listed here (see some examples below), and the ones registered are also listed with other activity goals[55].

Bellow there are some of the organizations providing business development services:

> **Instituto de apoio ao Desenvolvimento Empresarial (Business Support and Development Institute) IADE:** Provides business training and development services and assistance. Normally, groups or businesses register with IADE and then are eligible to receive assistance. All cost should be covered by the government.

[51] USAID DAC, The fresh Vegetable Value Chain in Timor-Leste
[52] https://projetutl.crowdmap.com/reports/
[53] http://www.iade.gov.tl/en/tis/enterprises/directory/6/80/
[54] http://www.unicef.org/infobycountry/Timorleste_statistics.html
[55] http://www.iade.gov.tl/en/tis/enterprises/directory/3/31/

- **Timor Aid:**
  - Provides business services, having worked with several international organizations such as; with GIZ, USAID, MercyCorps, DFAT (ANCP-AFAP) and also MAF and SoL.
  - Timor Aid has created two curriculums of really good quality, ***Farming as a Business*** and ***Producing Seeds as a Business.***
    - ***Farming as a Business:*** Farming as a Business is a Rural Development curriculum focused on improving agricultural marketing awareness, introducing planning tools, creating business links, and providing technical improvements to agricultural processes. This program involved a high degree of consultation and involved extensive partnerships with all levels of government, local leaders, women and youth, and farming participants from all over Timor-Leste. The Timor Aid Rural Development team provided high quality training in modules with a focus on being interactive, interesting, and most importantly accessible to people with all levels of education. From delivering this program for more than three years Timor Aid's Rural Development team has developed a great understanding of the challenges and possible successes that surround providing training to rural communities in Timor-Leste.[56]
    - ***Producing Seeds as a Business 2014:*** In partnership with SoL, the Timor Aid Rural Development team created a seed production budgeting and marketing curriculum to help communities assess market opportunities and make agricultural process improvements and capital investments. Timor Aid's agricultural trainers presented content to the specific working groups through slides, questionnaires, and general education activities. Participants included members of the Ministry of Agriculture through to seed producers from districts all over Timor-Leste[57].
- **Empresa Diak:**
  - Focuses in providing pro-poor social businesses.
    - Support communities and organizations to implement small business models.
    - Women's Empowerment Programs: Combating domestic violence through an innovative business empowerment schemes.
    - Advocacy and Capacity Building: A regular Forum for peer support, advocacy and training, supported by a Social Business Incubator.
    - Business and Consultancy Services: A social business clinic, providing targeted business, legal and program advice to organizations and communities[58].
  - Developed and conducted training on the Vegetable Production and Sales under the DAC project, this lead the farmers to have records to show to BNCTL and allow them to have access to credit.

[56] http://www.timoraid.org/farming-as-a-business-training.php
[57] Ibid.
[58] http://www.empreza-diak.com/

Limitations of the Market

The information below is the result of extensive discussions conducted by the consultant with wholesalers, retailers, export companies, cooperatives and other active actors within this market system. The consultant also conducted an extensive review of program documents and reports of various organizations and also from the Timor-Leste government. Based on this extensive research, the following major limitations of the market were identified:

Lack of reliable data:

> One of the main difficulties identified that affect both producers and traders is the lack of information regarding the product availability, quantities and where it is. This limits individual farmers or farmer groups/associations to make decision on what to produce, and when to produce in order to complete a proper planting plan and try to identify niche areas or specific times of the year that could be more profitable to produce certain products. This in turn limits also the capacity of local traders, wholesalers and even catering companies to properly plan organized delivery schedules and to consider expansion if more supply really exists.

> Lack of data or incorrect data is serious problem for the government to develop sound sector analyses and appropriate approaches to solve specific sector problems.

Access to Input Supply

> Limited access to basic essential inputs, especially in the districts like seeds, fertilizers and pesticides, limits the ability of farmers to produce more and of better quality.

Poor road network and condition:

> Poor road infrastructure and road networks, normally limits the areas that traders can reach and the amounts farmers can carry to the market place. Farmers are often limited to what they or their animals can carry or their animals, or in worse cases leaving farmers to be subjected to unscrupulous traders that will pay far less than the market price. On the other hand, high costs of transportation tends to "squeeze" the margins of traders and limit amounts that they can purchase.

Farmers Capacity, traditional culture and lack of coordination:

> The lack of coordination between producers still today tends to demonstrate a symptom of one following the other when it comes to planting, and in general driving large amounts of the same product, flooding markets in certain times of the year and having none available in other times.

> Lack of technical knowledge by farmers to produce in larger quantities, better quality and on a steady manner.

Land Tenure:

> Land tenure still is a serious limitation when producers are required to expand their production area, particular in the case of perennial crops or areas that would require major effort/investment to be farmed; uncertainty on land title will discourage farmers to explore forest/tree crops expansion.

Policy:

> The practice of providing agriculture subsidies is common in many countries. In Timor-Leste there is a push for private sector development including input supply. Government programs do continue to supply free products, such as MAF distribution of free seed, fertilizer and

pesticides in some situations. This is an opportunity for the input suppliers to organise and coordinate with the MAF on, to become suppliers to such programs.

> The government program "People Plant, Government Buys" distorts the market price, breaking in many occasions existing relationships between farmers and local traders, particularly due to high price expectation created among the farmers.

Regulatory System:

> The non-existence of a specific, technically valid regulatory system regarding the imports of agriculture inputs leaves Timor-Leste's input suppliers without guarantee of quality of inputs imported, and farmers and end consumers exposed to substances that in many countries are banned.

> Lack of in country certification is a major constraint when thinking of exporting.

Access to finance:

> There are organizations that provide group loans with everyone in the group getting equal share of the loan, which in many cases can be good, but at the same time discourages individuals to invest as most times individual needs will be different. This approach also does not always act as an incentive for individual farmers. Revised models based on group financing that support formalisation and organisation of groups, are more attractive to lenders, and regulate group funds better.

> The low capacity within banks and microcredit institutions to properly assess agriculture loans viability.

Market Opportunities

Local unmet demand

Currently it is conservatively estimated that 60% of all food consumed in T-L is imported. This estimate applies also to vegetable and fruits. Also the per capita consumption of fruits and vegetable by Timorese people is low in comparison with many countries of South East Asia. The data from the USAID DAC Value Chain Study in Timor-Leste in 2014, showed the per capita consumption to be 90 kgs. FAO statistics show the Asian average to be 116 ks per person, much earlier in the year 2000. Both of these trends indicate the capacity eat more vegetables in T-L exists. This situation is a great opportunity to grow more vegetables and get them to market by fostering better market linkages and connections between farmers, wholesalers and retailers in the high end market in Dili, but also facilitating access to markets particularly the main regional markets in the districts.

