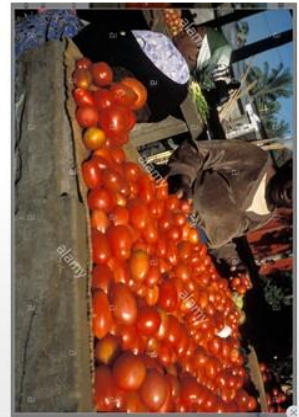




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# ESTABLISHING FARMER-FIRM RELATIONSHIP IN THE TOMATO VALUE CHAIN:

A CASE STUDY OF BINDZU AGROBUSINESS & CONSULTORIA LDA AND  
SMALLHOLDER FARMERS' OF MOAMBA DISTRICT-MOZAMBIQUE

By

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A thesis submitted in partial fulfilment of the requirements  
for the degree of Master of Agricultural Production Chain  
Management Specializing in Horticulture Chains.

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## DEDICATION

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## LIST OF ABBREVIATIONS AND ACRONYMS

APCM	Agricultural Production Chain Management
BCI	Commercial and Investment Bank
BMC	Business Model Canvas
BNI	National Investment Bank of Mozambique
CSR	Corporate and Social Responsibility
DCI	Directorate of Internal Trade
FAO	Food and Agriculture Organization
FDA	Agrarian Fund for Development
FGD	Focus Group Discussion
GDP	Gross Domestic Product
Ha	Hectares
IBM	Inclusive Business Model
IFAD	International Fund for Agricultural Development
IIAM	Institute of Agricultural Research of Mozambique
IIR	International Institute of Rural Construction
INAE	National Inspection of Economic Activities
INOQ	National Institute of Standards and Quality
KI	Key Informant
KIT	Royal Tropical Institute
MADER	Ministério da Agricultura e Desenvolvimento Rural
MASA	Ministério da Agricultura e Segurança Alimentar
MIC	Ministry of Industry and Commerce
NGO	Non-Government Organisation
PACE	Small Emergent Commercial Farmer
PEDSA	Plano Estratégico para o Desenvolvimento do Sector Agrário
PNISA	Plano Nacional de Investimento do Sector Agrário
PESTEC	Political, Economic, Social, Technological, Environmental and Cultural
SDAE	District Economic Activities Service
SMEs	Small and medium-sized enterprises
SWOT	Strength, Weakness, Opportunities and Threats
SPSS	Statistical Package for Social Science
VCA	Value Chain Analysis
VCD	Value Chain Development
VHL	Hogeschool Van Hall Larenstein

## SUMMARY

Tomato is one of the main crops amongst horticultural crops in Mozambique. This sub-sector plays a vital role in the country's economy as a source for job creation and income generation, for more than 90% of small farmers. Tomato is also an important crop for food security as one of the most consumed products by Mozambican's households. Despite the role of the tomato chain in Mozambique, the relationship amongst the actors' is still fragmented, with few long-term commercial relations. Mozambican large buyers continue facing challenges to establish a regular supply agreement with small farmers. This study, therefore, was carried to identify possible strategies by which a firm can create a sustainable relationship with smallholder farmers, the case study of Bindzu Ida and smallholder tomato farmers from Moamba District. The study sought to answer two main research questions "1. What are the factors preventing the sustainable incorporation of smallholder farmers in Bindzu's tomato value chain? " and "2. What are possibilities to create a relationship between Bindzu and smallholder farmers? ".

To find the answers to these questions, the research strategy used was a case study based on a mix of qualitative and quantitative approaches through a collection of secondary and primary data. The secondary data consisted of desk review in topics related to the farmer-firm relationship. Whereas the primary data involved collection through a survey administered to smallholder tomato farmers, semi-structured interviews with key informants and focus group discussion. All respondents were selected through a convenience purposive sample. A total of 35 smallholder tomato farmers from Moamba district, 1 key informant from Bindzu and 4 tomato chain key informants participated in the study. The quantitative analysis involved the generation of frequencies and percentages. While qualitative analysis involved categorization of topics, codification, and identification of patterns as well as contradiction of the responses. The analytical tools used to present the findings were a chain map, stakeholder matrix, radian institutiongramme, power and interest grade matrix, Business Model Canvas, and PESTEC.

