

Title: Value Chain Analysis and Intervention Report: Value Chain of Fresh Food Products for Hotels and Restaurants in Labuan Bajo

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Value Chain Analysis and Intervention Report

VALUE CHAIN OF FRESH FOOD PRODUCTS FOR HOTELS AND RESTAURANTS IN LABUAN BAJO



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1. INTRODUCTION

1.1 INTRODUCTION TO THE PROJECT

This report is written by Juultje Blom, Silvia Boldeanu, Eunice Semeleer and Amber Spierings as part of the course “International Field Project” of their academic program Bachelor of Science in Tourism. The project is commissioned by Wageningen University, NHTV University of Applied Sciences, DMO Flores and Swisscontact. The project took place in Labuan Bajo, on the island of Flores in Indonesia, where primary data was collected in order to answer the research question “How is the fresh food value chain for hotels and restaurants in Labuan Bajo performing and what are the opportunities and constraints to make a sustainable fresh food value chain, in terms of enhanced community involvement and improved waste management?”

This report first expands on the problem that has been identified by DMO Flores and Swisscontact. Before we present our main findings, we will explain the research methods that were used to gather the data. The findings are substantiated by the data and analysed through coding, which created themes. The market demand and economic performance of the value chains are calculated by numbers and indicators from the data. Value chain maps of each of the fresh food value chains are visualized and together with the themes provide indications for opportunities. Opportunities seldom come without constraints, these are identified as well. Strategic solutions are provided along with linkages to the value chain operators and support organizations. Finally, we will expand on our findings by acknowledging its limitations and critically confronting it to the existing literature.

1.2 TOURISM DEVELOPMENT ON FLORES

Tourism can positively contribute to a country’s GDP, direct employment and government revenues (Scheyvens, 2011) and with international tourism forecasted to be the most important sector in world trade by the end of the century (Witt et al. 1995), tourism has become a preferred economic growth activity for many developing countries (Telfer & Geoffrey, 2000). This is certainly also true for Indonesia, where the tourism sector contributed \$US 85 billion (9.1%) to Indonesia’s GDP and employed directly and indirectly 9.4 million people in 2013 (WTTC, 2014). The tourism sector in Indonesia is forecasted to grow at an annual rate of 4.6% over the next decade (WTTC, 2014). Tourism is an opportunity for developing countries for establishing economic growth and economic diversification, however the tourism industry has been simultaneously criticized for having high external leakages and offering scant benefit to poor people in relatively less developed parts of the world (Bryden 1973; Britton 1982; Cole 2008). The same applies to Indonesia, where tourism is only concentrated on certain islands and even only in particular regions of these islands (Hampton & Jeyacheya, 2015). This, furthermore, has led to economic disparities and social inequalities between the islands, between the regions and thus between the local communities.

Flores, one of the Lesser Sunda Islands east from Java, is an example of one of the islands of the Indonesian archipelago where tourism developed fragmented (see Figure 1). As tourism destination Flores was long hidden in the shadow of its more famous neighbour Bali, however Flores is now developing as a tourism destination of its own. Tourism on Flores is mainly concentrated in Labuan Bajo, the westernmost region of Flores, presumably because of Labuan Bajo’s harbour, its airport with regular flights and its location nearby Komodo National Park.



Figure 1. Map of Flores Island, Indonesia. Adapted from Google Maps (2015).

Still, Flores is one of the poorest regions in Indonesia. In terms of Human Development Index (HDI), Indonesia is Low Human Developed and the Nusa Tenggara Timur province – Flores is one of the major islands of NTT – appears 31st in terms of wealth out of 33 regions in Indonesia (UNDP, 2015; Swisscontact, 2009). Besides the economic inequalities between the regions and local communities on Flores, Flores is currently also facing challenges with the management of waste. Waste is being dumped on land and at sea and is often argued to be one of the most urgent issues to be addressed (Eco Flores, n.d.).

One of the organizations that are concerned with the social and environmental challenges that Flores is currently facing is DMO Flores. DMO Flores is a regional Destination Management Organization established in 2011, which aims to support the communities on Flores with developing their own products, providing training in the field of service quality and working together with governmental organizations to optimize the destination management (DMO Flores, n.d.). Swisscontact, a business oriented international development agency, supports DMO Flores and aims to improve the living standards in Indonesia by promoting access to economic participation, equitable for all parts of society (Swisscontact, 2015). They implemented the WISATA project to increase employment and income of communities in Flores in particular by supporting both the communities and government in developing Flores as a travel destination, while in the same time protecting its natural and cultural identity' (Swisscontact, 2015).

DMO Flores argues that tourism on Flores has the potential to develop as an important economic resource, while at the same time improving the quality of life of people of Flores (DMO Flores, n.d.). Because DMO Flores believes in a self-help approach, DMO Flores has identified the development of Small-to-Medium sized Enterprises (SMEs) in Flores as an opportunity for enhancing community involvement by increasing their economic participation and thus improve the living standards for the communities. In addition, when the local community is (more) economically participating in the tourism sector, the waste problem is more likely to reduce while the workers live, play and raise families in and around their sites of work and thus have a stake in improving the management of (solid) waste. Moreover, tourism can take the lead in the waste problem, while a clean environment is important for the positive experiences of tourists and a polluted environment will definitely be a 'dissatisfier' for tourists' experiences. There is, however, a lack of knowledge on how to enhance the community involvement and improve the waste management in practice and therefore we conducted field research on Flores, more specifically in Labuan Bajo, to identify opportunities to improve both.

Because food is one of the essential elements of tourist experience nowadays (Hall, Sharples, Macdonald & Cambourne, 2004) and food purchases constitute of one-third of all tourist expenditures (Belisle, 1983), the fresh food value chain represents an opportunity to stimulate economic participation of the local community. The fresh food value chain (FFVC) of Labuan Bajo provides opportunities to stimulate community involvement and improve the (solid) waste management by for instance promoting 'made in Flores' products and improve or recycling the packages of the fresh foods, but moreover the FFVC provides chances to develop SMEs.

1.3 OBJECTIVE OF THE RESEARCH PROJECT AND RESEARCH QUESTIONS

Based on an analysis of the performance of the fresh food value chain of hotels and restaurants in Labuan Bajo, the objective of this research is:

To define opportunities and constraints for enhanced community involvement and improved solid waste management in the fresh food value chain of hotels and restaurants in Labuan Bajo.

The main research question of this research is therefore:

How is the fresh food value chain for hotels and restaurants in Labuan Bajo performing and what are the opportunities and constraints to make a sustainable fresh food value chain, in terms of enhanced community involvement and improved waste management?

The following research questions guided us during the research process and will combined provide the answer to our main research question:

- What value chain actors are in the fresh food value chain, what is their role and how are they related to each other?
- How is the fresh food value chain economically performing, in terms of turnover and sales volume, at each stage of the value chain?
- What are the opportunities and constraints to enhance indirect community involvement through SME development?
- What are the opportunities and constraints to improve the (solid) waste management through the fresh food value chain?
- What are directions and solutions for both the value chain actors to intervene in the FFVC and for supporting value chain actors to support this intervention?

1.4 DEFINING IMPORTANT CONCEPTS

1.4.1 Sustainable value chains

Value chains can range from being very simplistic - including only a few actors to being very complex, involving a large number of actors that are essential for the production of a particular good or service. For the purposes of this report, a value chain is defined as 'an economic system that can be described as a sequence of related business activities (functions) from the provision of specific inputs for a particular product to primary production, transformation and marketing, up to the final sale of the particular product to the consumer and the set of enterprises (operators) that performs these functions, i.e. the producers, processors, traders and distributors of a particular product' (GIZ, 2007). Thus the analysis of the value chain entails a focus on the 'vertical' relationships between buyers and suppliers from beginning to end - an analysis of the production of a good or service from producer to consumer (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010).

Moreover, in this report we will define opportunities and constraints for a sustainable food value chain (SFVC), in terms of enhanced community involvement and improved waste management. A SFVC can be defined as 'the full range of farms and firms and their successive coordinated value-adding activities that produce particular raw agricultural materials and transform them into particular food products that are sold to final consumers and disposed of after use, in a manner that is profitable throughout, has broad-based benefits for society, and does not permanently deplete natural resources' (Neven, 2014, p.7).

1.4.2 Solid waste management

As defined in the introduction of the research project, solid waste is a problem in and around Labuan Bajo. Disposal and improper treatment of solid waste has been identified as potentially harmful for environmental and human health. In the case of developing countries, waste streams consist for 0-70% of recyclable waste and 17-80% of organic waste (Troschinet & Mihelcic, 2009). Within our framework of the value chain of fresh foods in hotels and restaurants, one of our concerns is the by-production of solid waste in this sector. That the hotel and restaurant industry produce a decent amount of solid waste may not come as a surprise. The problem of plastic waste on Flores and more specifically in Labuan Bajo is known, and multiple organizations are already trying to contributing to a solution. Recycling plastic waste gathered from the beaches and sea will reduce the problem, however we will define opportunities on increasing the potential to manage solid waste.

1.4.3 Community involvement

Improving community involvement in the FFVC is an important part of the objective of this research project. To consider a tourism initiative a ‘community benefit tourism initiative’, it should at least have as primary objective to improve the livelihood and include economic, social and/or environmental benefits for the members of the community. Since opportunities for increasing the environmental benefits for local communities is already part of the objective on improving the solid waste management, we will define improving community involvement as increasing economic participation of local communities in the FFVC, with special focus on recommending chances to develop small and medium enterprises (SMEs).

2. RESEARCH METHODOLOGY

The methodology used in this study is based on the first three modules of the VC promotion methodology developed by GIZ (2008), which include (1) the identification of the value chain to promote, (2) an analysis of the value chain and (3) determining a chain upgrading strategy. Moreover, we will also identify roles for potential public and private supporting organizations, which are partially based on the fourth model of the GIZ ValueLinks Manual (2008).

2.1 DATA COLLECTION METHODS

Data for this case study on the FFVC of hotels and restaurants in Labuan Bajo is collected in the period from 25 April to 8 May 2015. We started by observing the research area to become familiar with the environment. Then, we observed the selling processes on the local markets at respectively Pasar Tradisional, Batu Cermin (fruit and vegetable markets) and Pasar Ikan (fish market). During the market visits, we also conducted 10 informal themed conversations with farmers and sellers on these markets. Then we choose to start with observations in hotel and restaurants in Labuan Bajo by checking both the diversity of products listed on their menus as well as any additional information on the origin of the products. The observations were processed by taking field notes.

Subsequently, we conducted 13 semi-structured interviews with owners and/or managers of hotels and restaurants using purposive sampling with two teams, each consisting of two persons. The design of the semi-structures interviews were based on predetermined questions (see Appendix 1). One of the big advantages of semi-structured interviews is that the interviewers are in control of obtaining specific information from the interviewee, but at the same time can follow other topical trajectories in the conversation when appropriate (Bernard, 1988). This approach also enabled us to collect data on topics we did not know were important to the value chain actors, especially important since we emphasize in this report on a self-help approach of value chain actors in value chain intervention. Furthermore, through snowball sampling we were able to get in contact with more key value chain actors, namely farmers, intermediaries and potential supporting organizations. We conducted 1 semi-structured interview with an intermediary and 3 semi-structured interviews with farmers in our FFVC. In addition, we had 2 open interviews with potential supporting organizations. All interviews were either recorded by taking notes or audio-recorded, depending on what we felt was most appropriate to do. Two local translators helped us translating the Indonesian conversations to English.

On the final day of data collection, Friday May 8th, a stakeholder meeting was organized, which allowed us to present our research experiences, a draft of the research findings and our opportunities for improvement to the stakeholders. This stakeholder meeting also enabled the stakeholders to provide us with feedback or perhaps indicate what they have missed in our draft findings. Afterwards, we organized a small discussion group with the stakeholder to find out what according to them the most feasible opportunity for improvement is and which actions are needed to realize these opportunities. See Appendix 3 for a complete research log on the data collection phase.

2.2 DATA ANALYSIS METHODS

The field notes of the observations, themed conversations and the interviews were typed out, the audio-recorded interviews were transformed into a semi-verbatim transcription. All interviews conducted were analysed to identify codes. A total of 26 codes were identified according to the transcriptions from which six final themes were identified: (1) handling of waste, (2) communication between actors, (3) complaints about quality & quantity of products, (4) water shortage problems (5) lack of trust and (6) power relations. These themes enabled us to compare if recurring themes matched our expectations, in other words if what value chain actors thought was important was comparable to what we thought was important to them.

2.3 ETHICS OF OUR RESEARCH PROCESS AND MEASURES TO ADDRESS THESE ISSUES

When conducting research in a different environment than your own, different ethical issues may arise. According to Lovelock & Lovelock (2013), students of tourism and researchers are moral agents and therefore are beings capable of actions that have a moral quality and actions that can be labeled as good or evil in a moral sense. We were aware that we encountered some issues regarding ethics when conducting our research, but with our knowledge in ethics, we have acted appropriately to address these as best as possible during the research process. Ethical knowledge may not solve all our issues, but it helped us interpreting and communicating with others (Smith & Duffy, 2003) along with making us aware of our behavior and actions about what is right and wrong, good or bad. For conducting our research we have adopted the code of ethics in regulating research and therefore tried to minimize the harm brought to participants, collaborators and the general public (Aguinis & Henle, 2002).

When it comes to issues regarding the ethics of our research, we did have some preconceived ideas to what we thought would be issues that we will encounter in the field. Cultural differences became a barrier when trying to recruit participants, therefore it was quite a concern and challenge during our research process. We as researchers lacked in certain knowledge regarding the local language, customs, traditions, norms and values. Furthermore, we think that our presence and our Western background may have influenced how the participants perceived our intentions to be in conducting a research closely related to their daily lives.

Lastly, the locals felt differences in social status between the researchers and themselves. It was never our intention to establish feelings of superiority upon our participants. On the contrary, we as researchers tried to do our best to make the participants feel at ease and tried to gain their trust. The interviews were in an informal setting, in the case of restaurant owners or managers often in their own restaurant. In the case of other intermediaries and actors in an environment which they decided upon, their participation was voluntary and we made sure that they knew they could withdraw from the interview whenever they wanted. The participants have been informed on the research purposes and how the results will be published and distributed. Furthermore, the identities of the participants will remain anonymous and their privacy is protected and respected by numbering the participants instead of using their names in the transcripts of the interviews. Our main aim is that being part of this research will eventually benefit the participants and that these benefits will outweigh the risks. We focused our attention on reducing inappropriate, uncomfortable, or personal questions that the participant may not want to answer. Especially workers in the informal economy we think are the most vulnerable to do research on. Dealing with people in vulnerable situations and trying to make them feel comfortable, staying neutral and professional yet doing what is morally right was our main goal.

3. FINDINGS

3.1 DATA ANALYSIS AND RESEARCH FINDINGS

After analyzing the data by coding the interviews, conversations and observations, we came up with final themes that cover a large part of the data. The first three themes are obvious because we specifically asked the respondents about waste, communication and relationships between actors and about quality and quantity of products. Lack of trust and water shortage are themes that have been identified by inductive reasoning.

3.1.1 *Handling of waste*

As described in the introduction, the management of waste is a problem in Labuan Bajo and Flores in general. In interviews, we asked respondents how they handle the restaurant's waste and what their thoughts are on waste in Labuan Bajo. Most respondents separate the waste between organic and non-organic, only three respondents say they do not separate the waste. Organic waste includes mainly leftovers and food waste and is given to the employees of the restaurant. This waste is then used as feedstuff for the pigs of the employees. Non-organic waste includes plastic and is picked up by a truck of the government. Not all the respondents are satisfied with this service; three respondents say they pay a private company or individual a fee to pick up their trash. Several participants mention that both of these services bring the waste to a dumping place outside Labuan Bajo called Kapper.

There is a waste bank that collects and separates waste, also situated outside Labuan Bajo. The initiator of this waste bank believes that "rubbish is ugly and bad for tourism" (respondent 18). He believes hotels and restaurants do care about the environment since most of the waste is coming from this sector, however he has no contracts with them. If someone brings waste to this bank, he or she will receive an amount of rupiah, depending on what type of waste was delivered. The waste bank will then sell the waste again for recycling and should be shipped to Java. There should be enough waste in a container, otherwise, the earnings do not cover the cost for shipping the waste to Java (respondent 18).

3.1.2 *Communication between actors*

The communication between actors refers to the relationships and how they exchange information with each other. The relationship between the actors of the value chain will be visible in a value chain map in the section on Value Chain Maps. The way of communication between the different stakeholders was not necessarily the most striking finding. However, it is noteworthy that only one restaurant out of 13 participating restaurants responded to have a written agreement with their suppliers. The other restaurants said to call their suppliers to tell them what they need, or go to the markets themselves. This ordering process can also be viewed as a verbal agreement between actors, although the consequences of not meeting these agreements are not clear. We also found that the demand and supply of different value chain actors sometimes do not meet each other, which we also relate to communication between actors.

3.1.3 *Complaints about quality and quantity of products*

Due to numerous reasons, not all of the restaurants are satisfied with the quality and quantity of the supplied fresh products. Particularly vegetables and fruits seem vulnerable to what restaurants demand (see also the section on Market Demand). Nevertheless, respondent 1 reported to be dissatisfied with the local beef and respondent 13 is in particular dissatisfied with the fish. According to them, there is something wrong with the texture, moisture and taste of the local fish (respondent 13).