Import substitution potential

> There is enough evidence that many crops are possible to be produced in country although the majority of those products are still imported. Examples include Irish potato and onions, etc.

> With the increasing demand for raw materials like soybeans for the fortified noodles and also for animal feed, there is an opportunity to at least explore the possibility for this raw material to be produced in country enabling local farmers to increase and improve their livelihoods.

Exports

At this point, many of the products that can or have value/quality are already being exported but I believe that within the products exported there is room to grow these exports, especially quality is improved.

> For example farmer could take advantage of the candlenut oil organic certifications, as more areas are not certified as the demand relies on only one buyer in Hawaii.
> Copra can't get better prices due to poor quality, and relies only on Indonesia as the recipient of this product, although regionally other countries have high demand for this product.
> Cloves currently legally can't be exported to Indonesia, and producers and traders do not know where to sell their product.
> The dependency on Indonesia has another negative impact on products that can have market value and potential for exports only when the Rupiah exchange rate is favorable.

Specific Crop Information

Fruits

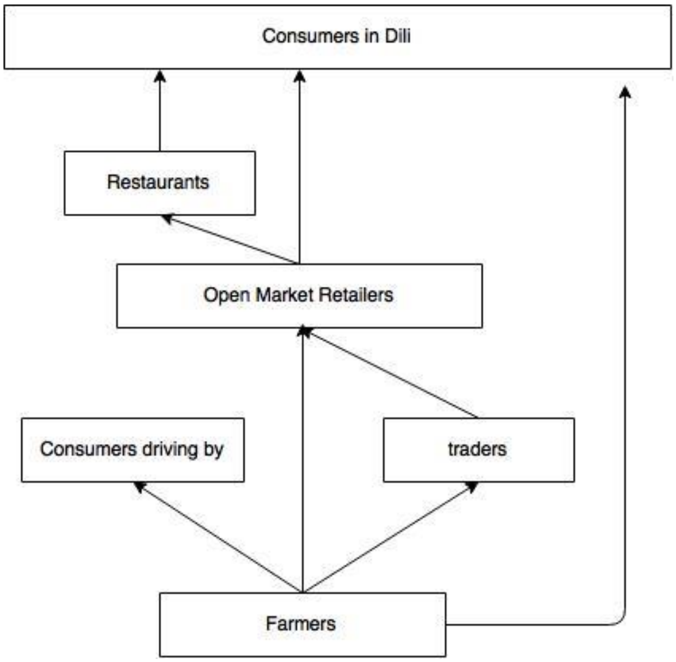
Pineapple and Citrus (tangerine, lemons and limes)

Although they are obviously different products that come available in different times of the year, these two products are put together because the methods by which these products reach the main markets are very similar. Farmers tend to care for these crops very little throughout the year, not conducting any plant management, adding any fertilizer (besides the reported staking animals) and basically waiting until the harvest time and then looking to sell. For sale, normally farmers will try to sell these products in multiple ways:

> By the road side:
  – Farmers with small amounts will harvest every day small amounts and sell by the side of the road.
  – Farmers that have larger amounts will carry as much as possible and bring to the side of the road with hopes that they will be able to sell to a wholesaler or to other farmers that live close to the road and can continue selling it on the following days
> At the wholesalers market in the districts or in Dili:
  – Farmers will collect as much product as they can carry to a market district and try to sell to a wholesaler.
  – Farmers that are closer to Dili will collect as much product as they can carry to a location where they can get a truck ride, pay the fare to Dili and sell it directly to retailers of other smaller wholesalers in Dili.
> Sell directly to consumers and restaurants in Dili:
  – Farmers will collect as much product as they can carry to a location where they can get a truck ride, pay the fare to Dili and spend the day trying to sell it directly to consumers and restaurants in Dili.

At the time of this consultancy it was not possible to collect data on how much is being produced in country. What is known is that the major areas of production are Baucau, Aileu, and Liquica. There are no records with the customs department about any imports of tangerines, lemons or limes. In 2013, 328 tons of oranges were imported valued at $165,000. A year later, a lot less, 48 tons were imported valued at $22,365.It is unclear if customs department is unaware of the difference of the products, as throughout the year tangerines, lemons particularly are widely available in the local supermarkets.

Figure 6: Pineapple and Citrus supply chain arrangements



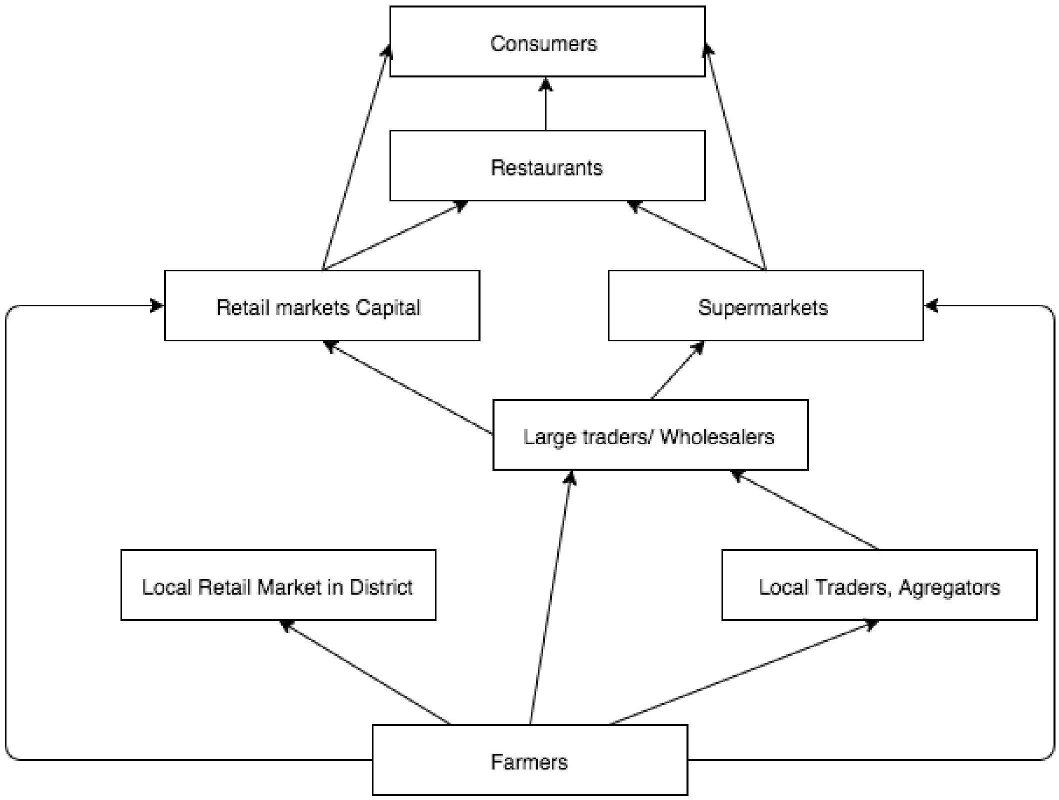
Watermelon

Major areas of watermelon production are in Viqueque and Covalima particularly close to the coastal areas. An unknown number of farmers produces large areas. At harvest time they have to rent trucks and bring it directly to Dili and sell to wholesalers and retailers in the open markets. Smaller farmers will arrange deals with local traders that then together with other items will bring watermelon to Dili and try to sell to local wholesalers and retailers in the open markets. A small amount is also sold within the large supermarkets.