Findings from the study revealed that poor communication between the supporters of the farmer-firm relationship and Bindzu as well as farmers. Although, the study identified 5 supporters with initiatives to promote farmer-firm relationship creation. Findings also revealed that PESTEC factors present more constraints than opportunities for the creation of farmer-firm relation, even with existing policies supporting tomato chain Weak actors' organizations is another factor hindering the relationship since the existing traders' organization has limited capacity to influence changes in the chain environment level. The study also found 2 common barriers that firms and producers encounter when procuring from smallholder farmers, the predominance of spot commercial relationships and small production volumes by farmers. The limited capacity of Bindzu to finance the production and make immediate payment also forms a constraint for this relation, an important factor to ensure that farmers meet Bindzu's requirement in quality and constant volumes. Thus, the study found that the most appropriate strategy for initiation of the farmer-firm relationship between Bindzu and farmers is a mix of procurement and aggregation model.

**Key-words:** farmer-firm relationship, smallholder farmers and firm

# CHAPTER I: INTRODUCTION



- 1.1. Background
- 1.2. The commissioner of the research and its relationship with the researcher
- 1.3. Justification
- 1.4. Problem context
- 1.5. Research objective
- 1.6. Research question(s)
- 1.7. Structure of the thesis



## CHAPTER I: INTRODUCTION

### 1.1. Background

Mozambique is a country located in Southern Africa, bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Eswatini (Swaziland) and South Africa to the southwest as shown in figure 1 below. The country has about 36 million hectares (ha) of arable land, suitable for agriculture. However, of the available land for agriculture, only 13.81 percent is under cultivation. Agricultural production is mainly done by smallholder farmers, which account for nearly 90 percent of domestic food supplies (Ministry of Agriculture and Food Security (MASA, 2015a)<sup>1</sup>.



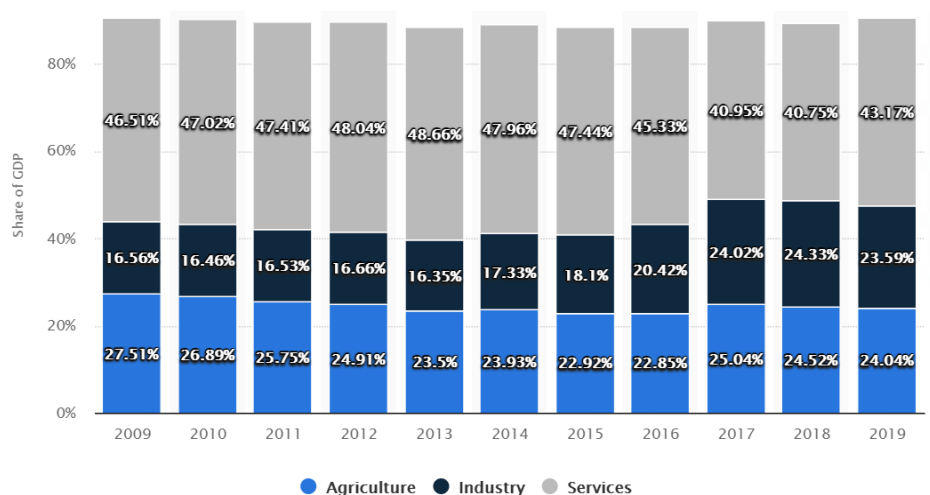
**Figure 1.** Map of Mozambique

*Source:* Encyclopædia Britannica, n.d

Despite the underdevelopment of Mozambican agriculture, the sector plays a vital role in the country's economy as the main engine for job creation and income generation. The sector employs more than 80 percent of the active population (MASA, 2015a). In terms of contribution to Gross Domestic Product (GDP), in 2019 the Agriculture sector was among the three major contributors, corresponding to 24.04 percent as illustrated in figure 2 below (Statista, 2020).

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<sup>1</sup> Ministério da Agricultura e Segurança Alimentar (MASA) currently called the Ministério da Agricultura e Desenvolvimento Rural (MADER)



**Figure 2.** Composition of Mozambique GDP

Source: Statista, 2020

As shown in the graph overall the period, the agriculture sector contribution has decreased. The challenge affecting the sector development is the practice of agriculture of subsistence by the smallholder farmers, as consequence, the level of production and productivity is low (MASA, 2015a&Deloitte, 2016).