3.1.4 *Water shortage*

Then, a number of respondents reported to have problems with the water supply. The restaurants get water supplied by the government every 3 days or twice a week. Because the supply is not enough they have to buy water from a private company where 5000 liters is an average amount. Especially in the months of July and

August, the water supply is reported to be the least available. A certain fee has to be paid to the government, even if the pipe is empty, otherwise the connection will be closed (respondent 3).

Not all the participants mention to have a water shortage. In the opposite case, respondent 12 mentioned cooperation, together with 5-7 other hotels, where they collectively pay a fee to the government for a bigger water pipe for a water supply of 4 times a week. Because they have a tank to store the water, they can continuously make use of this water (respondent 12).

3.1.5 Lack of trust

Through coding the data, we came across responses such as ‘the mentality of locals’, ‘no government initiatives’ and ‘contracts do not work out’ that are indicators of lack of trust in one another. Lack of trust is an issue that is not obvious, but it was a theme in almost every interview or conversation.

A couple of restaurants mention the mentality of the local people to cause insufficient supply of fresh food: “The local people are too lazy to produce more goods. Labuan Bajo is good for farming (...) it is the culture that is so relaxed, they just need to try” (respondent 10). Striking is that it was mostly, but not exclusively, foreigners having a business in Labuan Bajo that responded with such remarks. Restaurants are having a hard time trusting farmers because of inconsistency of quality and quantity of the provided products (respondent 19).

Furthermore, there is a lack of trust in the government system and authority in general. Especially in relation to the theme of waste this was most noticeable: “The government has 3 billion Rp for the environment, but I wonder where all the money goes to” (respondent 18) and, “There is a government service to pick up the trash, but they don’t” (respondent 6). On water supply: “The government doesn’t care” (respondent 9). Despite the complaints against the government, respondent 1 understands that the initiatives regarding waste should come from the community and not necessarily from the government.

3.1.6 Power relations

The lack of trust that is discussed in the previous paragraphs can be viewed as a cause of unequal power relations. Because several restaurants do not trust the supply of the farmers, restaurant owners and managers seek out for other options to get the products they want. One restaurant has its own farm “with some products that are a mixture of everything” (respondent 13). Furthermore, the greenhouse farm is owned by an expat who took a University course and made an investment of \$100.000 to build up the greenhouse (respondent 14). If these lucrative businesses can provide more products to more restaurants, they will suddenly become an important competitor of local farmers. If locals cannot keep up with this competition, due to lack of knowledge or resources (respondent 14), then this means a larger market for foreigners in the supply of fresh food to restaurants in Labuan Bajo.

Cooperation between multiple hotels and restaurants can also create an imbalance in power. The example of cooperation between the hotels who deal with the water shortage on the island, indicates a favor from the government towards these hotels, who are on average, wealthier than the rest of the population. Although respondent 12 says that this big pipe has no consequences for the local people, he acknowledges that they receive water from a smaller pipe, thus receiving a smaller quantity of water.

3.2 MARKET DEMAND FOR FRESH FOOD

In the fresh food value chain, the hotels and restaurants are the end consumers and therefore the market demand is based on these actors of the value chain. The market demand comprises of the products in the fresh food value chain under study. In our research, we included fruits, vegetables, meat and fish. Fruits include mainly tropical fruits such as banana, pineapple, mango, avocado, watermelon and lime but strawberry and apple. Vegetables include tomatoes, carrot, onion, eggplant, pumpkin, zucchini, lettuce and bell peppers. Meat includes beef, chicken and pork. Fish includes grouper, snapper and tuna and seafood such as shrimps and squids.

The tourism industry in Labuan Bajo has a great potential to make beneficial linkages in the agriculture sector. From limited data, we can make an educated guess on the total market demand of restaurants in Labuan Bajo for fresh food. Based on our observations during data collection we are able to make an educated guess on the number of restaurants, capacity of restaurants. The occupancy rates during high and low season are based on the percentages retrieved from data on occupancy rates of hotels (respondent 11).

Table 1

Indicators for total market demand fresh foods in Labuan Bajo

Number of restaurants	25
Average capacity per restaurant in nr of guests	40
Capacity rate restaurants (high season)	85%
Capacity rate restaurants (low season)	60%
Average number of meals per day per person	3
Average expenditure costs per meal in IDR	35.000

Note. All indicators are based on own data.

3.2.1 Market demand fresh foods in high season and low season

If 25 restaurants have a capacity of 40 guests, restaurants in Labuan Bajo are able to serve 1000 visitors in total per day. If all visitors purchase on average 3 meals a day in one of the restaurants and the expenditure costs for one meal for restaurants is on average 35.000 IDR per meal, we can estimate the total demand of restaurants for fresh foods expressed in IDR per day.

During low season (September – May), the occupancy rate is approximately 60%, which means 600 visitors potentially visit the restaurants per day. The total demand for fresh foods during low season therefore equals:

$$600 \text{ (guests)} \times 3 \text{ (meals a day)} \times 35.000 \text{ IDR (costs per meal)} = 63.000.000 \text{ IDR per day}$$

During high season (June – August) tourism has even a higher potential to contribute to the total demand of fresh food in Labuan Bajo. The occupancy rate during high season is approximately 85%, which means 850 visitors potentially visit the restaurants per day. The total demand for fresh foods during high season therefore equals:

$850 \text{ (guests)} \times 3 \text{ (meals a day)} \times 35.000 \text{ IDR (costs per meal)} = 89.250.000 \text{ IDR per day}$

According to our (estimated) calculations, the total demand of fresh food increases in high season compared to low season with approximately 42% (from 63.000.000 IDR to 89.250.000). Besides seasonality in the tourism seasons, there are several other factors that influence market demand for fresh food in Labuan Bajo: weather seasonality, price, demand for imported products, and demand for special products.

3.2.2 Weather seasonality

As demonstrated above with the estimated calculations, restaurants have a different demand depending on whether it is low season in tourism or high season. This makes sense considering that during high season there are more tourists and therefore a higher demand of fresh food. However, the supply of fresh food is hugely weather dependent, certainly fruits and vegetables. Flores has a dry and a wet season (see Figure 2) and it differs per season if and what type of products can be harvested. Restaurants often mention seasonality to be an issue when the supply does not meet their demand in certain seasons.

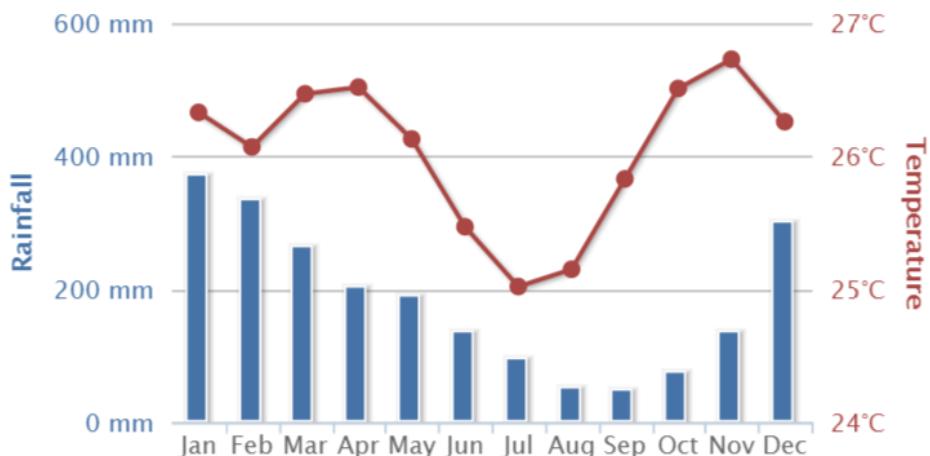


Figure 2. Average Monthly temperature and rainfall for Indonesia at location (-8.6, 199.94) (Labuan Bajo) from 1990-2009. Reprinted from CRU (n.d.), retrieved from <http://www.cru.uea.ac.uk/data> [10-06-15]

3.2.3 Price

Since fruits and vegetables are often daily supplied or bought at the market (this is the case for 11 restaurants) the restaurants know what kind of price to expect for these kinds of fresh foods. Some suppliers have set prices for their products, but they find it difficult due to seasonality. In one case (respondent 12), the restaurant has its own suppliers for fruits and vegetables with a fixed price. Once a month, the manager sends a person to the market to check the prices of the products on the market. A small difference of 1000-3000 rupiah more than the market price is acceptable due to transportation- or other costs. A higher difference between the products of the supplier and the products on the market is not acceptable. The restaurant manager will then bargain or look for other suppliers. Furthermore, for this same respondent they demand in exactly one kilogram of carrots or tomatoes to receive a certain number of pieces, or less, to be in that kilogram.

3.2.4 Demand for imported products

In the interviews with restaurant owners and managers we often came across the issue of products which are unavailable to have locally sourced, that the hotels and restaurants demand. Respondent 1 reported that they always want more, but suppliers cannot guarantee it and therefore some products are too risky to put

on menu's. If restaurants demand products that cannot be bought on the market, they often choose to import products they want. This can be from other islands in Indonesia, of which Bali was most often named. Respondent 7 said: "a year ago the prices for fruits and vegetables on the market went down because there are a lot of these products imported from Bali". The same respondent tried to work with "whatever the people have in the markets". It is not visible if products on the market are grown on Flores or on other islands. Particularly products from neighboring islands Sumba and Sumbawa are often sold on the local markets. Therefore, this is direct competition for the farmers of the Manggarai district.

Restaurants mentioned that certain products that arrived by boat from Bali are originally imported from other countries. Respondent 5 said that the mozzarella they buy comes from New Zealand, because although in Indonesia there have been initiatives to make mozzarella, "the taste is different" (respondent 5). Furthermore, special beef products such as steak are imported by 6 restaurants. Other beef products are often from Flores in the case of 8 restaurants.

Of all the fresh foods, pork is the product that is most often imported. Very few of the restaurants reported to have pork from Flores. Some restaurants did not have pork at all on their menu due to religious reasons (respondent 3 and 8). The other restaurants only demand small quantities of pork.

3.2.5 Demand for special products

That Labuan Bajo's soil is not sufficient for growing fruits and vegetables is what mostly Italian oriented restaurants named as an issue. Therefore, products such as cherry tomatoes, rucola, basil and lettuce are obtained from a farmer that has the only greenhouse on the island of Flores. Therefore it can be considered an alternative to traditional farming, where the products are cultivated on a field. The greenhouse works with a hydroponic system which does not require the plants to grow on the ground soil but in pipes which provides the plants with fertilizers, minerals and water. This supplier meets the demand of 5 to 6 restaurants in Labuan Bajo. In extend to alternative farming, one of the restaurants mentioned to have their own farm to cultivate fresh products. Apparently, the supply does not meet the quality standards and type of products that this restaurant aims for.

Due to ideals about preserving the fauna of the Komodo National Park, one of the restaurants reported to only demand farmed fish. Their demand is met by the supply of a fish farm situated north of Labuan Bajo. They farm grouper, snapper and different kinds of lobsters and provide mainly the first two to the restaurant in Labuan Bajo.

3.3 VALUE CHAIN MAPPING

In our study, we have focused on four different fresh food products: fruits, vegetables, meat, and fish. As we have expected already in our research plan (see Appendix 4), the value chains of fruits and vegetables were very similar, therefore we decided to combine these two and come up with only one value chain map, based on our findings. All value chain maps further presented are based on the methodology and the symbol language of the ValueLinks manual (GIZ, 2008) and present our findings of all basic activities and actors that were identified in the value chain. However, due to our data collection methods being primarily qualitative, we are limited in providing factual quantitative information.

3.3.1 Value chain of fresh fruits and vegetables

First of all, the value chain map of fresh fruits and vegetables (see Figure 3) shows all the processes needed from the production of fruits and vegetables to the end use by the restaurants and hotels in Labuan Bajo.

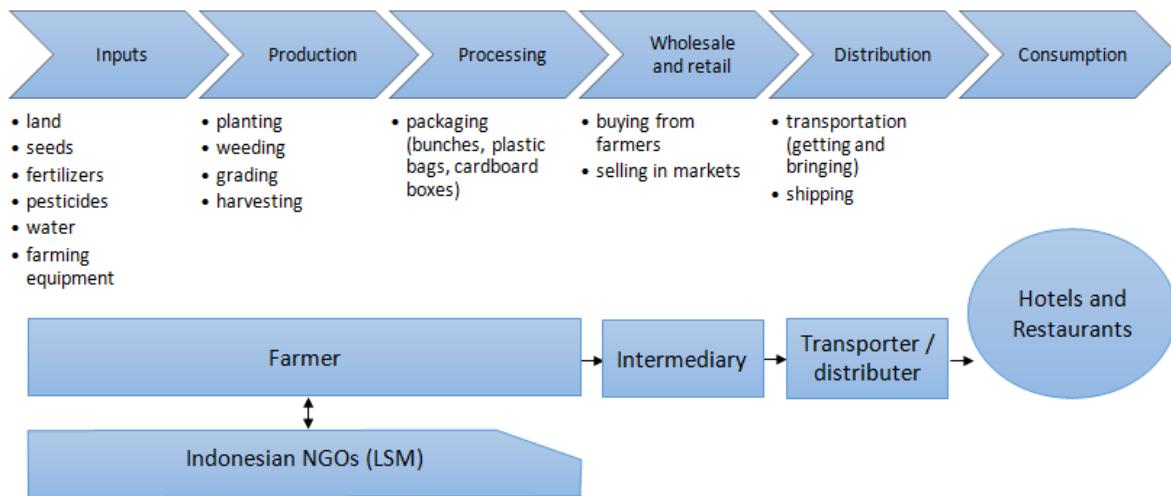


Figure 3. Graphical representation of value chain of fresh fruits and vegetables. Adapted from the ValueLinks Manual of GIZ (2008).

Based on our data, we found out that the value chain distributed among six stages. These are the inputs, production, processing, wholesale, distribution and consumption. At the levels of inputs, production and processing, the fruits and vegetables are handled only by farmers. Based on our findings, there are two types of vegetable and fruit farming on the island of Flores: traditional and modern. By traditional farming, we mean using farming techniques that are not fully mechanized, and where chemicals used for growing the crops are mainly organic. Modern farming refers to greenhouse farming or other advanced techniques that allow a piece of land to produce more crops than its physical capacity due to better management of the land, creating overlapping areas, or using chemical products (fertilizers) to keep up with crop's requirements. Such an example is the greenhouse hydroponic farm of a European owner in Labuan Bajo, the only one on the island of Flores. As we can see in the value chain map, the farmers operate in about 50% of the value chain. Statistics of Swisscontact based on the island of Flores state that more than 95% of Florinese are farmers and therefore agriculture plays a major role in people's lives (Swisscontact, 2009). There are 1.831.472 (census of 2010) people living on Flores island (Wikipedia, 2015), out of which the total population of West Manggarai, with its capital Labuan Bajo, is 221.430. However, we cannot say that 95% of these people in Labuan Bajo are cash crop farmers. This is due to the location of the town, on the most western coast of the island. This is the main arrival and departure point for tourists going to visit the Komodo National Park, due to its location and modern airport with 4-times daily connections to Bali, and it is also of major interest for the diving sector. Therefore, many locals are involved in the service sector (such as working in restaurants and hotels) and not

so much in farming. During our research, we came across one vegetable farmer that has his farm located in Labuan Bajo and from other respondents we heard that there are not many vegetable farmers in the town, but mainly public sector workers. In addition, Labuan Bajo is mainly a fishermen town, therefore this coastal community makes most of its living by selling a part of their catch at local markets or trading it for foods with people from the inland (DMO Flores, 2015). Due to this, we came across many respondents that said that farmers are coming from Ruteng, Bajawa (more inland villages) and other towns nearby islands, such as Bima.

Other chain actors are met at the wholesale and retail stage and are mainly at the two main vegetable and fruit markets in Labuan Bajo (Pasar Batu Cermin and Pasar Tradisional). At these markets, either there are independent sellers that buy en-gross products directly from farmers and they sell these to locals and restaurants, or they are spouses of farmers (more commonly farmers are men and sellers in the market are women). In some cases during our conversations at the markets, we found out that there are more than one, often two, sellers involved at the same stage in the value chain (Observations Traditional Market). According to our findings, this happened mainly because there is a long distance from the production area (towns and villages inland of Flores) and consumption (West coast, Labuan Bajo), of at least approximately 60km (4 hours driving) between Labuan Bajo and the closest crop farming area, Ruteng. The farmers in this area bring their products to the markets in Ruteng and to sellers and then Labuan Bajo sellers go to the markets and buy bigger quantities that they bring to Labuan Bajo.

Following, there is the distribution stage. In this value chain, we came across different kinds of distribution, and therefore different types of transporters. One case consists of an Indonesian couple (husband and wife) that owns a pick-up truck and delivers daily either in the morning or afternoon to 5 to 10 restaurants in Labuan Bajo. They buy most of their products mostly from a ship that delivers products from other places (such as Bima) and when their stock is finished, they buy from other sellers. Here we can see that they depend much on the shipping boat, with which they do not have any agreements of contracts. Other cases are individuals who deliver by motorcycle from markets to restaurants.

The end consumption stage consists of restaurants and hotels that prepare and provide fresh fruits and vegetables to their clients. All restaurants we came across satisfied this condition. The number of actors at this stage is approximately 25 in Labuan Bajo, varying between small (approx. 20 people) to large sized restaurants that can host even 100 clients.