Major limitations is farmers' lack of production knowledge. It is reported that most watermelon farmers will harvest most fruits at the same time following and the harvest decision is based just in appearance although they do not really know if it is ripe or not. This impacts the market, as many consumers will be discouraged to purchase this product as most of the time the fruit is not ripe.

Another major limitation is price of this product that can only be afforded by middle to high income of Timorese society. The high costs of transportation really drive the price up. Major harvest time is between March and June depending where the product is coming from. Depending on the time of the season, small (2-4kg) watermelons can range from $3 to $6 which is out of reach for most Timorese. The data is limited and there are no numbers of the total production in Timor-Leste.

Figure 7: Watermelon supply chain arrangements

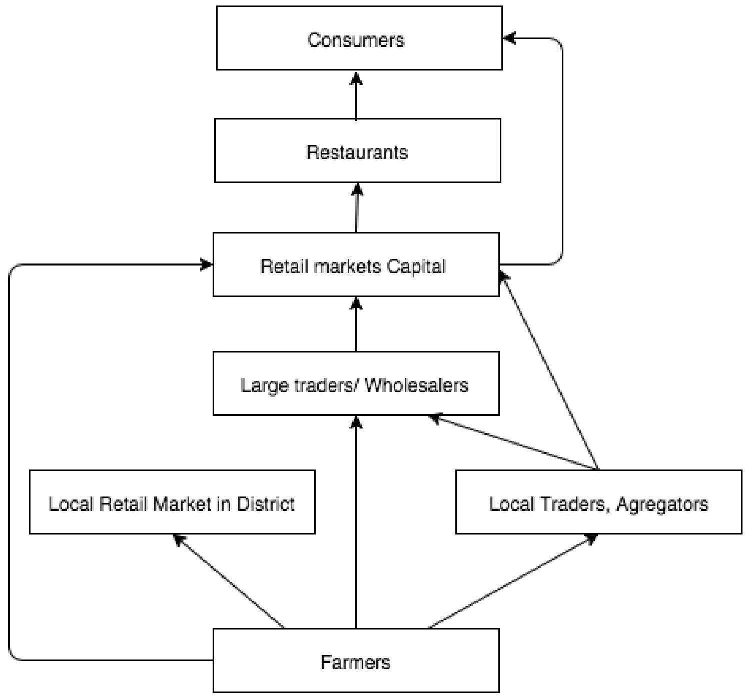


Papaya

Papaya is available almost all year around and is grown almost throughout the entire country. Additionally, almost all parts of the plant will have use and in different times of the year almost all parts of the plant will be consumed and commercialized. Papayas fruit is commercialized throughout the entire country and can be found in almost all markets although Dili is by far the larger consumer of the product as it can access better prices. The product is of good quality and surprisingly large size although there are various varieties in country, which are unknown. Input shops in Dili particularly carry some improved varieties that have been tried in some locations of the country with success. However, the large majority of production still comes from local varieties.

Most production tends to reach the market by wholesalers. Papaya during some times of the year plays an important role in food security and nutrition in many locations throughout the country that are affected by food insecurity or do not have the ability to produce vegetables. They will use papaya flowers and even the leaves and cook it and consume it as an alternative source of food. This sometimes is seen as market opportunity and therefore these products are particularly sold in the district markets. Similarly, like watermelon, there is no reliable data on the overall papaya production in Timor-Leste.

Figure 8: Papaya supply chain arrangements



Coconut

According to the FAO latest figures, in 2012 approximately 11,000 ha was planted with coconut with an estimate production of 16 million nuts in Timor-Leste. This puts the average production at 590 kg/ha[59]. It is reported that an estimate of 35% of the population at some point will use coconut as a component of their food security. The main growing areas are Viqueque, Baucau and Lospalos Districts[60].

The main variety of coconut seen is of the tall type with mixed populations of palms bearing round, triangular, green and brown young nuts. In Baucau and Lautem, they are estimated to be more than 25 meters high and approximately more than 70 years old. The palms are severely damaged by rhinoceros beetles. The poor agriculture practices of leaving old logs and stumps in the filed enable the development of this pest[61].

Harvesting is done four times a year through climbing. The main use of the product is for copra. Primary processing is done by the farmers and consists of breaking the nuts in three parts and scooping the fresh meat out. These are then either sun-dried until done or directly fire-dried in bamboo stilts. The quality of copra is poor due to lack of proper drying practices[62].

There is growing export potential for coconut and coconut products in the global market, particularly for processed coconut products such as copra and cooking oil. Although small amounts of copra are exported to the Indonesian market via West Timor, very little value-added processing is done to the existing resources. One opportunity lies in processing coconut oil to replace the

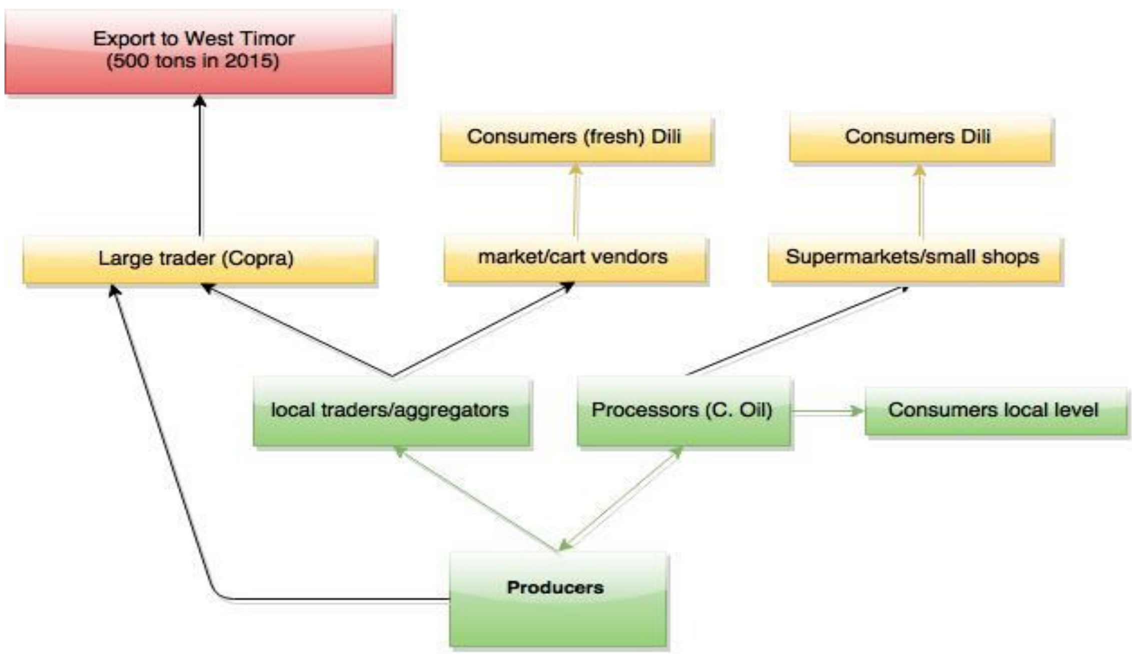
[59] Status and Potential of the Coconut Sector in Timor-Leste Gerardo Alora Santos, FAO Consultant, January 2015
[60] Ibid.
[61] Ibid.
[62] Ibid.

import of approximately US$2 million worth of this edible oil annually. There is also the potential to manufacture household products such as brooms, baskets and cooking implements[63].

Gajah Mada is a company that has been buying and exporting copra to West Timor. In 2014 it exported 300 tons and in 2015 up to July had exported already 500 tons. The quality is poor and the company believes that this is mainly due to poor drying processes. Regardless they find their product in high demand in Indonesia and believe they can expand their exports still. The company buys mainly from Viqueque, Lospalos and Ainaro districts[64].

Virgin Coconut Oil (VCO) has for a long time been promoted as a good source of income but local experience shows that this product has always failed to be competitive in the market especially with cheap imports from Indonesia. It has been reported that family farms that were assisted with technical assistance and equipment to produce VCO were unable to market their products in a profitable way resulting in families producing just for household consumption. There is some VCO that is produced and that reaches shops, supermarkets and fairs, but that are sold as a novelty product not necessarily as a competitive product. Coconuts are also very appreciated for their water and normally marketed and consumed in Dili by restaurants, and many street vendors.

Figure 9: Coconut supply chain arrangements



Candlenut

Candlenut is a cash crop that makes a contribution to Timor-Leste's economy. There are at least two businesses purchasing candlenut Acelda and Gadja Mada. Both companies buy from Baucau, Lospalos, Viqueque, Bobonaro and Ainaro districts. Part of the production is processed into oil and exported to Hawaii which has an organic certification[65], and the remaining is exported to West Timor by the land border.

[63] Timor-Leste Strategic Development Plan 2011-2030
[64] Information collected from meetings with Gajah Mada Company
[65] Information collected from meetings with ACELDA Company

As we can see in the table below in 2013 alone the national director of statistics reported a total of $143,000 of exports of candlenut.

Table 8: Exports of selected tree products

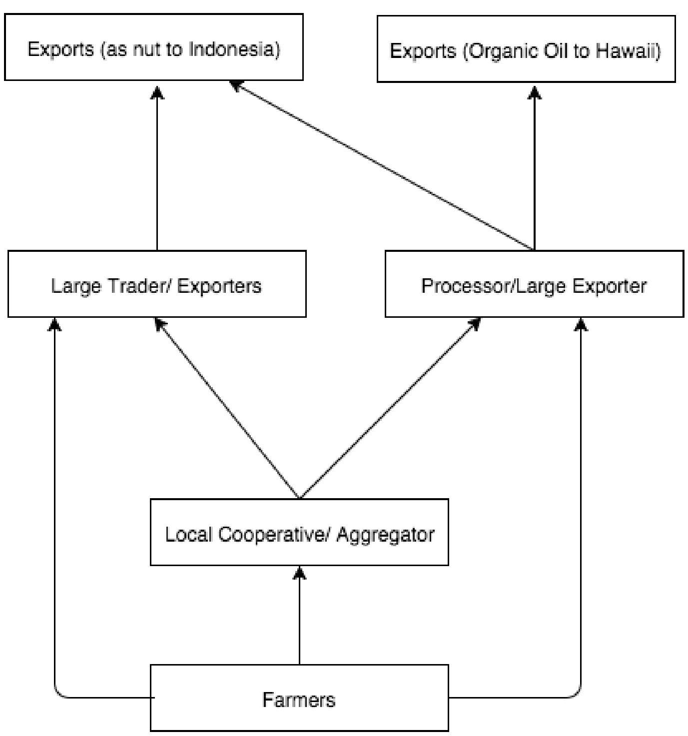
Commodities	2009	2010	2011	2012	2013
Teak wood/Ai Teka	41	312	85	10,926	17
Candlenut/Kami'i	60	60	40	125	143
Sandal Wood/Ai Kameli			398	834	
Aluminum/Besi Sucatas	29	15	18	23	33

Source: http://www.statistics.gov.tl/wp-content/uploads/2014/10/External_Trade_2013.pdf

During this consultancy Acelda and Gadja Mada were interviewed. – Based in Dili and with a processing plant in Baucau, all their candlenut purchase is exported. Acelda is the only company in Timor-Leste with organic certification of candlenut oil. This product comes from Baucau, Lospalos and Viqueque districts. Established in 2013 and operating in Timor-Leste just as an exporter, this company buys candlenut from Baucau, Viqueque and Bobonaro Districts.

Both companies reported a great demand from Indonesia for candlenut and find no difficulty exporting the product. If both were able to source more candlenut, they feel they would be able to export that as well. The biggest impediment to being able to obtain higher prices is the low quality Grade 3 available in Timor-Leste. Both companies concur that the lower quality is due to poor postharvest handling.

Figure 10: Candlenut supply chain arrangements.