Among all these stages in the fresh fruits and vegetables value chain, there are no written contracts, but only verbal agreements between the actors. There is also very little current involvement of support organizations. Only from one respondent, a farmer located inland in Flores mentioned support from an Indonesian NGO (LSM), but it was not clear in what way the support is given. Based on our data, we found out that there was a previous project of Swisscontact. The project started three years ago and it involved restaurants that filled in a demand survey regarding their menu. The project tried to help farmers and restaurants to have agreements for constant supply and demand. It did not turn out to be successful due to farmers that could not guarantee constant produce and it did come to an end due to low monitoring from a Swisscontact officer.

3.3.2 Value chain of fresh fish

In our research project, the value chain of fresh fish was also of interest. In the map in Figure 4, we can see all processes through which fish goes through from the production, to the end consumption by hotels and restaurants.

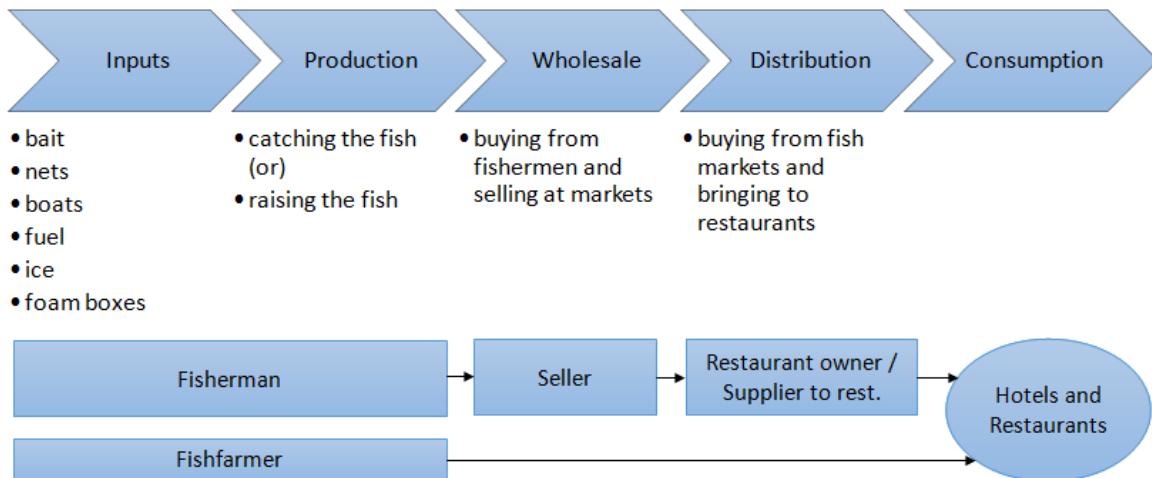


Figure 4. Graphical representation of value chain of fresh fish. Adapted from the ValueLinks Manual of GIZ (2008).

The first stage in the value chain map is the inputs of necessary materials to catch or to raise fish. In this value chain, there are two different ways of producing fish, both with different following stages and different types of operators. In the most common case, represented by the first row of operators, we identified three operators. For the stages of inputs and production, the fishermen of Labuan Bajo and other nearby islands have necessary materials to catch the fish in open water and to bring them to the main fish market (TPI). Out of the whole population of Labuan Bajo, most of them are making their living through fishing (DMO Flores, 2015), so the number of actors at this stage is very high. Their performance also includes packaging fish into foam boxes with ice, to preserve it for transport and to keep it fresh.

The next two stages are represented by the whole selling and distribution, before the products will reach the end consumption stage. The operators at the wholesale level buy fish from fishermen and sell it then in markets (to locals or to restaurants). There is one main fish market (TPI), but also the other markets for fruits and vegetables had 4-6 stalls each with fresh (alive) fish. During our observation at the market, we understood that fishermen are often coming directly to the market to bring their catch, multiple times a week (depending on their catch), by use of own motorcycles or by bemos (Observations Traditional Market). The distribution stage is performed by different suppliers that bring directly fish from markets to restaurants and hotels (respondent 12), or by restaurant owners that go themselves to the main fish market and buy it fresh there (respondent 5).

In the other case, encountered in only one case in Labuan Bajo, there is one main operator, the fish farmer. There is one fish farm in the north of Labuan Bajo, approximately 45 minutes by boat from the main harbour. The actor here performs all the stages in the value chain and has a direct link with restaurants. Based on our data, the fish farmer only provides regularly (2-3 times per week) to one restaurant in Labuan Bajo and sometimes to other restaurants, but not on a regular basis.

The end consumption stage consists of restaurants and hotels that provide fish in their menus. During our research, all representatives of restaurants provide fish in their restaurants, therefore we can roughly say that all 25 restaurants in the area provide fish. We see here that the consumption stage is very significant and important for the value previous actors in the value chain.

3.3.3 Value chain of fresh meat

Lastly, another value chain that was part of our research project in Labuan Bajo consists of fresh meat, namely chicken, beef, and pork.

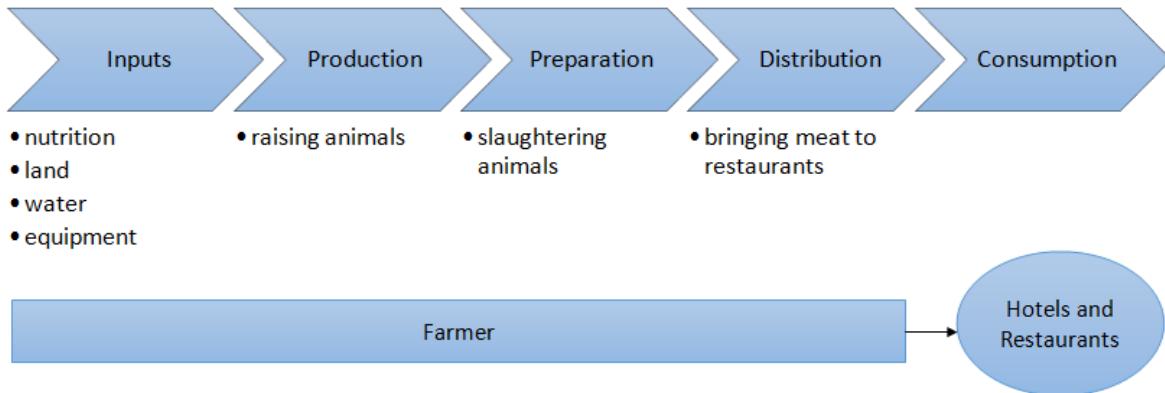


Figure 5. Graphical representation of value chain fresh meat. Adapted from the ValueLinks Manual of GIZ (2008).

The value chain map (Figure 5) of meat is represented by one main type of operators. These are meat farmers and they have a direct link with hotels and restaurants. They perform all stages of inputs, production, preparation and distribution to the end consumers. With the exception of one respondent that mentioned having own farm to produce beef, all others representatives of restaurants said they receive their meat directly from suppliers: they either have the farmers coming themselves to the restaurants to bring meat, or in some cases, restaurant representatives go themselves to the farmers. Respondent 11 mentioned, "For the meat, we go directly to their home. They have their own services. I buy it at places where it says "ayam pedaging" so that means that the place has chicken [for sale]."

Regarding the end consumers, all provide chicken and beef in their menus. In our interviews, 2 out of 13 restaurants did not provide pork, which means that pork is provided by approximately 85% of the restaurants. This happens mostly due to religious practices, as respondents 3 and 8 confirmed.

A recurring pattern we observed in all value chain maps is the absence of value chain support organizations. With the exception of one NGO at the fruits and vegetable farmer stage, there are no other support organizations currently involved at any stage in these value chains of fresh foods. Based on our findings, respondents mentioned a previous project of Swisscontact who supported farmers and intermediaries and provided cooled means of transportation for produce from farmers to restaurants, but this is not an ongoing project anymore.

3.4 ECONOMIC PERFORMANCE OF THE FRESH FOOD VALUE CHAIN

When conducting our interviews we tried to not only ask questions regarding the demand and supply of products, but also get some indication about costs, prices, spending, and frequency of purchasing fresh foods that are needed to produce the food in the restaurants. Many of the restaurant owners or managers we spoke with, told us that their expenses depended always on the season and the number of customers they would serve per day. Furthermore, market prices also differentiate from time to time depending on seasonality, availability of products, demand, and if a harvest was successful or not. Thus making it difficult even for some of the restaurant owners or managers to have a clear idea of their spending on a regular basis. Following we will present our findings and analysis, to the best of our ability, of the economic performance based on the data that we were able to gather from conducting interviews with the actors along the fresh food value chains.

We will start by analysing at the beginning (bottom) of the value chain with the indicators we got from farmers. In the case of one traditional farmer in Ruteng we interviewed over the phone, he indicated that he buys the seeds he uses for farming from the local market. These cost IDR 150.000, but that they can also cost less sometimes. The amount of seeds one could get for this amount was not informed by the farmer, neither how often he would buy them. Therefore, making it difficult for us to assess the amount of vegetables or fruits he would be able to farm from spending this amount on seeds. One greenhouse farmer we interviewed, do not get his seeds from local markets, but brings them all the way from Italy because he specializes in farming Italian ingredients. He further mentioned that he needs to pay IDR 1.5 million every time for shipping costs to get fertilizers from Java to Flores. The reason behind this is that he only uses fertilizers with zero harmful chemicals. He finds it very important that all his products are grown organically. His greenhouse system is also the first of his kind on the island of Flores. These farming standards are further incorporated into the prices he charges for his products. According to him, he can simply not charge the same prices as the traditional local products because what he provides has a better quality and are besides organic. Furthermore, he also made a big investment into this project, which would take another year or two to gain back. A price indication of how much he charges for his products was not possible to attain. However, we do know that he delivers mostly to the Italian restaurants because he specializes in farming Italian products. We also know that these are the restaurants on a higher end compared to the rest of the restaurants situated in Labuan Bajo. In the case of the traditional Ruteng farmer, he uses an irrigation pump to get water from a nearby river meaning that he does not have additional water costs. When it comes to the greenhouse farmer, he buys water from the spring of a neighbour and pays a monthly fee.

The majority of the restaurants we interviewed had a supplier that delivers fruits and vegetables every day. When it comes to fish, some restaurants prefer to go themselves to the fish market while others prefer that this it to be delivered directly to their doorstep. From one restaurant owner we got an indication that they buy 1 kilo of tuna for IDR 50.000 including delivery services. For an entire week, they need a supply of 10 kilos of tuna. Their weekly spending on tuna sums up to IDR 500.000. Another restaurant in a hotel buys red snapper for IDR 40.000 per kilo, also including delivery services. This is the same price that a seller on the fish market (TPI) told us he was selling his fish for per kilo. For another smaller Italian restaurant it is another situation; their demand depends on the number of customers they get on a daily basis. Because April is still a low season for tourists, the purchase of fresh fish per week was not a large one:

"It depends how many customers there are. We don't stock a lot of fish, now it's only like 20 people per day, so I buy a little, because I do not want it to keep it not fresh. It's low season now, so I don't buy too much. Only 2 kilo's, like that. I buy it two times a week, early in the morning at 5 or 6 am" (respondent 5)

When it comes to chicken, the price can range from IDR 40.000 to 60.000 for a kilo according to the restaurant manager of a hotel. These are most of the time from Labuan Bajo itself. Fish along with chicken are the two meat products that are served the most in all the restaurants after analyzing the menus. Furthermore, we discovered that beef is an item that is not provided on a big scale on the restaurant menus.

Respondent 8 said that they get beef twice a week at a cost of IDR 80.000 per kilo. For the most restaurants that serve beef, they indicated that this is done twice a week. For example, one restaurant orders 8kg beef per order, thus in total 16kg of beef per week.

When it comes to fruits and vegetables, the prices can also differentiate depending on where they were bought. There is a difference if they are bought directly from markets, if suppliers deliver them or if they go directly to the farmers in Ruteng and leave out the role of intermediaries. One restaurant manager told us that she likes to drive to the farmers in Ruteng because she would get products for cheaper prices:

"You can get a better price without someone in the middle and direct to the farmer. In the market, the price is higher already, the farmer doesn't have a fair income. The distributor is richer than the farmer. Sometimes, like one basket of avocados at the farmer is IDR 20.000. If you buy only 3 avocados sometimes on the market it's already IDR 20.000." (respondent 5)

Some restaurants were able to give us a rough indication of how much they would spend on a weekly basis on fresh foods for their restaurant. Most of the time because they need to do their shopping on a daily basis it means paying higher prices than if they would buy in large quantities:

"Fresh food is almost 20% of my income. Because the problem with the vegetables is, I cannot stock it. So I have to buy it almost daily. Or maybe every 3 days, to keep it fresh because I don't like to put it in the fridge. So that are daily expenses almost." (respondent 5)

For another restaurant owner the costs would be IDR 10 million for everything, including fruits, vegetables, meat, fish and eggs per week. Another restaurant owner indicated spending also around the same amount per week:

"Every day 1 million Rupiah, so that is 7 million in a week, but it can also get up to 1.5 million per day." (respondent 11)

For another restaurant, which is also a dive shop, the manager stated that:

"A lot! I don't know...it depends on how busy it is. Everything is really on supply and demand. For instance, we're out of bananas, we got to get new bananas from the market. From a dive shop perspective, we spend about 35.000 rupiah per person per lunch and that includes fresh foods, rice, tempeh and chicken. And eggs, 10.000 rupiah. But the fresh food is very cheap... but if you're going to the market they're going to give you the "bule" price." (respondent 7). "Bule" is a term used by Indonesians that refers to white foreigners.

One hotel and restaurant (respondent 12) has one supplier that delivers fruits and vegetables at a fixed price. Not many restaurants can come to an agreement with suppliers, because as it has been already mentioned, this is often influenced by many factors. Their monthly expenses for fresh foods are IDR 50 million. , thus having an average of IDR 12.5 million per week in the high season.

Besides food costs, some respondents also gave indications about the problems they encounter because of the water shortage on the island. They need to constantly buy water from private companies because they do not get water from the government on a daily basis. This costs IDR 150.000 for 5000 litres and these need to be bought at least twice a week. Furthermore, they have additional costs for the collection of waste that they need to pay to the government and this is IDR 200.000 per month. If every restaurant spends an average of 10 million Rupiahs a week on fruits, vegetables, meats and other ingredients and we take the estimate of one restaurant that indicated that fresh fruits and vegetables takes 20% of its total costs, we can calculate an estimation of 2 million Rupiahs in total costs per week for fruits and vegetables. The average restaurant would buy at least 10.000 litres of water per week, making it a cost of IDR 300.000 in the low season. The amount spent on fish would be an average of IDR 500.000 per week. One restaurant indicated that their standards for chicken includes that they do not weight more than 1.5 kilo. They would buy 4-5 chickens daily for an average price of IDR 50.000 per kilo, making their costs for chicken approximately IDR 375.000 a day –

if they would buy 5 chickens – and thus IDR 2.625.000 per week. For beef, we got one indication of a restaurant that would buy 16 kilos of beef per week at a price of IDR 80.000, thus spending IDR 1.280.000. As can be seen in table 2, the costs are highest for chicken, followed by fruits and vegetables and then beef. Fish is the item that is the least expensive, due to its big supply.

Table 2

Expenditure of restaurants per week

ITEM	Expenditure per week in low season
Fruits & Vegetables	2.000.000
Chicken	2.625.000
Beef	1.280.000
Fish	500.000
Water	300.000

Note: based on own data.

After comparing menus, an average cost of one main course for a customer would be IDR 70.000. Based on occupancy rates, if all the restaurants in Labuan Bajo serve 24 people per day, 3 meals a day in the low season, it would be a total of 504 meals per week and a turnover of IDR 35.280.00. In the high season, with an occupancy rate of 85%, the restaurants would serve 34 people per day, 3 meals a day and thus a total of 714 meals per week and a total turnover of 49.980.00. See table 3.

Table 3

Estimate of restaurants' turnover

	Low Season	High Season
Number of Customers	24	34
Meals per week	504	714
Turnover	35.280.000	49.980.000
Expenditures	7.000.000	12.500.000
Profit	28.280.000	37.480.000

Note: based on own data.

3.5 UPGRADING VISION

Based on our data from the interviews, themed conversations, stakeholder meeting and small group discussion with the stakeholders, we defined a vision on how the value chain actors think the FFVC in Labuan Bajo should be like in the short future (+/- 5 years from now). From our respondents we could take that Labuan Bajo changed considerably compared to 3 years ago in terms of rapid tourism business development and improved provision of facilities as electricity. To make the FFVC more sustainable, the value chain actors want to increase the chain revenue, increase the involvement of the local community in the chain and improve the handling of waste within the FFVC.

3.5.1 Increase chain revenue

The rapid increase of number of businesses related to our FFVC - mainly hotels and restaurants - simultaneously increased the competition between these businesses. Even though some respondents don't think the competition in Labuan Bajo is lacking at the moment, it has definitely grown in 3 years' time (respondent 9 & 14). According to the data from the interviews, we could take that many respondents in our research foresee a continued development of tourism in Labuan Bajo. At the same time, many hotel and restaurant owners and/or managers also realize that the rapid tourism development in Labuan Bajo will increase the demand for their products. The growing competition between hotels and restaurants together with the higher demand for their products in the future, arise the awareness for hotels and restaurants that they need improved quality and quantity of fresh food products. By indicating the wish of wanting an improved quality and quantity of fresh food products, we can conclude that value chain actors – especially the hotel and restaurant owners – want to increase the chain revenue. Being able to provide a larger quantity of products to consumers is likely to increase the sales volume and products with improved quality are likely to be sold for better prices.