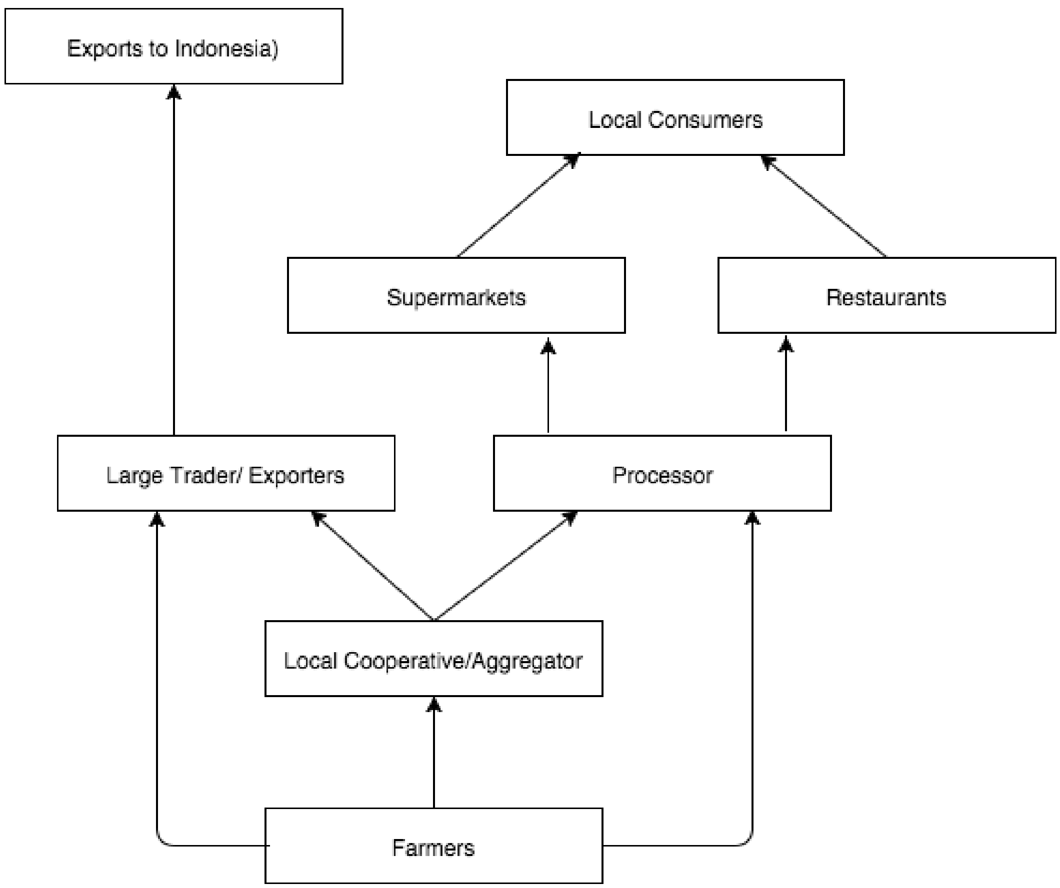


Spices

Pepper

There is very little information regarding the production and sales of pepper. Timor-Leste National Strategic Development Plan 2011- 2030 mentions pepper as one of the cash crops with potential to invest and develop the sector as it has high value in the international markets[66]. Major areas of production are Aileu, Ermera, Bobonaro, Ainaro and Manatuto. CCT has been promoting the planting of pepper and leveraging their connections with the coffee farmers to market also any existing pepper available. These are very small areas of production that each farmer owns and then sells to CCT. In 2014 CCT exported 6 tons of pepper to US market. Gajah Mada Company has also purchased and exported 4.5 tons of pepper to Indonesia. Timorganic company also purchases cloves but in very small amounts that then processes locally and sells in the local restaurants and supermarkets.

Figure 11: Pepper supply chain arrangements



Clove

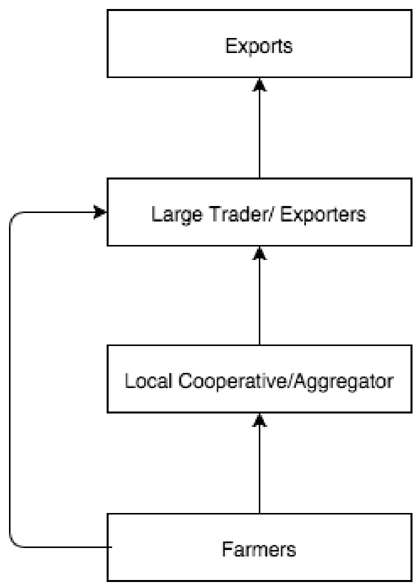
Similar to pepper there is very little or no information on production stats of cloves. And like pepper, cloves are also mentioned in Timor-Leste National Strategic Development Plan 2011-

[66] Timor-Leste National Strategic Development Plan 2011- 2030

2030 as one of the cash crops with potential to invest and develop the sector as it has high value in the international markets[67].

CCT has been promoting the planting of cloves and leveraging their connections with the coffee farmers to market also any existing cloves available. Normally these are very small areas of production that each farmer owns and then sells to CCT. In 2014, CCT purchased 8 tons of cloves from farmers. Currently, CCT holds in its warehouse 24 tons of cloves that should be exported to Indonesia for processing and packaging and then sent to US. However, Indonesia is currently holding a ban on imports of cloves and CCT is in the process to identify a way to process, package and the export to US directly from Timor-Leste[68]. Gajah Mada Company has also purchased and exported 3 tons of cloves to Indonesia.

Figure 12: Clove supply chain arrangements



Annuals

Red Bean

Red bean is seen as a major food security crop and at the same time a cash crop. The major areas of production are within the districts of Aileu, Ainaro, Bobonaro and Covalima. The crop is harvested within the months of February, March and April and in some regions farmers are able to plant a second crop depending on the availability of water. Majority of farmers uses local varieties including climbing and dwarf bean varieties from which they store some seed for the following crop season. Particularly in the first crops season some farmers will do intercropping with maize[69]. Poor production practices, lack of inputs limits the overall production and lack of market access limits the interest of farmers to invest and increase production[70].

Trying to address the issues of poor production, Seeds of Life has introduced two climbing red bean varieties that is expected to be released to farmers soon:

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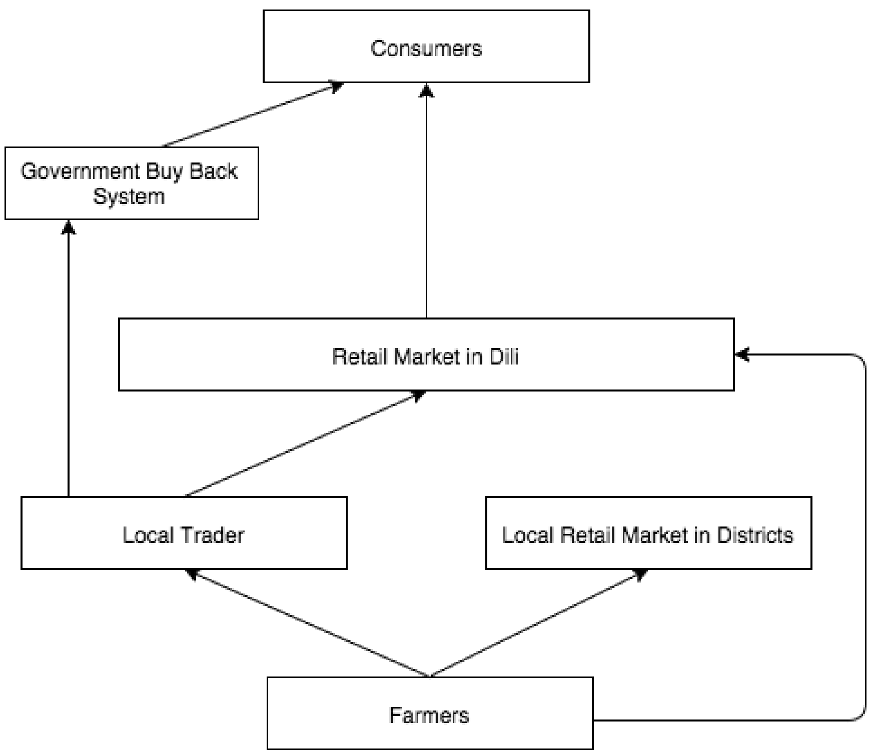
[67] Ibid.
[68] Information collected from meetings with David Boyce.
[69] USAID DAC project Presentations Result of Farmers Practice Growing Local Beans report
[70] Ibid.

> **Mwirasi** from Rwanda: A high yielding red bean.
> **RWV 1384** from Rwanda: A high yielding red bean that's later to flower but has longer pods[71].

Based on the Inter Ministerial Food Security and Nutrition Task Force Report from September 2012 up to September of that year the government had purchased 173 tons of red beans from local producers. This report also references that there no imports of red bean took place that year.[72] Farmers that can access regional markets will sell to local traders that then sell to government programs or bring it to Dili and sell it to open market retailers (volumes and margins are unknown). At the open markets in Dili red bean is sold in small cans. USAID DAC report lists the 2012 price at the local market at $2.5/Kg. The Gajah Mada, has reported that tried in past to purchase red bean for export, but the farmers and traders price expectation was too high and that was not possible to compete with Indonesian prices[73].

Figure 13: Dry Beans supply chain arrangements



<u>Sweet Potato</u>

Sweet potato is widely produced throughout the country. Although local varieties have several issues from the lack of nutrition content, poor yields and long crop cycle, it is seen with high potential to alleviate malnutrition and food insecurity.

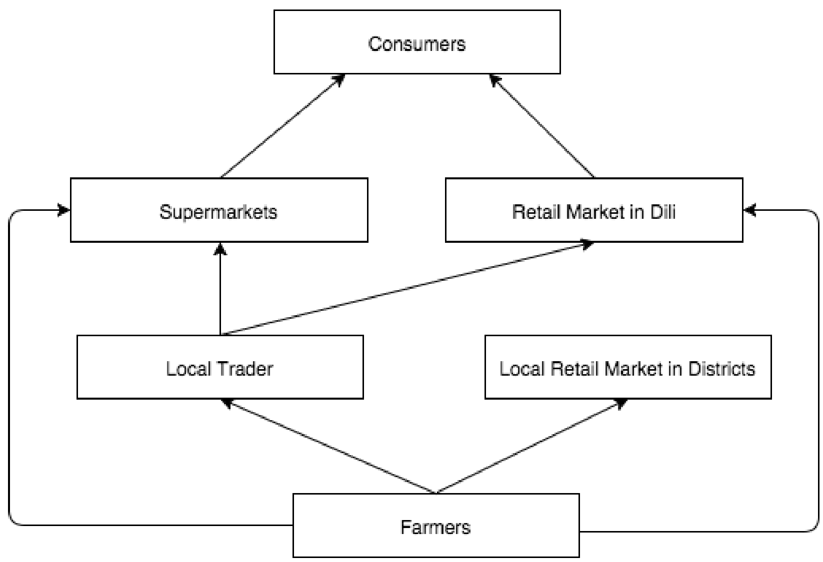
Seeds of Life over the last few years tested, successfully selected and distributed improved varieties. These are adapted to local conditions and can produce double in under half of the growing season compared to the local varieties. These varieties are *Hohrae 1*, *Hohrae 2* and

[71] Source: http://seedsoflifetimor.org/music-to-the-tastebuds-deep-purple-sweet-potato-and-other-varieties-coming-soon/
[72] Q2 Task Force Report Final 24 Oct_tetum
[73] Information collected from meetings with Gajah Mada Company

Hohrae 3. There is currently 60 seed production centers, and between 2013 and 2014, 500,000 sweet potato cuttings were distributed to farmers throughout the country.[74]

Although sweet potato has been used as a way to improve malnutrition and food security, with the increased production, more product will also reach the local markets, creating a good source of income. In Timor-Leste, the sweet potato leaves are also consumed and commercialized especially in times of reduced availability of vegetables. The majority of sweet potato that is sold is brought to the district markets and sold to local traders who then bring it to Dili's large open markets and sell it do retailers. As with other products, there is no data available regarding total country production and prices.

Figure 1: Sweet Potato supply chain arrangements



Tomatoes

Based on data from the MAF the total production of tomatoes in 2012 was 1,463 tons, with the largest production coming from Aileu, Ainaro and Baucau, this data is for all types of tomato[75]. Based on the MAF's National Directorate General of Customs during 2013 and 2014 there were not any imports of tomatoes. However, this data is questionable as in 2011 the same agency reported that 1,138 tons of tomatoes were imported.[76].

In Aileu district there is 2 hydroponic greenhouses producing beefsteak tomato and a large number of farmers producing other types of tomatoes that sell directly to supermarkets under a contract farming system. In Baucau there is one producer/trader (Dr. Philip) that produces large amounts and also buys from local farmers and then sells directly to local traders, to wholesalers in Dili and supermarkets.

Throughout the country there are many tomato producers that will sell their produce directly to traders that then market that produce to the main markets in Dili and other that sell within local

[74] Source: http://seedsoflifetimor.org/60-sweet-potato-production-centres-now-operate-in-13-districts/
[75] MAF National Directorate of Agriculture and Horticulture
[76] Ministry of Finance national Directorate General of Customs Imports 2011

district markets retailers that conduct their sales by the road side or within the regional markets. The tomato market is as many other products with inconsistent supply and prices.

Leaf Greens

Based on the data available from MAF, in 2012 the national production of mustard leaves was 5,257 tons nationwide[77], the document references just Mustard. These are considered the easiest and fastest growing vegetables, which represents very little risk, rapid return and particularly when water is available in the recent years there is oversupply of these vegetables particularly in the Dili market.