3.5.2 Increase involvement of local community in the chain

The analysis of the data has also indicated that many value chain actors want the local community to be more involved in the FFVC. Currently, many owners of businesses in Labuan Bajo are foreigners. For example, approximately 70% of the owners of mid-to-upper class level hotels and restaurants are foreigner and 30% are local owners (respondent 9). The local people are mostly employees who work in the businesses of the foreigners (respondent 10). This may be due to the fact that people from the local community don't know how to get access to the market (respondent 14). Better access to the market for local people would likely increase their income and thus contribute to the alleviation of poverty in Labuan Bajo. More people from Labuan Bajo starting up a business could achieve increased economic participation in the FFVC, but according to the data we found out that many restaurants are willing to buy more products from local providers and in larger quantities.

3.5.3 Improved waste management

Another issue value chain actors would like to see improved in the future is the management of waste in Labuan Bajo. Even though the restaurants contribute considerably to the total amount of waste in Labuan Bajo, this waste was not the main problem according to the respondents because many restaurants have the knowledge on how to collect and separate waste in a proper way. Still, as a respondent already indicated, the management of waste is a problem that needs to be improved because 'tourism needs a clean environment' (respondent 9). Another respondent indicated that Labuan Bajo is in need of a general solution to handle the waste, while the waste problem is likely to increase because 'if the area is already dirty, it is easier to also just throw your waste' (respondent 3). One respondent indicated that he saw the future in biodegradable plastics (respondent 11), while another respondent mentioned giving a penalty to people for throwing waste on the ground (respondent 18) as the solution for the waste problem. Nonetheless, it is obvious is that the majority of the value chain actors share the vision on improving the management of waste in Labuan Bajo.

3.6 OPPORTUNITIES FOR IMPROVEMENT

During our data generation, we were encouraged to think of possible suggestions for improving the situation of not only the fresh food process, but also the possibility for greater community involvement and a better waste management around Labuan Bajo. These opportunities for improvement are directed by our main findings of interviewing restaurant owners/managers. We will now elaborate on the matters where we think there could be space for improvement.

1. Restaurants are willing to offer a greater variety of local products on their menus, if farmers guarantee consistency of quantity and quality of these products.

During our interviews, we heard in many occasions dissatisfaction about not only the quantity, but also the quality of the products that get supplied by the farmers. Two interviewees had this to say when asked if they were satisfied with the supply of the products:

"The amount not yet, because if I'm late to order, you cannot get it. The quality, it depends on how you want the quality. Some restaurants they don't care about that. They just order even if the quality is not good. Some things we don't have it, so we just take the good quality ones... sometimes it's not ripe enough, we don't want to give it sour" (respondent 5)

"It's a nightmare, sometimes they have something, then they don't have it. And after you wait two months for it you have a huge stock and then again they don't have it anymore." (respondent 7)

The demand for fresh foods is there, but the restaurants have certain standards when it comes to quality and quantity of the products they need, and they will not accept just anything. The amount of local products that is provided in restaurants can be increased if the restaurants can be assured that they would have a constant supply of these products along with a quality standard. A greater variety of products would also increase the economic benefits for the farmers. Even more because some restaurants prefer to attain their supply directly from farmers, which means that farmers could make more profit by not having an intermediary in between the process.

2. Farmers could supply more products and products of a better quality, if they get the proper training and knowhow of how this should be done.

Not only quantity and quality are an issue, but also the limited amount of products that the restaurants can source locally. Some restaurants choose to only provide what they can get on the island, making their menu variety and possibilities very narrow. Other restaurants who want to provide another alternative in cuisine to tourists, feel obligated to import products because many ingredients cannot be found in Flores.

"For instance jalapenos, we buy canned. If that had it here, 100% I'd buy it from here. It would be awesome if we could buy that fresh... but it's not an option. We pay huge import fees, even if it's not imported within Indonesia. But just getting it to Labuan Bajo, we're paying for that. But when you don't have other options and you're trying to offer something a little bit different, this is to do." (respondent 7)

There is also a big demand for Italian products due to the number of Italian restaurants situated in Labuan Bajo. However, because the farming in Flores is still very traditional, they do not provide products that are different than what the farmers are used to. Another possibility is that the farmers are aware that there is a demand for certain products – due to past Swisscontact projects that tried to connect farmers to restaurants – but that the farmers maybe simply do not know how to farm these new products or don't have the resources to attain the seeds and further equipment needed to farm these products. If some skill training could be provided along with information on where to source what is needed to begin farming, it could provide a start for the farmers to provide and amplify the products they could supply to restaurants. The

local community could then benefit more of the tourism business, because right now, all the Italian ingredients are bought from one Italian farmer, or are otherwise imported.

3. Greater community involvement could be achieved by providing service-oriented training for working in restaurants and basic knowledge of English.

When considering community involvement, we should not only consider farmers – although they are the majority of the working population – we also need to take into account those that are not. The tourism industry in Flores is still at the starting stages, and is growing slowly but surely. What is now only a small number of restaurants and accommodations in Labuan Bajo, should not take long to develop in an area where many more foreign investors would buy land and start their businesses. The development of the tourism industry also provides opportunities for locals to find jobs in the service industry, such as in restaurants and accommodations. However, to do this it would be good if locals could acquire skills that are demanded to work in this industry. Furthermore, we noticed that it is difficult to communicate with locals due to the language barrier. Employees should be able to communicate with their customers, and a basic knowledge of English would be the easiest way to make this possible. Some restaurants are already providing opportunities for young locals by allowing students of the SMK School to work in their restaurant and hereby improve their English and service skills.

4. Restaurants are willing to separate non-organic waste (plastics, cardboard, and aluminum), if this non-organic waste will be recycled after collection.

The waste problem in Labuan Bajo is definitely the issue where most improvement could be done. It is also very important that these changes for improvement are tackled as of immediate. Labuan Bajo has the potential to become a great destination, however, the amount of visible waste that can be seen overall may hinder the image of the village in the near future. Restaurant owners and managers expressed their discontent with this matter and that they do not have any hope that this would change any time soon.

"Sometimes the plastics and cardboard get smelly outside, because of the moist. We try to separate the waste, try to collect bottles and plastics, but in general, the waste is a big problem. Sometimes we get complaints from guests after they walked along the beach during their dinner and come back after 5 minutes because it is so dirty." (respondent 1)

The problem is mostly when it comes to the non-organic waste, because most of times restaurant leftovers are taken by the staff to feed their pig at home. Not only does the non-organic waste of the restaurants not get collected on a regular basis, but when it does get collected, it gets dumped on a piece of land (Kapper) where nothing else would happen to the waste, but get burned. Restaurants are willing to separate their waste if they could be guaranteed that the waste will actually get recycled somehow. There is currently the Komodo waste bank that has begun recently with the collection of non-organic waste from restaurants and exports this to Java where it will be re-sold again for recycling purposes (respondent 18). However, for this to be possible, there needs to be a minimum amount of 25 tons of waste per shipping. The restaurants in turn need to only assure a reasonable amount to be collected at once, due to transportation costs for the waste bank.

5. Possibilities for alternative and sustainable forms of farming such as greenhouses and fish farms.

During our data collection, we tried to get in contact with some of the restaurant's suppliers. Here is where we found out that some restaurants get their vegetables from a supplier who has a greenhouse system, and that one restaurant gets fish from one fish farm close to Labuan Bajo. This restaurant manager was

concerned that the local fishermen were fishing in protected areas, and thus opted for this more sustainable way of getting their fish. Furthermore, we also realized that most locals didn't know of an alternative form of farming fruits and vegetables other than only the traditional way, and don't know another way to get fish other than traditional fishing. The greenhouse system is a great and innovative way of how farmers could avoid running into matters of unsuccessful harvests because of the weather and pesticides. This can also mean that they could farm many of the Italian ingredients that are high in demand. Fish farming as an alternative to traditional fishing is a good option in order to avoid fish scarcity in the future. This in turn can also create job opportunities for locals.

3.7 CONSTRAINTS TO IMPROVEMENT

The village of Labuan Bajo has great potential, but because the area is still developing, there are also issues at the present moment that need to be dealt with that affect the process of fresh foods for restaurants, the relations of the actors along the value chain, and the waste management around the area. These following constraints are related to these topics:

1. Water scarcity in Flores

As has already been mentioned, the water problem that the locals need to deal with on a daily basis is a big issue that has major influences on the farmers and the restaurants. The high and low season for tourists further affects the demand for water. During the months of the high season, the demand for fresh water increases dramatically due to the high number of tourists leading to less availability of fresh water. For the farmers, water is an essential input factor, and especially during the driest season which is also the season with the highest number of visitors. This in turn influences the amount, quality and variety of products that the farmers are able to harvest, as respondent 5 stated “here it’s more difficult to find good quality of food, because the water here is not enough”. When it is the rainy season the locals have no problems with the water scarcity, but during the dry season, it gets very difficult. They then perhaps only get water once a week from the government (respondent 10)

2. Weather has a big influence on harvests.

As has been said above, the weather in Flores consists of two seasons – a rainy season and a dry season. “The rainy season is normally from October through March/April, however, now it is raining even in the dry season” (respondent 10). These recent changes in the weather not only shorten the dry season, but also have negative influences on harvests. According to an informant of a supporting organization (respondent 19) the factors that influence the outcome of the crops are the weather and pesticides, and because of these failures in the past the restaurants did not trust the farmers anymore, they could not rely on them for consistency and quality. If farmers are going to keep pursuing traditional farming, these are factors that they are always going to keep having difficulties with.

3. Lack of trust between actors.

During our interviews, we got the impression that there is a lack of trust from the restaurant owners/managers towards the local community. This is especially the case after the Swisscontact project failed and there were no improvements regarding the way fruits and vegetables were supplied. Also because farmers and suppliers still try to supply them with low quality products or deliver products that are not ripe yet for consumption. Furthermore, farmers and suppliers do not want to get into formal contracts with the restaurants, but prefer verbal agreements because they cannot always guarantee quality and quantity of products. One restaurant manager (respondent 1) mentioned that they also do not want to push them into contracts, because this would be too difficult for farmers. Contracts seem therefore still not feasible in the near future if they do not switch to more modern and secure forms of farming.

4. Lack of public facilities.

The problem with the waste in Labuan Bajo has a lot to do with a lack of facilities to do so. The waste does not get collected on a daily basis and this is why it piles up very quickly. According to a waste bank representative (respondent 18) the government has only one truck to pick-up all the waste that gets produced around Labuan Bajo, but they would need to have at least 10. Furthermore, how to deal with waste, from the local perspective, is to simply burn it. However, this is very harmful for the environment and for themselves. Yet we were witnesses of how often this happens on a daily basis. There was an initiative by

the government to make routes to collect organic forms of waste. However, unfortunately waste management has its periods where it is collected frequently – a “high” period for waste collection – and the “low” periods where it barely gets collected (respondent 19). During the time of our data collection, it was a “high” period for waste collection.

3.8 RANKING OF OPPORTUNITIES

Since the possible solutions for upgrading the FFVC have to be in line with the market requirements, opportunities and change implied in the vision, we will first rank which opportunities for improvement are most feasible - in terms of time, finances and current social relations – according to the value chain actors and our research observations. Table 4 shows the ranking of the opportunities of which the most feasible ones are on top.

Table 4

Ranking of opportunities for improvement according to feasibility

1.	Restaurants are willing to separate non-organic waste (plastics, cardboard and aluminum), if this non-organic waste will be recycled after collection
2.	Farmers could supply more products and products of a better quality, if they get the proper training and knowhow of how this should be done
3.	Possibilities for alternative and sustainable forms of farming such as greenhouses and fish farms
4.	Restaurants are willing to offer greater variety of local products on their menus, if farmers guarantee consistency of quantity and quality of these products
5.	Greater community involvement could be achieved by providing service-oriented training for working in restaurants and basic knowledge of English

As mentioned previously, during the small discussion groups on the final day of data collection the stakeholders had the chance to rank the opportunities for improvement according to what they thought was most feasible. The value chain actors supporting organizations ranked the first opportunity - *restaurants are willing to separate non-organic waste (plastics, cardboard and aluminum), if this non-organic waste will be recycled after collection* – as most feasible during the small discussion group. The stakeholders believed that individuals can start separating waste immediately, they however did emphasize on the necessity of public facilities for waste separation, such as the need for more containers.

When we presented the 4th opportunity - *restaurants are willing to offer greater variety of local products on their menus, if farmers guarantee consistency of quantity and quality of these products* – during the stakeholder meeting everyone in the discussion group agreed that farmers currently simply aren't able to guarantee consistency of quantity and quality of products because farmers don't have the knowledge on how to produce different products or better quality products which the market demands. Therefore, the 2nd opportunity is related to the 4th one, because farmers could supply more products but they currently don't have the knowledge on how to do this.

The third opportunity is slightly less feasible than the 1st and 2nd one, because alternative forms of farming requires both investment of capital and social change. To start up an alternative way of farming, such as a greenhouse, requires purchasing materials and installing facilities such as water pipes. Moreover, it requires social change because farmers that used to produce products in the traditional way for decades have to be willing to change to an alternative way.

From analysing the data we found out that the 5th opportunity - *greater community involvement could be achieved by providing service-oriented training for working in restaurants and basic knowledge of English* – is indicated as very important to many value chain actors. However, we placed this opportunity on bottom of the list because from our data and experiences during the collaboration with the SMKN1 vocational school, we believe that training for service-oriented skills are well provided in Labuan Bajo. The projects and programmes in the field of the service industry are however still developing.

3.9 STRATEGIC SOLUTIONS

The value chain analysis, visions, opportunities and constraints determined the focus of the strategic solutions. The strategic solutions are tangible recommendations for possible interventions in the FFVC in order to improve the community involvement, waste management and the economic performance of this FFVC. We believe that the following solutions are feasible and will definitely contribute to the economic, environmental and social sustainability of the FFVC: (1) Provide waste facilities, (2) starting up an agricultural centre and (3) forming a farmers' association. These strategic solutions are already ranked according to feasibility in the near future, where the first solution is less time-consuming and last one on the list most time-consuming (see Table 5).

Table 5

Strategic solutions according to feasibility

1.	Provide waste facilities
2.	Starting up an agricultural centre
3.	Forming a farmers' association

3.9.1 Provide waste facilities

Based on our data, we found that waste is a striking problem, which many value chain actors want to see improved. The waste problem related to both the separation of waste, as well as to the dumping of waste. If the right facilities for separation of waste are provided to the restaurants, they are able to and willing to separate the valuable waste or non-organic waste (plastics, cardboard, aluminum). The restaurants should be provided with specific bins, such as different colours, for specific kinds of waste. We also recommend placing (more) public containers on the streets of Labuan Bajo, especially near the fish and fruits & vegetables market, because we noticed an even higher concentration of waste on the street around the markets. Moreover, we recommend placing signs around these public containers to make people aware of the use and importance of the containers and throwing their waste in them. We expect the facilities can be provided within one year from now, so in the end of 2016.

3.9.1.1 Beneficiaries

We believe that the provision of waste facilities – the bins, containers and awareness signs – only need a small investment, but could generate more income in the end. These facilities will contribute to a clean environment, an absolute must for further development of tourism in Labuan Bajo.

3.9.1.2 Supporting organizations

Organizations that could support this strategic solution are most likely to be organizations that support the conservation of the environment. Since we found out that the WWF, an international non-governmental organization working on issues regarding the conservation and restoration of the environment, is already involved in Waste Bank initiatives in Labuan Bajo, we believe that this organization is a potential support organization. The WWF is already familiar with the area of Labuan Bajo and its challenges regarding to waste, which make it more likely to convince them that investments in waste facilities is key. A challenge however could be that the WWF wants to invest in one facility (bins or containers or signs) at a time, to be able to check the value of the investments. However, the combination of these facilities is crucial to work effective.

3.9.2 Starting up an agricultural centre

Restaurants in Labuan Bajo report that their demand is not met in terms of quality, quantity and types of products supplied. If farmers have the knowledge, facilities and support to alter their way of farming, they can profit from this growing demand. A training center focused on agriculture can provide these missing elements to famers of Flores. Since Ruteng is an important Flores-based source of fresh food, the agricultural center should be situated in close proximity. The center then can serve farmers from the Manggarai, -Barat and -Timur area. The center can be realized within 3 years and include courses and trainings on specialized and alternative ways of farming, new crops, maximizing crop yield, cooling and storing. Specialized and alternative ways of farming include cultivating fruits and vegetables that are not originally grown on Flores, for example in a greenhouse. Small and medium enterprises can develop from this, if farmers decide to implement these trainings and start a business selling alternatively and organically farmed fresh products.

3.9.2.1 Beneficiaries

Depending on the costs and willingness of farmers to make use of the facilities of the agricultural center, the farmers are provided with a unique opportunity to gain knowledge and practical hands-on trainings for ways of cultivating fresh products that are demanded by the restaurants in Labuan Bajo. In this way, the farmers can profit more from the growing tourism numbers in this town indirectly through the fresh food value chain.

3.9.2.2 Support Organizations

Expertise on agriculture is needed to provide sufficient trainings. An already existing training center for agriculture in Maumere (Flores) was supported by Oxfam, a non-profit organization searching for lasting solutions against poverty and injustice (Oxfam International, n.d.). This organization can, besides providing knowledge and instructions, support the agricultural center in a financial way. Facilities need to be constructed: the building of the training center itself, a model garden, water tanks, and electricity (Oxfam New Zealand, 2012). Furthermore, cooperation with Swisscontact is recommended, since their past project on fresh foods included the relationship between farmers and restaurants. The knowledge of this NGO and the pitfalls of this project can be shared resulting in a better-implemented project.