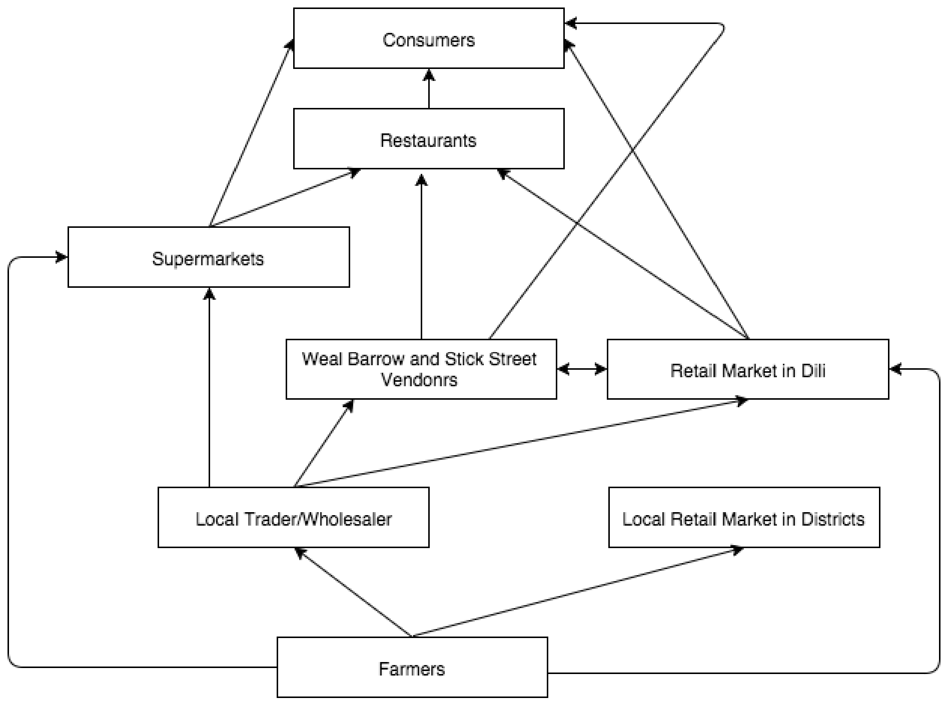
Many farmers have contracts with supermarkets and wholesalers from Dili for the production of these vegetables. The majority are farmers that will not have any pre-established arrangement. Once close to harvest they will try to attract a local trader to buy their product or once harvested either try to sell it by the side of the road to any trader passing by. Alternatively, they will take it to local district market and sell it there to individuals, local retailers or wholesalers. As a last resort, the farmers themselves will rent transport and will bring the product to the main regional markets or Dili to try and sell their produce. This group also includes the farmers that do plant these vegetables just once or twice a year. The MAF figures show no imports in 2013 and 2014.

Chilli Pepper

Kmanek Supermarket in 2014 reported a purchase of 4,000kg of chili pepper (reported as Long chili), and MAF in 2012 reported that the national production of chili was 2,877kg nationwide[78]. The second figure refers to production of all types of chilies produced in country and not only chili pepper. Based on the MAF data from 2013 and 2014 there were no imports of this product.

[77] MAF National Directorate of Agriculture and Horticulture
[78] MAF National Directorate of Agriculture and Horticulture

Figure 2: Tomato, Leaf Greens and Chili Pepper supply chain arrangements



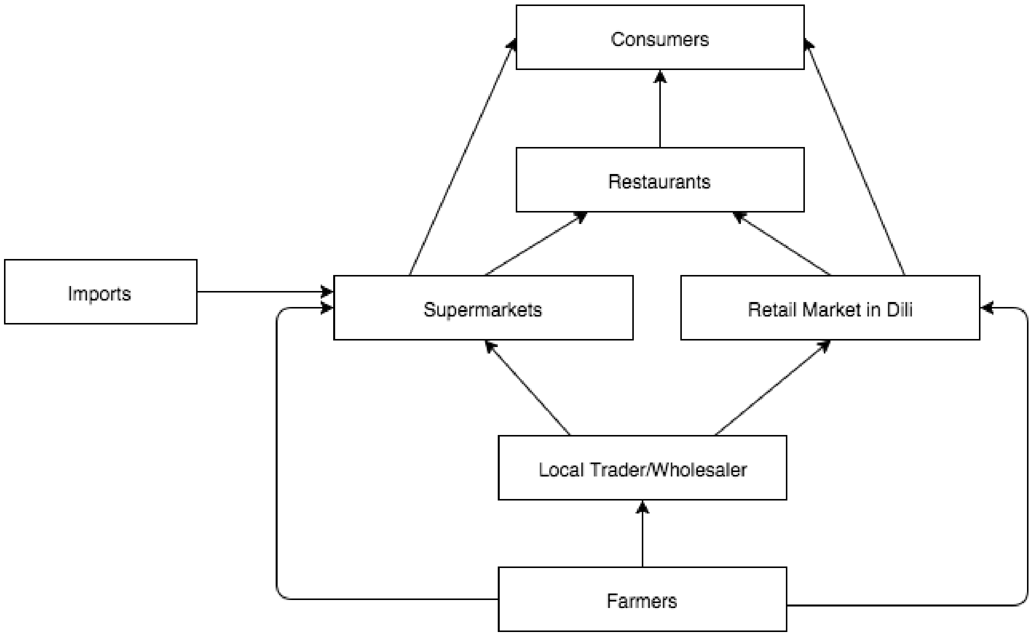
Broccoli and Cauliflower

These products are relatively new to Timor-Leste. In 2009 and 2010 these product were introduced by USAID DSP project[79] with intent of import substitution. However, lack of knowledge and resistance to produce crops that require long term in the field led to only residual amounts (below 1000kg/year) of production, despite the farmers being under contract farming arrangement with Kmanek. Times have changed, and the production now has increased as farmers capacity improved. Additionally, access to better inputs is available resulting in improved production. The farmers associated with Kmanek were able to produce 18.5 tons of broccoli and 25.3 tons of cauliflower in 2014[80]. Today not only Kmanek and its farmer partners are producing broccoli and cauliflower. Several other supermarkets and wholesalers have engaged with farmer group in order to produce these crops.

There is a possibility to increase the annual production as the MAF National Directorate General of Customs Imports of 2014 still shows imports of both of these products.[81].

[79] USAID Dezenvolve Sector Privadu Project
[80] Kmanek Agricultura Production Record 2014
[81] Ministry of Finance national Directorate General of Customs Imports of 2014

Figure 3 Broccoli and Cauliflower supply chain arrangements



Recommendations

The Avansa Ag team reviewed the consultant's report, and extrapolated the following recommendations from the observations. We have already begun to tailor interventions to address some of them:

> ***Facilitate proper use of input supplies***. As discussed above, as the availability of input supplies increase in Timor-Leste, it becomes even more important for government, farmers, and private sector suppliers to understand the pros and cons of organic and synthetic pesticides and fertilizers. The project should work with stakeholders in both the public and private sectors to ensure that there are proper mechanisms and technical assistance in place on safe-handling and use of these products. This will include aspects of consumer protection for producers/users.

> ***Support GOTL in relevant policies areas including in regulation of input supplies.*** There are several areas where refinement in policies could strengthen the agricultural enabling environment. For example, the current system requires a letter of approval from quarantine authorities for imported fertilizer which is not generally a best practice. The project should facilitate public private dialogue around key policy areas with GOTL, local government, the private sector and farmers, and work with GOTL to develop solutions which ensure sufficient and safe regulation of inputs, but without unnecessarily constraining the private sector. As part of this, the project should review with GOTL and the private sector the quality, the origin, and basic rules on storage, purchase, transport, and application of these products to improve the effects of these inputs.