3.9.3 Form farmers' association

In the analysis and findings of this research, we argued that there is a gap between what the restaurants need (demand) and what the farmers can supply. If tourism in Labuan Bajo develops as quickly as forecasted, the pressure on the demand for fresh food will increase. If the farmers cannot guarantee a certain quantity of products, it is likely that restaurants need to import products, which is already the case in Labuan Bajo. Therefore, we suggest that the farmers form an association or partnership to be able to together meet the market requirements and moreover increase their income. We believe that individual farmers are never able to meet the market demand, if not working together. As previously mentioned in the report, we see alternative farming such as starting a greenhouse as a beneficiary alternative for traditional farming. This 'new' way of farming however needs an investment for the necessary. If farmers are able to from an association, they could share the expense on these types of investments.

3.9.3.1 Beneficiaries

In an association, farmers can gain efficiency, share expenses and get a stronger bargaining position against competing neighbouring islands of which currently many fresh foods are imported. We argue that in an association farmers are able to increase their income, because they are able to meet the market requirements in terms of fresh food quantity. In addition, farmers are able to start up alternative ways of farming, as they can share the costs of investment. This alternative way of farming makes it possible for

farmers to produce fresh food year round and to be less dependent on the weather conditions in Labuan Bajo.

3.9.3.1 Supporting organizations

For this solution to work out, a supporting organization is needed to function as mediator or facilitator to start the initiative of making connections between farmers. Big international development organizations are more likely to have a bigger budget to support this intervention. We think that one of the biggest international development organizations Cordaid for instance could be very supportive. Because Cordaid is such a big international development organization, they have a big network and a large budget to support this intervention, which is especially needed when starting a capital intensive greenhouse project. Challenging however for this organization can be the lack of trust between value chain actors, which we indicated as an issue in our FFVC.

4. LIMITATIONS

4.1 RESEARCH DESIGN LIMITATIONS

On different levels throughout our research are limitations that influence the outcome of this project. In our research design, we identified some limitations. There are threats to the internal validity at the first level at the data sources, then at the level of the case itself. Furthermore, the threats to external validity of the design will be explained. We decide to announce the limitations that we consider have the greatest impacts on our data analysis (Laerd, 2015).

One of the limitations that have an important impact on our research is the quality of our findings. We will have gathered data in a different culture than our own, where people have certain behavior and expectations. Furthermore, some of the stakeholders we have interviewed did not speak a third language, since most of the Indonesian people already speak firstly, the dialect of their region and secondly, Bahasa Indonesia, the official language of the country. Most of the restaurant managers and owners spoke English making a conversation possible, but often times this was not possible with sellers and farmers. This has potential impact to our research. The impacts of this limitation on the findings are minimized by cooperating with local students who translated questions, asked the participants and translated the answers back to English for us.

Another important limitation we encountered is not having the ability to effectively answer our research questions and hypotheses (Laerd, 2015). Multiple factors have possibly influenced the ability to gather data that we wanted or can affect the reliability and validity of the research. Due to the nature of the sector where we conducted most of our interviews, it is fair to say that this is a competitive environment. Potential consequences are exaggerated indications of prices and numbers and discrepancy in answers of participants.

For the market demand and economic performance, we asked participants questions regarding the demand and supply of products, and indications about costs, prices, spending, and frequency of purchasing the fresh foods that are needed to produce the food in the restaurants. This was not always possible, often times we got only one example as indication of their entire purchase. Other times they could not or would not want to share this information with us, making it difficult for us to analyze the value added and economic performance throughout the entire process from farmer to restaurant. Many of the restaurant owners or managers we spoke with told us that their expenses depended always on the season and the number of customers they would serve per day. Furthermore, market prices also differentiate from time to time depending on seasonality, availability of products, demand, and if a harvest was successful or not. Thus making it difficult even for some of the restaurant owners or managers to have a clear idea of their spending on a regular basis. Nevertheless, we have presented our findings and analysis, to the best of our ability, of the economic performance based on the data that we were able to gather from conducting interviews with the actors along the fresh food value chains.

4.2 ETHICAL LIMITATIONS

In the research ethics section from our research plan, we stated that different ethical issues may arise when conducting research in a different environment than your own. We were aware of issues we could encounter in the research process due to our actions and behaviors that could have been perceived right and writing or good and bad. Nevertheless, there have been circumstances where exactly these ethical issues challenged us during our research.

Before our research in Labuan Bajo, we also thought that simply our presence and our Western background may influence how participants perceive our intentions for conducting research. We experienced, on one hand, open people in the markets, they were interested and saw us as “positive” intruders and gave compliments on jewelry or white skin; while on the other hand, some Italian restaurant owner perceived us

as intruders, as some who might steal his job secrets and decided to give us very vague limited information or not at all contribute to our research.

Secondly, in our research plan, we mentioned focusing our attention on reducing inappropriate, uncomfortable, or personal questions that we feel the participants will not feel comfortable with. We experienced these issues in our research in relation to economic performance. With one or two exceptions, we felt very uncomfortable asking questions like "How much do you spend on X, how much do you earn from selling Y?" and so on. This had a profound outcome on our research due to the fact that we wanted to not make our participants vulnerable and to understand that there was very high competition. We experienced that remaining neutral and professional without making people feel vulnerable, and yet answer our research questions while doing what was morally right was difficult. We decided to keep on skipping the questions related to business finances to save other parts of the research and not have the participants frustrated and refusing to continue collaborating.

Finally, we can take a step back and consider what the purpose of four young students from a university in the Netherlands is in doing research in an environment with which they are not familiar. If there is a problem regarding tourism in Labuan Bajo, should this population be in charge of solving that problem because they have knowledge on the situation? Is it appropriate that outsiders who do not get the full picture of the situation interfere this process? These are some questions that we have asked ourselves before, during and after the project. Nevertheless, we have taken care of the ethics as best as we could.

5. DISCUSSION

5.1 FRESH FOOD VALUE CHAINS

One of the methods of the research included making a value chain map. The goods, fresh foods, have been displayed in the relationships between the buyers and suppliers from beginning to end and the production is analysed from producer to consumer (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010). According to Gomez & Ricketts' (2013) value chain typologies, the fresh food value chain for hotels and restaurants in Labuan Bajo belongs to the "modern-to-traditional" typology. These are domestic and multinational food manufacturers who sell through the network of traditional traders and retailers. Furthermore, the following quote can be applied to the value chain under study: "Developing country's FVCs exhibit great diversity, as modern sector firms either establish their own food chains or interact with traditional FVC actors, such as smallholder farmers and traders, wet markets, corner stores, and street vendors" (Gomez & Ricketts, 2013: 139).

Swinnen & Maertens (2007) claim that it is the case that for most farmers in developing countries it is difficult to guarantee consistency and quality of supplies, which is in line with our findings. As Minot (1986) pointed out, seasonal fluctuations, delayed supply response and geographical dispersal of production influence the supply of fresh products. Our findings are in line with this. Food value chains are argued to change rapidly in developing countries, especially due to the increasing demand for products such as meat, dairy, fruits, and vegetables (Gomez & Ricketts, 2013). However, the current study reveals that food value chains also change due a different demand in products, potentially created by tourism. The growth of tourism in Labuan Bajo caused the development of restaurants. A fair amount of these restaurants demands fresh products that are difficult to grow on Flores. Diversity of the end consumers makes it difficult for farmers to satisfy them all. Alternative types of farming anticipating this demand can influence the value chain, reducing actors from the chain. This can also be caused by vertical integration of the value chain, when a restaurant owner cultivates his own vegetables. With this finding, the study fills a gap in the literature.

Furthermore, current literature on agriculture in Flores is often focused on products such as candlenut, cashew nut, coffee and cocoa (Swisscontact, 2009) but most of these products are rarely used in restaurants and hotels. The current research adds on to the existing literature by providing a qualitative research into the fresh foods that are provided to restaurants, including not only fruits and vegetables, but also meat and fish. The latter two are lacking in the current literature as well.

Communication between actors remains a critical point. End consumers have different expectations from their suppliers and want the deliveries to happen at certain times, want contracts. Certain restaurants would like fresh food that has been farmed sustainably and organically, and VECO (2011) argues that the benefits for farmers are considered better prices for their product, a more secure income, and increased yields. However, farmers lack the access to facilities, inputs, information and services (Swisscontact, 2009). Therefore, a farmers training centre could provide them with these missing components. Consequently, the supply of the farmers can be tailored to the demand of the restaurants.

5.2 SOLID WASTE MANAGEMENT

As we defined it in the research plan, solid waste management is a problem in and around Labuan Bajo. Disposal and improper treatment of solid waste has been identified as potentially harmful for environmental and human health. In the case of developing countries, waste streams consist for 0-70% of recyclable waste and 17-80% of organic waste (Troschinet & Mihelcic, 2009). A certain hierarchy is applicable to most industrialized countries, which consists of "prevention or minimization in generation, material recovery, recycling, incineration and disposal in controlled landfills" (Garcia et al., 2005 p.780; Sakai, Sawell, Chandler, Eighmy, Kosson, Vehlow, 1997). A rough approximation of recyclable waste in Labuan Bajo is 70-80% (mostly consisting of plastic). According to the existing literature, Chan & Lam, (2001) and Kumar, (2005) mentioned some theories on solid waste production in hotels and restaurants. Our findings during field research are

contradictory to existing literature in this case. During our research in Labuan Bajo we discovered that restaurants and hotels produce big quantities of waste, but they dispose it responsibly. This waste is then picked up either by individual companies or by government representatives that bring it to dumping land fields.

In addition, we came across many respondents that told us that they collect biodegradable or organic waste and use it as feedstuff for workers' animals, especially for pigs. This is already known in the existing literature, but there is no other use of waste, such as compost, as suggested by Garcia et al. (2005). On the opposite, there are many locals that dispose waste in environmentally unfriendly ways, such as throwing plastic in the sea, on the beach, or on streets. This is what causes most of the problems related to solid waste, and not restaurants and hotels. Although many locals lack in knowledge of consequences due to the random dumping of trash, there are some recycling initiatives coming from locals - such as Waste Bank Initiatives – which focus on plastic and glass.

Based on our research plan, the existing literature on Flores does not mention fresh water shortages. While doing field research, we understood that it is a very big issue for all stakeholders involved in the value chains that we study. Fresh water has major importance at all stages in the value chains of fresh foods. However, it is very difficult to influence the water provision and this is a reason why it has not been studied in previous research.

5.3 INDICATIONS FOR FUTURE RESEARCH

Our data collection focused primarily on restaurants and hotels as end consumers and this was therefore the reason we focused our attention mostly on them. Because of this, our research did not cover the full local population especially. Nonetheless, they are very important actors when it comes to the overall development and image of Labuan Bajo. To resolve and improve the waste management problem in the village, it is very important to get the input and perspective of the local population. Also to gain knowledge on their thoughts concerning the tourism industry that is growing around them such as, how they think about tourism and waste, if they think that waste has a negative effect on tourism. Perhaps, they are not even content with how their area has been developing and feel left out or put aside. Furthermore, a research that can study and get insight into how the locals perceive waste and how they think this should be dealt with would help get a different and essential viewpoint on this issue. Additional research could also be done on how waste can be disposed in Flores itself. For example, how plastic bottles could be used for other creative purposes. A study that would cover how the local community perceives these topics would be helpful for every subject concerning everything regarding Labuan Bajo. Further research could also focus on the farmers as we did not get enough data on their perspectives and visions. A study should be done focusing only on the supply side of the value chain. Another group of actors that were not the focus of our study were the tourists themselves who eat and consume daily from the restaurants. Future research can be done to get to know the demand of the tourist. They are after all the end consumers and the real critics of the food and of the variety that is provided in Labuan Bajo. Furthermore, it should be studied if the visitors are satisfied with the quality of the products that are served in the restaurants. Lastly, what their thoughts are regarding the waste around Labuan Bajo.

6. CONCLUSION

The aim of our research was to study the fresh food value chain with restaurants and hotels as end consumers. After data collection and analysis, we formulated our research findings and came up with opportunities where improvement could be possible. Our findings included that the scarcity of freshwater on the island restricts the provision of fresh foods for all the actors involved in the process. The supply of fruits and vegetables, furthermore, can be improved to match the demand if farmers get assistance or they switch to more reliable forms of farming. Furthermore, it is possible for the farmers to increase their economic benefits if they could work together and start farming products that are highly demanded by the restaurants, such as Italian ingredients. Finally, the waste issues in the area will improve if better facilities are provided and the locals along with the restaurants start working together towards proper waste disposal and a cleaner Labuan Bajo. However, further research needs to be done to study the perceptions of the locals and the tourists as end consumers of the fresh foods.

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8. APPENDICES

8.1 APPENDIX 1 – Predetermined questions for interviews and conversations

Restaurant and hotel staff interview guides

1. Which fresh food produce (fruits, vegetables, fish, and meat) do you provide in your restaurant?
 - Fruits:
 - Vegetables:
 - Fish:
 - Meat:
2. How important is it that these products are fresh?
3. Which standards do you have for your fresh food produce?
4. Where do you get your supply of fresh foods from? Is it locally or internationally?
 - are there restrictions from the government for importing food?
5. How often do you get your supplies?
6. Do you have certain agreements or contracts with your suppliers?
 - Is there a set price?
7. Whom are your suppliers?
8. Do you have a relation with other actors in the supply chain of the products?
9. Are you satisfied with the supply of the products? -Does the supply meet your demands?
 - Are you satisfied with your suppliers?
10. Is there anything that you would like to change?
11. Approximately how much do you spend on fruits, vegetables, fish, and meat on a weekly basis?
12. How do you receive the food, packaged or in other forms?
13. How do you manage the waste of packaging?
 - Other plastics? Solid waste?
14. Do you do any recycling?

Intermediaries/ farmers conversation themes:

- Supply/demand products
- Selling/buying standards
- Relationship with intermediaries - contracts?
- Market Share (sales volume)
- Ideas for improvement of relationships
- Ideas for growth of production
- Packaging

8.2 APPENDIX 2 – Coded themes from interviews, conversations and market observations

Topics Restaurant Interviews

- Products only from local markets → no imports :IIII
- F&V ordered daily/shop everyday on the market: IIIII IIIII I
- Lack of Italian ingredients, or they are too expensive → imported: II
- Vegetables from farm with hydroponic system: II
- Beef is from Flores: IIIII III
- Beef is imported: IIIII I
- Chicken from LB: IIIII IIII
- Fish from local market : IIIII IIII
- Fish from fish farm: I
- Fish is imported: I
- Separation of waste: IIIII II
- No separation of waste: III
- Organic waste taken by staff: IIIII II
- Education of locals regarding waste: II
- Buy from locals as way for community involvement/multiple suppliers :IIIID II
- Water shortage a problem: IIIII
- Willing to work with farmers: II
- Some products are seasonal: IIIII
- Would like contracts, but they don't work out: IIII I
- Locals need to produce more/change in mentality: III
- Has cooperation with farmers: II
- No government initiative: IIII
- Flores land not developed for farming/lack of skills: III
- Problems of storing/cooling/keeping it fresh: I
- Interest in biodegradable plastic: I
- Written contract with suppliers: I

Topics Intermediary

- Products come from other villages or islands
- F&V don't grow in LB
- Daily delivery to restaurants
- No formal contracts, only verbally

Topics Farmer

- F&V but also beef
- Family owned, traditional farm
- Contract with Ruteng and Made in Italy

Topics Fish Farm

- Sells seldom to only a few restaurants
- Sustainable, less fishing in protected areas
- No intermediaries
- Community involvement: involving other villages in having a fish farm

Topics Market Observations

- The weather influences what can be grown in LB, therefore also no contract possible
- Markets are really filthy, hygiene problems
- No appropriate disposal of waste
- Women often sell at fruits and vegetable markets, equal division on the fish market
- Fruits and vegetables often come from other districts on Flores or other islands in Indonesia
- Chicken from Manggarai district
- People on the market are sellers: intermediaries

Topics Support Organizations

- Quality problems with farmers in the past, inconsistency and quality problems
- Weather and pesticides influence the crops
- Waste collection has its high and low periods
- Waste dumping due to lack in knowledge

Topics Waste Bank, support organization

- No government support
- Most waste from hotels and restaurants
- Competition from organizations/individuals that bring it to a dumping place
- Flores Eco Tourism Society: cooperation between tourist guides
- Support organization: WWF and nature conservation NGO of the US
- No government initiative
- Economic performance
- Promotion of the waste bank

Topics Greenhouse Farmer

- Greenhouse, diversification from 'traditional farmers'
- Supplier to 5/6 restaurants
- Employees delivers products

- Organic fertilizers from Java
- No formal contracts
- Only organic waste
- Supply is in plastic bags
- Water is a problem, although he has tackled it by paying for facilities (tank)
- Expensive products
- Locals could be better educated

Final Themes

- ❖ Handling of waste
- ❖ Communication between actors
- ❖ Complaints about quality and quantity of products
- ❖ Lack of trust
- ❖ Water shortage problems