> ***Tailor interventions to the needs of specific producer groups - subsistence farmers, semi-commercial farmers, and commercial farmers:*** As indicated above, there are three types of producer groups: subsistence farmers, semi-commercial farmers, and commercial farmers. These groups have distinct needs and exposure to farming as a business. The project should design interventions to strengthen producers' ability to function within their level, and then expand them to the next level as they are able. For example, subsistence farmers need assistance in improving the timing and variety of production to increase their ability to meet household consumption needs. As they advance, they can also be assisted to expand the cash crops that they engage in so that they can develop into semi-commercial farmers over time. Semi-commercial farmers (the largest group in Timor-Leste) and commercial farmers need interventions at a higher level which will help them improve productivity and access to market.

> ***Strengthen the long term relationship between farmers and wholesalers/traders****:* Exchanges between farmers and wholesalers/traders tend to be opportunistic and one-off. As a result of that, many producers are literally walking their products to roads or local markets to sell them at a relatively low cost. In order to improve the ability of farmers to get their products to urban markets which could command a higher price and quantity, the project should design interventions which would improve the long term relationship between farmer groups and wholesalers and traders so that both groups see the mutual benefit of collaboration. The project could also help expand and strengthen the farmer/wholesaler model through better organization of farmer groups.

> ***Review avenues of technical assistance services:*** There are a number of extension services currently operating, both in the public and non-governmental sectors. The project should review areas of opportunities for collaborating and strengthening existing systems in areas that support program objectives.

- ***Engage with local government.*** The project should engage with the local government and consider streamlining the data collection system in the districts. This would also provide a great assistance to the local administration. As mentioned before, it can be difficult to access correct information regarding the groups that operate in the districts, whether fully registered organizations or just informal groups. In the past, MAF was distributing tractors throughout the country and one prerequisite was to be registered at the district office of MAF as a group that was working together in some way to produce a crop in order to be eligible to receive the tractors. Avansa Ag should establish good relationships with the local district MAF offices. This would also allow the project to work thru these offices to collect information on active groups, and verify their level of activity and if there is potential to engagement or not.
- ***Communities will require long term engagement.*** Timor-Leste rural farming communities are in most cases isolated, suspicious, distrustful of newcomers and concerned with making sure that they put enough food on the table, and therefore risk averse to try things that they do not know. Therefore it is essential for the Avansa Ag team to understand that communities will require long term engagement to actually change traditional beliefs, production systems and fully adopt new techniques, and ways of doing business. Strong trustworthy relationships with the communities will facilitate the implementation of the various activities and overall increase the possibility of sustainability beyond project life and achieve the overall goal of having a real impact in the Timorese economy.
- ***Access to reliable data***. This is extremely difficult in Timor-Leste. Therefore, the consultant believes that to be able to have more concrete data, and allow the project to make sound decisions in planning during the future implementation of the project, a team should be hired to be able to go at least to the targeted districts where the project is going to be working to collect extensive data from input supply availability and origin, food crops in cash crops production; recording existing market linkages that might exist between farmers in local traders and how those local traders get their product to largest market centers being at the district level or in Dili. With this information the Avansa Ag Project would be in a much better position to be able to determine which areas to focus and also to understand the extent of the intervention necessary to stimulate production or stimulate the market. *[Note: The project Annual Agribusiness Survey will help to accomplish this.]*
- ***Disseminate data and avoid any double counting***. Any data collected during the life of the project should be disseminated with the proper institutions so that there is no double data being counted. *[Note: The Annual Agribusiness Survey will be disseminated.]*

Attachment 1: List of People Met by the Consultant

30 of July	Meet with Yusufo Meneses, RDPIV; Camoes Program Manager.
31 of July	Meet with John Dalton, Seeds of Life Team Leader.
03 August	Meeting with Clarence Lim, Kmanek Supermarket Owner
04 August	Meeting with National Director of Agriculture and Horticulture Ministry of Agriculture of Timor-Leste
	Meeting with Kenny Mintura, manager of PT. Gajah Mada, Exporting Company
05 August	Meeting With David Boyce from ANCBA
	Meeting with Eugino Freitas owner of company Acelda.
06 August	Meeting with Antonia de Jesus, vendor at Taibessi Market
	Meeting with Maria Amaral, vendor at Taibessi Market
	Meeting with Pedro Martins, vegetable cart vendor
	Meeting with Antonino Cabral, tangerine street vendor
	Meeting with Joao Almeida, vegetable cart vendor
	Meeting with Joaquina Mendonsa, vendor at Lecidere Market
	Meeting with Filomena Gusmao, vendor Pertamina Market
	Meeting with Jurgen Glenbolksi, Owner of Timorganic
07 August	Gianluigi Negroni, MAF Advisor
11 August	Meeting with local vegetable trader Joanina Soares
	Meeting with local vegetable trader Faustina Moreira,
	Meeting with local vegetable trader Carlito de Sousa

Attachment 2: Consultancy Time Line

30 of July	Desk review and relevant reports identification Set up meetings with SOL, RDP4,
31 of July	Desk review and meetings
03 August	Review documentation provided by the team
04 August	Meetings various
05 August	Various meeting and desk review
06 August	Meeting with Market vendors and other traders
07 August	Meeting MAF advisor Gianluigi Negroni, Start Drafting report structure
08 August	Report writing
10 August	Report writing
11 August	Report writing and meetings
12 August	Report writing
13 August	Report writing
14 August	Report writing
15 August	Report writing
17 August	Report writing
18 August	Report writing
19 August	Report writing and submission of first draft to Avansa team
20 August	Conducting improvements to draft report and finalizing the diagrams
24 August	Meeting with Avansa Team and discussion of the draft submitted
25 August	Incorporating suggestions from Avansa team and submission of Final version of the report.

Attachment 3: Bibliography

Timor-Leste Government, Ministry of Agriculture Strategic Plan 2014-2020

USAID DAC, The Fresh Vegetable Value Chain in Timor-Leste

Performance Evaluation of the USAID/Timor-Leste Consolidating Cooperative and Agribusiness Recovery (COCAR) Project Final Report 30 March 2013

Seeds of Life, Complementarity between Maize Seed Production and Good Storage report

Market Development Facility; sector Assessment Report and Growth Strategy for Agribusiness, Processing and Rural Distribution – Timor-Leste

Pilot Project of Sustainable Inputs and Services Rapid Assessment Report, Mercy Corps and Seeds of Life, 2014

Status of the coconut sector in Timor-Leste January 2015

Monash University, Coffee Household Assessment Report

The Fresh Vegetable Value Chain in Timor Leste, November 2013. USAID’s DAC project , DAI