8.3 APPENDIX 3 – Completed research log

Research log	Juultje	Silvia	Eunice	Amber
Mo 27 Apr	visit school SMK, planning and agenda, meeting Harald & Michael	visit school SMK, planning and agenda, meeting Harald & Michael	visit school SMK, planning and agenda, meeting Harald & Michael	visit school SMK, planning and agenda, meeting Harald & Michael, blogpost
Tu 28 Apr	visits Pasar Tradisional, Pasar Batu Cermin, Fish market, conversations and observations	visits Pasar Tradisional, Pasar Batu Cermin, Fish market, conversations and observations	visits Pasar Tradisional, Pasar Batu Cermin, Fish market, conversations and observations	visits Pasar Tradisional, Pasar Batu Cermin, Fish market, conversations and observations
We 29 Apr	interviews h&r, (left side Casa Selini) done: 5	interviews h&r, (left side Casa Selini) done: 5	interviews h&r, (right side Casa Selini) done:3	interviews h&r, (right side Casa Selini) done:3
Th 30 Apr	meeting Harald & Michael, called Sol, continued interviews in h&r	meeting Harald & Michael, called Pino, continued interviews in h&r	meeting Harald & Michael, continued interviews in h&r	meeting Harald & Michael, continued interviews in h&r
Fr 01 May	early morning fish market (TPI) observations	early morning vegetables & fruits market (Pasar Batu Cermin) observations	early morning fish market (TPI) observations, blogpost	early morning vegetables & fruits market (Pasar Batu Cermin) observations
Sa 02 May	typing out interviews	interview Pino	interview Pino	interview Pino
Su 03 May	Visit Pino's vegetable farm	Visit Pino's vegetable farm	Observation restaurant and make connections	Visit Pino's vegetable farm
Mo 04 May	Visit Waste Bank	interview intermediaries Ma & Pa Cinta, phone interview farmer Ruteng	interview intermediaries Ma & Pa Cinta, phone interview farmer Ruteng	Visit Waste Bank
Tu 05 May	Meeting Harald & Rico, visit Sol's fish farm	Interview Aru Dari Waste Bank, meeting Harald & Rico	Meeting Harald & Rico, visit Sol's fish farm	Interview Aru Dari Waste Bank, meeting Harald & Rico, visit Sol's fish farm
We 06 May	Follow-up visits to restaurants	Follow-up visits to restaurants	interview Made in Italy	interview Made in Italy
Th 07 May	Test Presentation (Presenter)	Test Presentation	Test Presentation	Test Presentation
Fr 08 May	Stakeholder presentation and discussion (Presenter)	Stakeholder presentation and discussion (Presenter)	Stakeholder presentation and discussion (Facilitator)	Stakeholder presentation and discussion (Facilitator)

8.4 APPENDIX 4 – Research plan

Research Plan IFP - Group 4

Value chain of fresh food products for hotels and restaurants (fruits, vegetables, meat, fish)

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1. Introduction

Tourism can positively contribute to a country's GDP, direct employment and government revenues (Scheyvens, 2011) and with international tourism forecasted to be the most important sector in world trade by the end of the century (Witt et al. 1995), tourism has become a preferred economic growth activity for many developing countries (Telfer & Geoffrey, 2000). This is certainly also true for Indonesia, where the tourism sector contributed \$US 85 billion (9.1%) to Indonesia's GDP and employed directly and indirectly 9.4 million people in 2013 (WTTC, 2014). The tourism sector in Indonesia is forecasted to grow at an annual rate of 4.6% over the next decade (WTTC, 2014). Tourism is an opportunity for developing countries for establishing economic growth and economic diversification, however the tourism industry has been simultaneously criticized for having high external leakages and offering scant benefit to poor people in relatively less developed parts of the world (Bryden 1973; Britton 1982; Cole 2008). This is also true for Indonesia, where tourism activity is only concentrated on certain islands and even only in particular regions of these islands (Hampton & Jeyacheya, 2015), which has led to economic disparities and social inequalities between the islands, between the regions and thus between the local communities.

Flores, one of the Lesser Sunda Islands east from Java, is an example of one of the islands of the Indonesian archipelago where tourism developed fragmented. As tourism destination Flores was long hidden in the shadow of its more famous neighbour Bali, however Flores is now developing as a tourism destination of its own. Despite the potential of Flores' mainland for tourism development, tourism is mainly concentrated in Labuan Bajo, the westernmost region of Flores. Flores is still one of the poorest regions in Indonesia. In terms of Human Development Index (HDI), Indonesia is Low Human Developed and the Nusa Tenggara Timur province – Flores is one of the major islands of NTT – appears 31st out of 33 regions in Indonesia (UNDP, 2015; Swisscontact, 2009). Besides the economic inequalities between the regions and local communities on Flores, Flores is currently also facing challenges with the management of waste. Waste is being dumped on land and at sea and is often argued to be one of the most urgent issues to be addressed (Eco Flores, n.d.).

One of the organizations that is concerned with the social and environmental challenges that Flores is currently facing is DMO Flores. DMO Flores is a regional Destination Management Organization established in 2011, which aims to support the communities on Flores with developing their own products, providing training in the field of service quality and working together with governmental organizations to optimize the destination management (DMO Flores, n.d.). Swisscontact, a business-oriented international development agency, supports DMO Flores and aims to improve the living standards in Indonesia by promoting access to economic participation, equitable for all parts of society (Swisscontact, 2015). They implemented the WISATA project to increase employment and income of communities in Flores in particular by supporting both the communities and government in developing Flores as a travel destination, while in the same time protecting its natural and cultural identity (Swisscontact, 2015).

DMO Flores argues that tourism on Flores has the potential to develop as an important economic resource, while at the same time improving the quality of life of people of Flores (DMO Flores, n.d.). Because DMO Flores believes in a self-help approach, DMO Flores has identified the development of Small-to-Medium sized Enterprises (SMEs) in Flores as an opportunity for enhancing community involvement by increasing their economic participation and thus improve the living standards for the

communities. Also, when the local community is (more) economically participating in the tourism sector, the waste problem is more likely to reduce while the workers live, play and raise families in and around their sites of work and thus have a stake in improving the management of (solid) waste. Moreover, tourism can take the lead in the waste problem, while a clean environment is important for the positive experiences of tourists and a polluted environment will definitely be a 'dissatisfier' for tourists experiences. There is, however, a lack of knowledge on how to enhance the community involvement and improve the waste management in practice and therefore we will conduct field research on Flores, more specifically in Labuan Bajo, to identify opportunities to improve both.

Because food is one of the essential elements of tourist experience nowadays (Hall, Sharples, Macdonald & Cambourne, 2004) and food purchases constitute of one-third of all tourist expenditures (Belisle, 1983), the fresh food value chain represents an opportunity to stimulate economic participation of the local community. The fresh food value chain (FFVC) of Labuan Bajo provides opportunities to stimulate community involvement and improve the (solid) waste management by for instance promoting 'made in Flores' products and improve or recycling the packages of the fresh foods, but moreover the FFVC provides chances to develop SMEs. According to the definition of the United Nations, an enterprise is small-to-medium sized when it employs 10 to 249 employees and/or it generates between 10 and 50 million Euro (UN, 2004). Even though this is a very useful definition, at the same time the UN recognize that very different practices of the concept are used across countries due to the many dimensions a SME reflects (the economic, cultural and social dimensions of a country) (UN, 2004). The definition can therefore be based on different standards, for instance number of employees, turnover for legal or statistical purposes or even a combination of these concepts. In the perspective of Indonesia, or even more specifically of Flores, it is more realistic to also include the opportunity of developing Micro Enterprises, which according to the UN standards then will also include enterprises with 1 to 9 employees. The labour force engaged in agriculture is namely 95% in Flores, which would suggest that almost all people in Flores are small farmers (Swisscontact, 2014). Therefore, we suggest that most enterprises in Flores are small local (family) businesses.

1.1. Boundaries, goals and objective of the research

The fresh foods included in the FFVC are fish, meat, fruits and vegetables. As we will do field research in Labuan Bajo, we will only include the fresh foods for the use in the end market hotels and restaurants in Labuan Bajo. Even though the market volume of these hotels and restaurants in Labuan Bajo seem relatively small, they could provide an important starting point for enhancing the economic and social participation of the community in Flores. For instance, hotels and restaurants could be interested in (more) products from the local farmers on Flores, which would help the farmers to increase their domestic exports, which then again may lead to increasing empowerment of the local farmers.

The objective of this research is to analyses the performance of the fresh food value chain for hotels and restaurants in Labuan Bajo and to define the opportunities and constraints for an enhanced community involvement and an improved solid waste management.

In other words, we will define the opportunities and constraints for a sustainable food value chain (SFVC), which can be defined as 'the full range of farms and firms and their successive coordinated value-adding activities that produce particular raw agricultural materials and transform them into particular food products that are sold to final consumers and disposed of after use, in a manner that

is profitable throughout, has broad-based benefits for society, and does not permanently deplete natural resources' (Neven, 2014, p.7). The main research question of this research is therefore:

How is the fresh food value chain for hotels and restaurants in Labuan Bajo performing and what are the opportunities and constraints to make a sustainable fresh food value chain, in terms of enhanced community involvement and improved waste management?

The following research question will guide during the research process and will combined provide the answer to our main research question:

- What value chain actors are in the fresh food value chain, what is their role and how are they related to each other?
- How is the fresh food value chain economically performing, in terms of turnover and sales volume, at each stage of the value chain?
- What are the opportunities and constraints to enhance indirect community involvement through SME development?
- What are the opportunities and constraints to improve the (solid) waste management through the fresh food value chain?
- What are directions and solutions for both the value chain actors to intervene in the FFVC and for supporting value chain actors to support this intervention?

1.2. Intended end result and expected outcomes

The end result of this research process will be a report with directions, advices and possible solutions for the fresh food value chain actors in Labuan Bajo to enhance and improve the community involvement and the (solid) waste management. All value chain actors and supporting value chain actors will be invited to a stakeholder meeting at the end of the field research period, where we will present our findings and recommendations. Moreover, the value chain actors are given the opportunity to provide us with feedback, which we can use to improve our final report. This stakeholder meeting is very important for us, because it is important to emphasize that our report only gives directions, advices and possible solutions; it is up to the value chain actors to, how to, and where to intervene in the FFVC. At the stakeholder meeting, we will also have small discussions with the stakeholders who are present. These small discussions could give us more insight on which possible solutions are seen by the value chain actors as most suitable and feasible. It is because of this self-help approach that we believe that our report will be valuable for all value chain actors and supporting value chain actors of the FFVC in Flores. This report will also be useful for our commissioner, DMO Flores, because it will provide structure and a vision for them on how value chain actors can intervene in the FFVC of hotels and restaurants in Labuan Bajo in order to improve the (solid) waste management and enhance community involvement, and also on how DMO Flores could help as a supporting value chain actor. Even though the specific outcomes and solutions of this case study will not be applicable in areas outside Labuan Bajo, the report with the elaborate steps on how to conduct research in a FFVC could be very helpful for the municipality of Flores, while the report will emphasize how important such an research is in general and thus also for areas in Flores other than Labuan Bajo where the economic involvement of the community and the management of waste is considered as not optimal.

2. Literature review

2.1. Food Value Chains

Value chains can range from being very simplistic - including only a few actors to being very complex, involving a large number of actors that are essential for the production of a particular good or service. A value chain analysis entails a focus on the *'vertical'* relationships between the buyers and suppliers from beginning to end – an analysis of the production of a good or service from producer to consumer (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010). According to Minot (1986) the main functions along a vertical chain are often: production, grading, packaging, transportation, processing, storage and distribution. The links within the value chain can consist of a range of activities. These intra-chain linkages are often depicted as a vertical chain, however, these are most of times of a two-way nature (Kaplinsky & Morris, 2001). —Over the last decade, the value chain has established itself as one of the main paradigms in development thinking and practice (FAO, 2014, p.7). Therefore, great attention has been paid to the study of value chains for all kinds of products and services. This study will focus on the dynamics of food value chains, particularly for fresh food produce.

According to David Neven (2014), a Marketing Economist at FAO Rural Infrastructure and AgroIndustries Division, FVCs differ on four very important characteristics from other value chains. First of all, all human beings are part of the FVC because our well-being is directly affected by the food we eat. Secondly, food and agriculture make up an important part of the economy, especially in developing countries where poor people and food security are very dependent on it. Furthermore, FVCs get influenced, to some extent, beyond the control of producers because of its close relation to natural environments and the life cycle of plants and animals. Finally, food quality is difficult to control in terms of uniformity and perishability (FAO, 2014). Additional problems that may also arise are seasonal fluctuations of supply, delayed supply response, and geographical dispersal of production (Minot, 1986). Food value chains are changing rapidly in developing countries, especially due to the increasing demand for products such as meat, dairy, fruits, and vegetables (Gomez & Ricketts, 2013). Nowadays, FVCs are longer considered to those of a few decades ago, including multiple segments, due to food consumption pattern changes caused by urbanization, growth in income, and development of modern retailers, processors and distributors (Gomez & Ricketts, 2013). Furthermore, contemporary value chains operate through the interaction of global and local value chains by mostly multinational firms through ever tighter vertical coordination across the value chain (Gereffi & Lee, 2009). Liberalization of trade and investment, along with policy reforms accompanied by privatization and domestic price reforms are consequences that globalization has had on FVCs worldwide (Swinnen & Maertens, 2007). Globalization has also influenced how food value chains around the world operate within and amongst each other. Hence, agri-food production has undergone significant changes, such that consumers in North America and Europe can find fresh food produce year round while Asian, African and Latin American farmers and exporters take advantage of the new market opportunities (Gereffi & Lee, 2009).

Gomez & Ricketts (2013) developed four value chain typologies depending on participants and their interactions, markets targeted, and types of products offered to end consumers. The four value chain typologies are: —traditional which are traders who buy primarily from smallholder farmers, and sell to consumers and traders in wet, mostly local, markets; —modern which includes domestic and multinational food manufacturers who produce primarily from commercial farms and sell through modern supermarket outlets; —modern-to-traditional are domestic and multinational food manufacturers who sell through the network of traditional traders and retailers; and —traditional-to-modern which are those supermarkets and food manufacturers who source food from smallholder farmers and traders.

Taylor (2009) studied the demand management in fresh food value chains in the UK on sectors of meat, fruit, vegetables and dairy products. The aim of this study was to improve the vertical coordination from —farm to fork— and focus on greater integration of producers of primary products into the food value chain - which is also one of our aims. Study findings concluded that there is a consistent misalignment of demand and supply when it came to these particular sectors caused by increase in demand along with lacking production systems and finally poor data handling procedures. However, these results cannot be globally generalized to every FVC considering that this study took place in the UK, which cannot be compared to the now developing Island of Flores.

2.2. Fresh Food Value Chains in Flores

People are becoming increasingly aware of their health and paying greater attention to what they eat. According to Chowdhury, Gulati & Gumbira-Sa'id (2005) these additional changes in dietary habits will probably increase the demand for fresh products in the near future. When it comes to fresh food produce, standards are increasingly stringent and affect those farmers and producers, especially those in the developing countries who cannot cope with these regulations in the international trade (Swinnen & Maertens, 2007). It is the case that for most farmers in developing countries it is difficult to guarantee consistency and quality of supplies (Swinnen & Maertens, 2007) which can make it extremely difficult to survive in highly competitive markets. Globalization has given retailers and supermarkets the power to apply a global sourcing strategy to impose safety and quality standards on their suppliers (Gereffi & Lee, 2009). —Developing country FVCs exhibit great diversity, as modern sector firms either establish their own food chains or interact with traditional FVC actors, such as smallholder farmers and traders, wet markets, corner stores, and street vendors. (Gomez & Ricketts, 2013, 139). Flores' labour force is almost completely based on agriculture; 94% compared to 43% for the whole of Indonesia meaning that the population consists mainly of small farmers (Swisscontact, 2009). The FVCs in Indonesia have been changing and transforming from traditional value chains to more modern value chains where fewer participants are involved, yet consist of a higher degree of coordination, along with a high level of integration among different activities (Chowdhury et al., 2005).

Flores' agriculture is mainly based on rice, coffee, candle nut, cocoa and cashew nut – these are the cash crops. Furthermore, other crops such as coconut, vanilla, cotton, seaweed, fruits and vegetables also get produced on the island (Swisscontact, 2009). A study carried out on FVCs in Indonesia by Chowdhury et al., 2005, reviewed the vertical relationships of the fresh food value chains of fruit and vegetables. Their aim was to identify changes in the market organization and value distribution, while focusing on the small-scale farmers and their integration into the FVC. However, the end consumers for this study were supermarkets, while our research will focus on hotels and restaurants as endconsumers. Furthermore, the study included Indonesia as a whole, while we will only study one area of one Indonesian Island – Labuan Bajo. Lastly, they only focused on fresh fruits and vegetables, while our study will go beyond fresh fruits and vegetables and include also the produce of fresh fish and meat.

Value chains can play a role in local food system development that benefits a wide range of producers and consumers (Bloom & Hinrichs, 2011, p.14). Currently we can see that there is already a movement into making the production of certain products more sustainable in Flores e.g., the cocoa production. Such that current practice of sustainable chain development shows that it is the chain actors and chain supporters who show initiative of converting chains to be more sustainable, in comparison to development actors playing this role in the past (VECO, 2011). The Indonesian

Government is also aiming to diversify the agriculture by increasing the production of high-value products such as, fruits and vegetables that can easily be produced by small-scale farmers which can play an important role in a pro-poor diversification strategy (Minot, 1986). While the sustainability benefits for the farmers are considered to be better prices for their product, a more secure income, and increased yields (VECO, 2011), Swisscontact (2009) has pointed out the main issues that have held back the farmers from developing to more sustainable practices:

"The remoteness of Flores has meant that farmers face difficulties in accessing inputs, information, and services. This is then manifested in the prevalence of traditional farming methods resulting in low crop yields or productivity accompanied by insufficient crop diversification and overuse of land. These low yields make farmers vulnerable to food shortages and economic hardships. These problems have been further aggravated by poor infrastructure of roads and communication technologies, which make Flores Island appear far more detached from most national economic centers in Indonesia. These difficulties raise the transport costs of the high-value cash crops, prices of which are further affected by the fluctuations in the global market" (p.5).

So far, the amount of studies done on food value chains on the island of Flores has been very limited. More precisely, studies done on the supply side of the value chains and how the ones at the bottom of the value chain could be greatly involved into the production process. May it be through moving up on the value chain by removing intermediaries, growing in market share, or even the possibility of moving beyond only supplying to consumers on the island of Flores - exporting produce. These are all options that the producers can look into to grow economically. Furthermore, it is also understudied if these producers have the capacity to grow with the demand. The aim of our research is to study these topics and contribute to the current gap in literature about food value chains studies done on Flores.

2.3. Solid waste management

As defined in the problem analysis, solid waste is a problem in and around Labuan Bajo. Disposal and improper treatment of solid waste has been identified as potentially harmful for environmental and human health. In the case of developing countries, waste streams consist for 0-70% of recyclable waste and 17-80% of organic waste (Troschinet & Mihelcic, 2009). A certain hierarchy is applicable to most industrialized countries which consists of —prevention or minimization in generation, material recovery, recycling, incineration and disposal in controlled landfills (from Garcia et al., 2005 p.780; Sakai, Sawell, Chandler, Eighmy, Kosson, Vehlow, 1997).

Garcia et al. (2005) explored how different types of biodegradable waste originating from meat, fish, fruits, vegetables, restaurants and households can serve as feedstuffs for animals. Waste from restaurants and households have a more balanced composition of nutrients whereas waste from meat, fish, vegetables and fruit are often rich in one specific nutrient. However Garcia et al. (2005) also acknowledge that due to the European legislation waste from meat, restaurants and households is banned from using as farmed animal feedstuff. Nevertheless, fish waste and meat waste can be good sources for protein and fat in fish and pet food and fruit and vegetable waste are good alternatives as feedstuff for all animals (Garcia et al., 2005).

Within our framework of the value chain of fresh foods in hotels and restaurants, one of our concerns will be the by-production of solid waste in this sector. That the hotel and restaurant industry produce quite some solid waste may not come as a surprise. Chan & Lam (2001) studied the hotel industry in Hong Kong and found that hotels are responsible for producing a considerable amount of municipal solid waste. Plastic toiletries make the heaviest type of waste from hotels and with 0.751 kg of food waste per cover, the restaurants in hotels responsible for a large amount as well (Chan & Lam, 2001).

Kumar (2005) explored some waste management practices in the Vietnam hotel industry ranging from 2 star hotels to resorts. More specifically related to solid waste management, common good practices observed in all the hotels were avoiding photocopying, reusing remaining toilet paper rolls and soap, refilling shampoo bottles and avoiding food wastage by checking the quantity of products before purchase (Kumar, 2005). Inefficient practices were also recorded, these included not composting organic waste to produce fertilizer, using unnecessary official letters for internal communication, and limited recycling to only paper, plastic and aluminum cans (Kumar, 2005). Suggestions for a better management of food waste includes to minimize the waste discharged by monitoring the daily weight of waste. Shampoo bottles should be refilled to avoid unnecessary plastic waste (Kumar 2005).

The problem in Labuan Bajo is the management of plastic waste (or the lack thereof) and is assumed to affect the attractiveness of the destination (Course Outline, International Field Project, 2015). According to the Eco Flores Foundation, waste dumped on land and at sea is an urgent issue that needs to be addressed. Eco Flores is a foundation which facilitates collaboration between NGO's, government affiliations and the private sector to support sustainable development of Flores (Eco Flores Foundation). The Komodo National Park, with a precious ecosystem, is situated near Labuan Bajo and this town deals with a fast developing tourism sector, creating more waste. The Plasticman Institute, founded in 2010, set up a community based waste project which includes increase understanding of the economic value of plastic waste and collaborate with fishing communities to collect plastic from beaches and fish for plastic in the sea (Eco Flores Foundation).

The problem of plastic waste on Flores and more specifically in Labuan Bajo is known, and multiple organizations are already contributing to a solution. Recycling plastic waste gathered from the beaches and sea will reduce the problem, however it is possible that when more actors from multiple sectors are involved it is likely that this will increase the potential to manage solid waste. Since the fresh food in hotels and restaurants is the topic of our research, the production of solid waste in this value chain will be of our concern. The literature study reveals some theories on solid waste production in hotels and restaurants (Chan & Lam, 2001, Kumar, 2005) and on recycling biodegradable products into feedstuff for animals (Garcia et al., 2005). The literature provides knowledge on a certain stage within a value chain, however what is lacking is study that incorporates multiple stages in a value chain to reduce solid waste. With our research into the fresh food value chain we include the agricultural sector for a large part. Besides collaborating with fisheries to collect plastic waste from the beach and sea it is not clear from the literature what else this sector is doing or can do to manage its solid waste production on Flores.

2.4. Community involvement

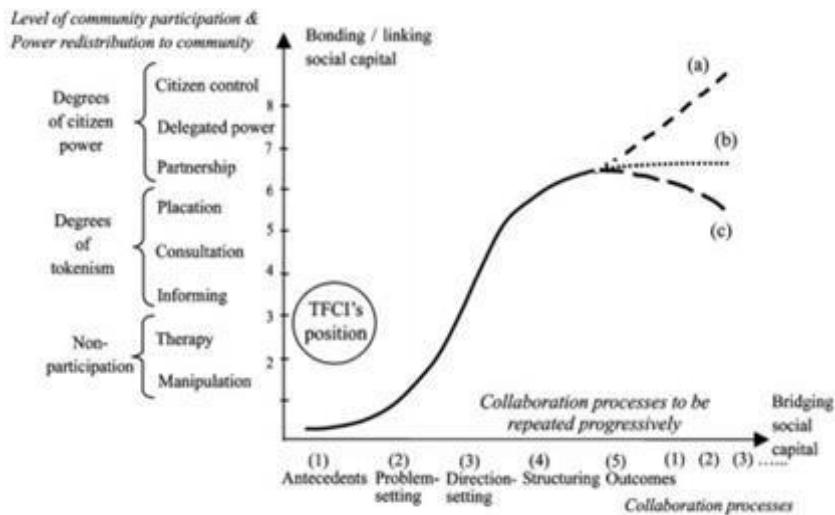
Besides the solid waste management problem, the problem analysis also mentions the lack of knowledge in developing small and medium sized enterprises (SMEs) and how they can embed locally grown products of Flores in the tourism value chains. Examples of beneficial elements that tourism can bring to local people are providing economic benefits and opportunities, enhancing

livelihoods and providing social exchange (Simpson, 2008). The same author however argues that tourism also brings disadvantages: it destroys local cultures, limits the individuality of communities and degrades social structures. It is therefore important to realize what exactly is being developed, assumed to be in the advantage of the locals, and if this is really the case. To consider a tourism initiative a ‘community benefit tourism initiative’ it should at least have as primary objective to improve the livelihood and include economic, social and/or environmental benefits for the members of the community.

In Europe, together with a growing interest in community tourism development, the European Union is promoting SMEs under the condition that such firms provide benefits for the community such as job creation and entrepreneurship (Wanhill, 2000). Within tourism research, the development of small businesses in tourism has been raised early on by Rodenburg (1980). This study done on Bali, concluded that not only development of large industrial tourism meets objectives of development, but that small industrial tourism including homestays, local souvenir shops and independent restaurants are more suitable for an island such as Bali because they —offer a great opportunity for profit and control to local people than do enterprises on a larger scale (Rodenburg, 1980, p.194)

The development of small and medium sized enterprises is not the only way involvement from the community in tourism can be realized. Different stages of community participation are identified by Arnstein (1969) which are non-participation, degrees of tokenism and degrees of citizen power. Within these stages there are multiple steps, as visible in graph nr.1 Furthermore, Okazaki (2003) underpins the importance of social capital in economic development through tourism, which —explains the importance of using social connections and social relations in achieving goal (N Lin, 2002).

According to the Eco Flores Foundation, there are several local, Indonesian and foreign NGO’s involved in community development on Flores. Of these NGO’s, a fair amount is concerned with alleviating poverty in Flores and a few of them indicate to empower farmers and fisheries. Despite literature on community involvement in the agricultural sector in Flores being virtually nonexistent, there are numbers on employment in the hospitality sector. Partly due to dragon tourism, Labuan Bajo receives international visitors and this has provided employment opportunities (Walpole & Goodwin, 2000). Of the 256 full time equivalent jobs, 39% consists of jobs in hotels and restaurants. Furthermore, Walpole & Goodwin (2000) reveal that only 28% of local shops and restaurants are locally owned and that the majority of hotels owners from mid-range onwards are nonlocal. In the study of Walpole & Goodwin (2000) the direct impact of tourism on employment in the hospitality sector is visible, however the sectors that indirectly profit from tourism in Labuan Bajo are not taken into account.



Graph 1. Model of community-based tourism as suggested by Arnstein (1969) and Selin & Chavez (1995). As portrayed in Okazaki (2003)

What is lacking in the existing literature is linking opportunities for community involvement to sectors that are indirectly impacted by tourism. Fisheries and the agricultural sector can profit from tourists that eat local food in hotels and restaurants. The link between community involvement and these sectors who indirectly provide to- and profit from tourists has been neglected in tourism studies. Where small and medium sized enterprises can play a role in the fresh food value chain is also a potential topic of research since the literature only reaches to direct examples of SMEs in tourism (Rodenburg, 1980). The model by Arnstein (1969) and Selin & Chavez (1995) can help us determine in what stage community participation in the fresh food value chain is currently residing.

3. Value Chain Mapping

Since we will study four different fresh food products – meat, fish, fruits and vegetables, it is more than logical that their value chains will not be identical. Therefore, we identified three value chain maps based on general value chain maps for meat, fish, and fruits and vegetables combined. We decided to combine fruits and vegetables because of the little differences between these two. First of all, the fruits and vegetables value chain map is based on a general food value chain by SpringerHeinze (2007) and it includes all the basic activities and actors that we think are needed for the production of fruits and vegetables (Figure 1).

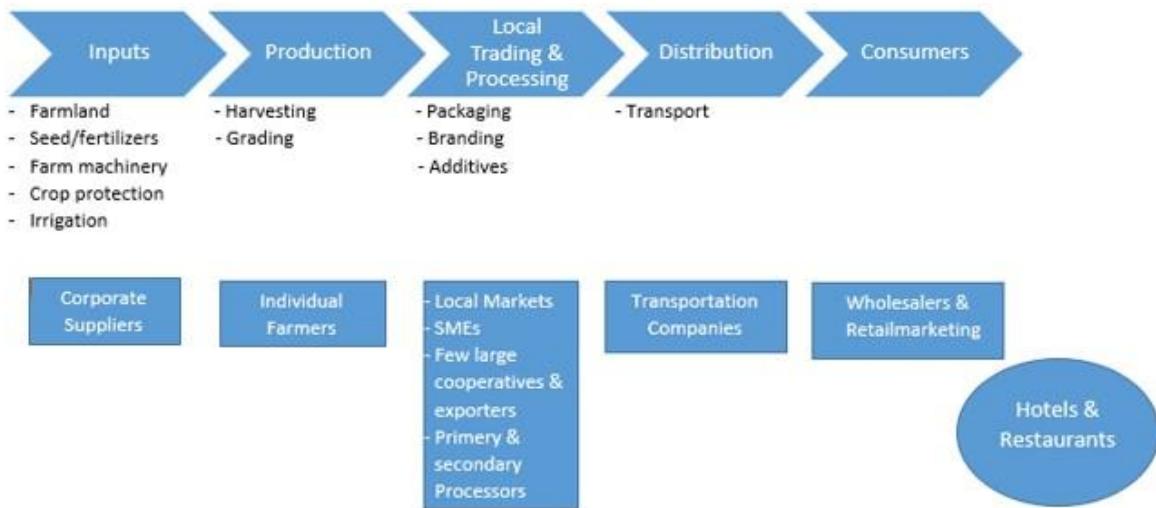


Figure 1 Fruits and Vegetables Value Chain Map

The meat value chain map is also based on Springer-Heinze (2007) but includes more activities and actors than is needed for the production of the fruits and vegetables value chain. We think that meat production undergoes a longer process for it to reach its end-consumers which in this case are hotels and restaurants in Labuan Bajo (Figure 2).

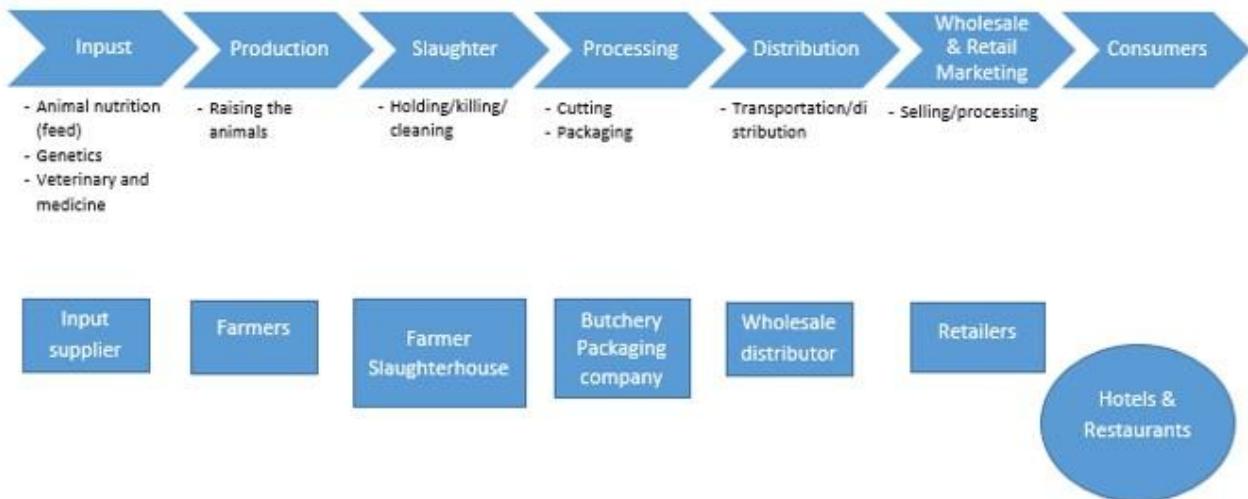


Figure 2 Meat Value Chain Map

The third and final value chain map on fresh fish is based on a research by the World Fish Center in Egypt (Allah, Dickson, Kenawy, Ahmed & El Naggar, 2012), who performed a value chain study on farmed fish in Egypt. The main actors they identified included producers, wholesalers and retailers. The fact that Labuan Bajo has a fish market makes it reasonable to assume that their fish are locally caught, but we don't exclude the option that some fish that gets served in hotels and restaurants are grown by farmers (Figure 3).

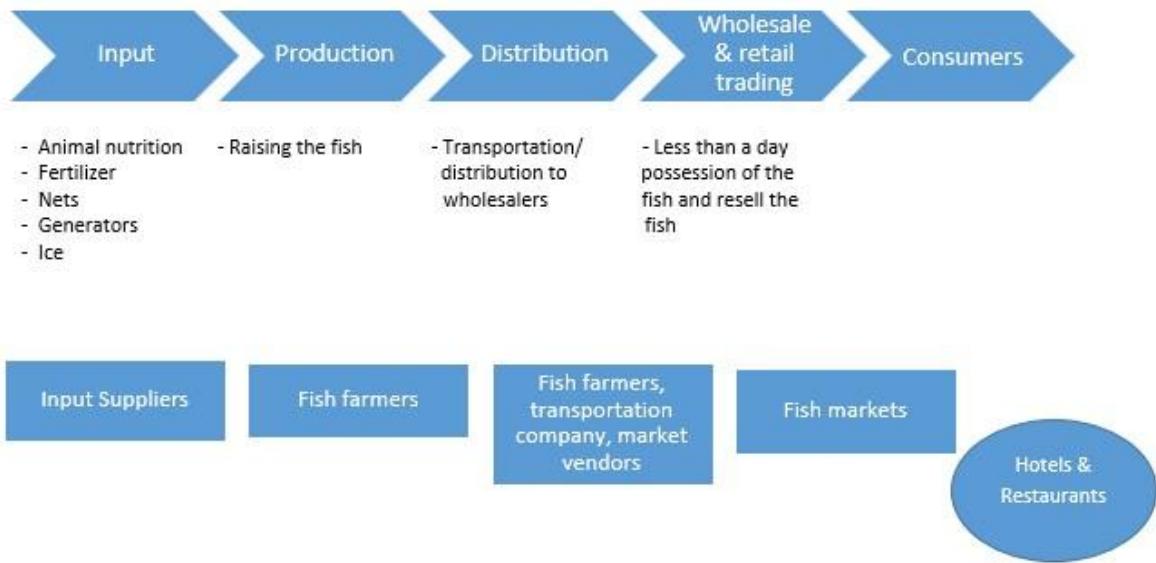


Figure 3 Fish Value Chain Map

4. Research Methods

This study will research the FFVC in Labuan Bajo and the Western area of Flores island, Indonesia.

More specifically, the research will try to give recommendations for possible interventions in the FFVC, that can increase the quality of life of local communities by increasing economic participation and improving the management of waste. Therefore, we will collect data in two consecutive weeks in April and May, 2015, in Labuan Bajo, Flores. A preliminary report will be presented to the commissioner and stakeholders on the last day of the research on Labuan Bajo, and a complete report will be written and presented in mid-June, 2015, after all data has been thoroughly analysed.

For this research, the most appropriate design that we selected is the Case Study, because of two main reasons. The key features of case studies include small samples, on-site research, and deal with multiple sources of information. These key features fit the description of our assignment. Additionally, because we study the value chain of food, which could be seen as a phenomenon (that comprises all the underlying processes) and takes place in a context that is bounded in time (approximately two weeks for the research) and space (area of Labuan Bajo).

4.1. Data collection methods

To accomplish our goal and answer the research questions, we decided to mainly apply qualitative research methods. The main research question, *“How is the fresh food value chain for hotels and restaurants in Labuan Bajo performing and what are the opportunities and constraints to make a sustainable fresh food value chain, in terms of enhanced community involvement and improved waste management?”*, is a descriptive question, we aim at understanding the current situation and to provide guidance. Therefore, to have an understanding of the current situation, we need methods of descriptive qualitative data collection. What we intend to find out is how tourism could be used as an opportunity for enhanced community involvement and waste management. More specifically, we want to describe how the FFVC is performing at the moment, and therefore we need to know the

performance of the stakeholders. To get answers to our questions, information from restaurants, hotels, local farmers, and other actors through the value chain are needed.

In addition, we will collect information and study possibilities of how value chain operators could take initiative in improving waste management. We will construct, through quantitative methods, the Value Chain Map. Therefore, the actors and facilitators which make part of the value chain need to be known. Secondly, the relationships between these different stakeholders needs to be defined.

4.2. Phases of data collection

During our 12 days data collection time, we have to be focused on answering the research questions. Therefore, to collect data that could later be used in our report, we proposed using same techniques as Telfer and Wall (2000): their research methods on food purchasing in three different Indonesian hotels, consisted of —observations of operating procedures and interviews with staff and management at the hotel to get an understanding of their [food] purchasing behaviours (Telfer & Wall, 2000: 425).

Identifying the issues and opportunities for data collection

Because of our research statement of Fresh Foods Value Chain in Hotels and Restaurant, we will start looking for opportunities to collect data within this sector on Labuan Bajo. First, we will dedicate 1-3 days to get acquainted with the area, observe processes that are going on in the local market, see what sort of menus do the restaurants have and what food is provided in hotels. Afterwards, the remaining days will be devoted to talking with people and finding out the information which is needed, and to actively observe the processes which will be taking place.

On one hand, there are restaurants and hotels in Labuan Bajo. A list of approximately 12 restaurants and 10 hotels - who also provide food, was made and identified through doing desk research beforehand. When on site, we will approach additional restaurants and hotels that could not have been identified before arriving at our destination.

On the other hand, there are the local farmers and intermediaries. These are also valuable sources of information, and we aim at also collecting data from locals, vendors in the market, and tourists.

Selecting appropriate methods

Due to the broad range of sources of information, we considered interviewing as the most appropriate method for collecting data. The interviews are divided in two, adapted to our expectations of the interviewees. First, we expect staff to have an understanding of English due to international tourists' demands and therefore we considered structured interviews with restaurants and hotel staff. For the interview guide, see Appendix 1. Second, we do not expect farmers or intermediaries to have average English knowledge and for that reason we will try informal conversations. The themes are closely related to the ones from staff interviews and can be seen in Appendix 2.

The sampling plan includes a summary of hotels and restaurant and an approximation of the number of farmers and market vendors. We will aim on getting interviews and/or conversations with representative people who will contribute to our knowledge and be valuable for our research. The task division of our group states that two members will conduct interviews with the participants,

while the other two members will perform participant observations in restaurants and other places of concern which will be decided later.

Collecting the necessary data

The research methods we will use in our case study research are both quantitative and qualitative, but with an emphasize on the qualitative methods, such as interviews and participant observation.

Interviews and informal conversations

The design of the structured interviews will be based on the main themes that we want to cover - mentioned below. The interviews will have a similar central core, but will also be adapted according to the stakeholder in concern. For instance, we will have a certain set of questions for a restaurant owner, and some topics of interests to have a conversation on with a food vendor in the market.

The themes related to our research questions, that we would like to cover with the interviews are the following ones:

- Fresh foods
- Supply & demand amounts
- Sales volumes, turn-over
- Market share
- Food standards (in production, selling, managing, etc.) (how do restaurants receive the fresh products, what do they do with packaging?)
- Growth opportunities
- Municipal waste management
- The process of food waste production
- Packaging waste production
- Recycling and its importance
- Relationships
- Relationships and interactions in the Value Chain (for the VC Map)
- Contracts, agreements, legal restrictions
- Importance in the value chain (minor or major actor, intermediaries, etc)

We aim at collecting approximately 15 semi-structured interviews in the town of Labuan Bajo that we will analyze. For the interview guide, please refer to Appendix 1; and for the informal conversations, please refer to Appendix 2. Along with these, we aim also at conducting participant observation.

Direct observations

Participant observation will be conducted in selected locations in Labuan Bajo, by half of our IFF team, taking turns through the days of data collection. For instance, we could do participant observation for a few mornings in the market on the island.

With this method, we aim at first observing and then understanding the context of the value chain and creating a proper field of research and guiding our interviews. Also, with a proper task division we will be time efficient in collecting all data needed.

4.3. Description of limitations

In our research design, we identified some limitations. They are within the internal validity at the first level at the data sources, then at the level of the case itself. Following, we will explain the external validity of the design. We cannot identify all limitations that could be encountered in our research, and therefore we decided to announce limitations that we consider have the greatest impacts on our findings' analysis (Laerd, 2015).

One of some limitations that could have important impact on our research is the quality of our findings. We will be gathering data in a different culture than our own, where people have certain behaviour and expectations. Some of the stakeholders we will interview are expected to not speak a third language, since most of the Indonesian people already speak firstly, the dialect of their region and secondly, Bahasa Indonesia, the official language of the country. Therefore, we might encounter communication barriers that could have major impacts in our findings. We will try to minimize these by finding local guides that could help translate, and use a list of keywords from our interview questions that are translated from English to Indonesian.

Additionally, cultural exclusion and avoidance from locals might also be another barrier that will need to be overcomed. The locals of Flores could see us as external people and keep their distance, be shy when they are approached, or not be sincere when answering the questions. To avoid these, we need to have contact with the locals and then try to create informal relationships, by for instance, going daily to the food market and greet the possible future interviewees, and after a couple of days approach them for a conversation.

Another important limitation we could encounter is not having the ability to effectively answer our research questions and hypotheses (Laerd, 2015). Due to the broadness of our research questions, it could happen that the data we will collect will not fully answer them. We will adapt our research questions to the point that they are achievable. The aim will not be something impossible to realize, considering probably the limited specialized English vocabulary that we will be able to use.

4.4. Ethics of our research process and measures to address these issues

When conducting research in a different environment than your own, different ethical issues may arise. According to Lovelock & Lovelock (2013) students of tourism and researchers are moral agents and therefore are beings capable of actions that have a moral quality and actions that can be labeled as good or evil in a moral sense. We are aware that we may encounter some issues regarding ethics when conducting our research, but with our knowledge in ethics we will take appropriate measures to address these as best as possible during the research process. Ethical knowledge may not solve all our issues, but it may help us interpret and communicate to others (Smith & Duffy, 2003) along with making us aware of our behavior and actions about what is right and wrong, good or bad. For conducting our research we will adopt the code of ethics in regulating research and therefore minimize the harm brought to participants, collaborators and the general public (Aguinis & Henle, 2002).

When it comes to issues regarding the ethics of our research, we have some preconceived ideas to what we think may be issues that we will encounter in the field. First of all, the difference in culture

is what we think will be our biggest concern and challenge. Cultural differences can be a barrier when trying to recruit participants. A lack in knowledge of the researchers regarding the local language, customs, traditions, norms and values. Furthermore, we think that our presence and our Western background may influence how the participants perceive our intentions to be in conducting a research closely related to their daily lives. Lastly, the locals may feel differences in social status between the researchers and themselves. It is not our intention to establish feelings of superiority upon our participants. On the contrary, we as researchers will do our best to make the participants feel at ease and try to gain their trust. For the interviews the participants will be informed of their rights, their total voluntary participation and that they could withdraw from the interview whenever they want. The research purposes and how the results will be published and distributed will also be informed beforehand. Furthermore, they will be informed that their identity will remain anonymous and that their privacy will be protected and respected. Our main aim will be that being part in this research will benefit the participants and that these benefits will outweigh the risks. We will focus our attention on reducing inappropriate, uncomfortable, or personal questions that the participant may not want to answer. Especially workers in the informal economy we think may be the most vulnerable to do research on. Dealing with people in vulnerable situations and trying to make them feel comfortable, staying neutral and professional yet doing what is morally right will be our main goal.

5. Work Plan

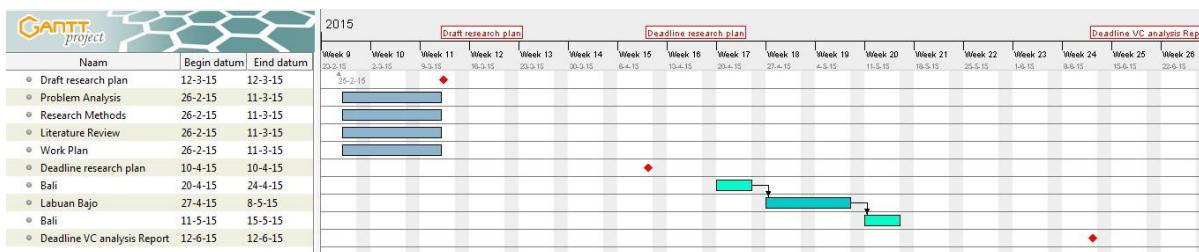
Our work plan includes a Task Division and a template of the Research Log during data collection. For the Task division, we are still in the beginning of the process to be too precise about how everything will take place. However, in a broad time frame, we have agreed upon task division during the fieldtrip: two group members will conduct interviews, while the two others will do participant observation.

5.1. Task Division

dates	Deliverables	Juultje	Silvia	Eunice	Amber
01 Feb - 10 Mar	draft Research Plan	Literature review - Community involvement	Methods and Work Plan	Literature review - The Value Chain	Problem Analysis
- 10 Apr					
11 Apr - 18 Apr	last preparations before field research (NL)				
18 Apr - 26 Apr	(intro Bali)				
27 Apr - 28 apr	data collection (Labuan Bajo)	MO participant observation, market AF part obs restaurants	MO participant observation, market AF part obs restaurants	MO participant observation, market AF part obs restaurants	MO participant observation, market AF part obs restaurants
28 Apr- 30 apr	2 groups: A: part obs, B:interview				
04 May - 10 May	data collection (Labuan Bajo)				

11 May - 17 May	finish data collection, stakeholders meeting (Bali)				
18 May - 22 May	Individual Assignment	Assignment storytelling	Assignment storytelling	Assignment storytelling	Assignment storytelling
25 May - 12 Jun	Value Chain Report				
15 Jun - 19 Jun	Individual Report	Report Research Process	Report Research Process	Report Research Process	Report Research Process

For our own track of time, we decided to work also with a Gantt Chart. This is at the moment an ongoing project, and therefore the chart is not completed yet. A printscrean of the current version of the chart can be seen below.



5.2. Research Log

Below, there is a Research Log template that will be used during the four weeks fieldtrip.

Research log		Juultje	Silvia	Eunice	Amber
wk 1 / day 01	Bali				
02	Bali				
03	Bali				
04	Bali				
05					
06					
07					
wk 2 / day 08	Labuan Bajo				
09	Labuan Bajo				
...	...				

5.3. Risk analysis

Before, during, and after our IFP, we need to take into account that there are some potential risks that might affect our research project. All members of our group are prone to be affected by these risks which can lead to a situation in which our work could become compromised. Obviously we want to avoid anything like this, and therefore, we could analyze and propose potential solutions for avoidance, through communication. There are situations that can occur within our group or externally. The internal and external potential risks could be divided into the following categories:

Internal risks

Psychological and social risks

Being part of a multicultural research team comprising of four members means that we all have to adapt to each other. We need every member to contribute to collecting and processing the data since there are only 2,5 weeks available to do this. Possible challenges are disagreements and differences of opinions between group members. This can lead to a less-comfortable atmosphere and can affect the project outcomes. However, we doubt it will go further than this. Before departure we will have a conversation about task divisions and expectations of each other. At the destination we will encourage each other to express themselves if they feel in any way disadvantaged or negative. In the case of friction within the group we will solve it preferably together with the four of us. If the tension leads to negative consequences for the project and the group cannot solve this, it will be discussed with the project supervisors as soon as possible to avoid any time loss.

Furthermore, people might lose their motivation during the field work or do not fit within the cultural environment. We will try to make our work as enjoyable as possible and not fall in a routine. For instance, we could shift the work from a member to another one, until agreed. If the issue cannot be solved within the group within due time, it will be discussed with the supervisors. External risks, such as family problems of one member are psychological situations that are beyond the group's control.

Physical risks

It is likely that one or more team members will not feel well for a day or longer, or a member of our group could suffer an injury. This can be due to the many differences between the Netherlands and Indonesia in climate, temperature, food and other circumstances. Consequences are that a group member is not able to actively participate in obtaining data or other activities. We will try to be prepared as much as possible, have adequate vaccines and medication required for specific destinations, and a first aid kit. In case something happens to a member, beyond one's control, the other members will take over the work.

External risks

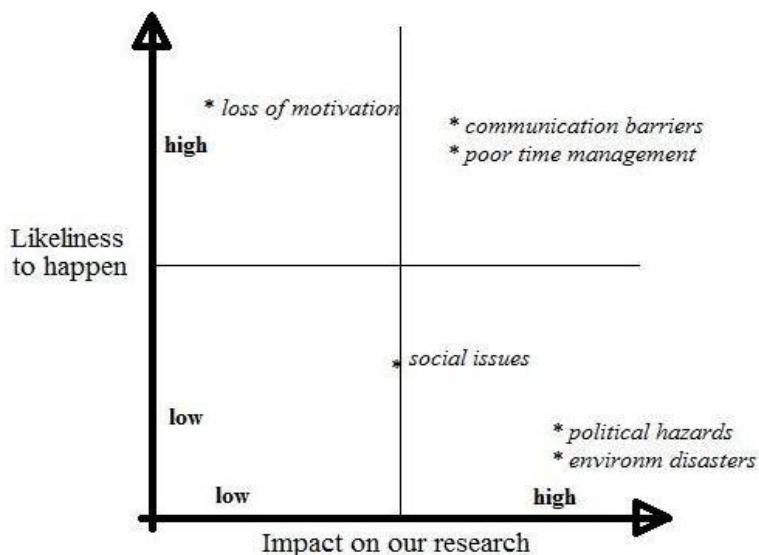
Participation of stakeholders

To successfully reach the research objectives, we are dependent on the willingness of actors and stakeholders to participate. There are multiple barriers within this area that can complicate the data collection process from stakeholders. As research methods we have indicated to conduct interviews and use participant observation. Particularly interviewing can bring difficulties with it in terms of communication.

Environmental risks (weather conditions, natural disasters)

The climate of the island Flores is tropical, therefore the island is prone to heavy rains or strong winds. In case of heavy rains or winds, the group will try to work inside and reschedule any appointments or interviews. In case of this, we will process data that is already collected and cope with the outside work load during the non-problematic weather situations. A risk that will have very high impact and consequences, but is less likely to occur is a natural disaster. This includes tropical storms, earthquakes, tsunami, eruption of volcanoes, floods or droughts.

We have come up with a graph, where categories of risks can be classified. They are positioned according to their likeliness to happen and the level of impact it will have on our research.



Graph 2. Classifications of risks according to their likeliness to happen and the possible impact on our research

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7. Appendices

7.1. Appendix I

Restaurant and hotel staff interview guides

Which fresh food produce (fruits, vegetables, fish, and meat) do you provide in your restaurant? ·

Fruits:

· Vegetables:

· Fish:

· Meat:

How important is it that these products are fresh?

Which standards do you have for your fresh food produce?

Where do you get your supply of fresh foods from? Is it locally or internationally?

- are there restrictions from the government for importing food?

How often do you get your supplies?

Do you have certain agreements or contracts with your suppliers?

- Is there a set price?

Whom are your suppliers?

Do you have a relation with other actors in the supply chain of the products?

Are you satisfied with the supply of the products? -Does the supply meet your demands?

-Are you satisfied with your suppliers?

Is there anything that you would like to change?

Approximately how much do you spend on fruits, vegetables, fish, and meat on a weekly basis?

How do you receive the food, packaged or in other forms?

How do you manage the waste of packaging?

- Other plastics? Solid waste?

Do you do any recycling?

7.2. Appendix II

Intermediaries/ farmers conversation themes:

Supply/demand products
Selling/buying standards
Relationship with intermediaries - contracts?
Market Share (sales volume)
Ideas for improvement of relationships
Ideas for growth of production
Packaging