The government under the Ministry of Agriculture and Rural Development (MADER) and internationally funded programmes are involved in supporting the development of agricultural value chains. The ongoing initiatives include the SUSTENTA, a 10-year program that was launched at the national level at the beginning of 2020, after 4 years of the pilot phase in two provinces. SUSTENTA aims to integrate small farmers in strategic agricultural chains defined at regional levels. For the case of the study area, SUSTENTA established three chains, which tomato is also included in horticulture chain. The other one is PROCAVA a continuation of PROSUL program, launched in the middle of 2020, however, the operational part started in 2021. PROCAVA is a program financed by International Fund for Agricultural Development (IFAD), aimed at the development of 5 agricultural value chains targeting small farmers. Tomato is included as part of the horticulture chain (PROCAVA, 2021).

### 1.1.1. Tomato in Mozambique

Amongst horticultural crops, tomato is one of the main crops in the country. According to the agricultural national statistics by the MADER, tomato was the second most cultivated horticultural crop by small and medium farmers in 2015, as shown in table 1.

**Table 1:** Percentage of small and medium farmers practicing horticulture

Crop	Total (%)
Pumpkin	20.3
Tomato	8.0
Cucumber	6.6
Okra	6.0
Kale	5.6

Source: MASA, 2015

In terms of division of farmers per scale, MADER characterizes based on the area cultivated. As shown in table 2, small-scale farmers represent nearly 99 percent of Mozambique's farms (*Plano Estratégico para o Desenvolvimento do Sector Agrário* -PEDSA, 2011-2020).

**Table 2.**Category of Crop Farmers in Mozambique

Type of farmer	Cultivation area	Number
Small	up to 10 ha	~4,200,000
Medium	Over 10-up to 50 ha	45,320
Larger	over 50 ha	626

Source: PEDSA (2011-2020)

As in the agriculture sector in general, in the horticulture chain, the smallholders also dominate the sector. According to ACDI/VOCA (2016), of the estimated 39,506 ha on which tomatoes are grown, small farms cultivate 78.2 percent of total areas as shown in table 3.

**Table 3.**Number of Tomato farmers in Mozambique

Type of farmer	Cultivation area
Small	30,899
Medium	1,016
Large	7,591

Source: Global Development Solutions, LLC (2016)

Despite tomato crop position in the Mozambican horticultural and engagement of different scale of local farmers in production, low productivity is among the tomato sub-sector's significant concerns. According to MASA (2015b), the national deficit stands at 92 000 tons. Consequently, Mozambique relies heavily on imported tomatoes from the neighbouring country, South Africa. Data shows that Mozambique is the largest South African tomato importer with around 75.3 percent of the market share (Famulusi et al., 2015).

An overview of importation and production volumes were extracted from the FAO database (table 4)

, as there is no local available database specifically for the tomato, since tomato is often aggregated in the horticultural group.

*Table 4. National production and importation of tomato*

Year	Unit	Production	Source	Imports	Source
2015	tonnes	360 000,00	Official data	7 119,00	Official data
2016	tonnes	374 000,00	Official data	5 626,00	Official data
2017	tonnes	550 100,00	Official data	17 859,00	Imputation
2018	tonnes	625 603,00	Imputation	11 084,00	Imputation
2019	tonnes	708 467,00	Imputation	1 306,00	Imputation

*Source: FAOSTAT, 2021*

It is worth mentioning that there is a discrepancy between data generated through imputation by FAO and the data when provided by official authorities. The researcher has doubts that the data extracted from the FAO database reflects the reality of tomato production and imports, as indicates that there are few imports of tomato, which is not in line with the data from the above-mentioned source, MASA (2015b) and Familusi et al. (2015). Apart from the doubts originated from the discrepancy among the sources, two more factors are behind the researcher suspicion. The first is the seasonality of production, in Mozambique, the pick harvest season is verified from June to August, as described in the description of the farming system. The second factor is based on the researcher field experience, few local farmers have the capacity to invest in tomato production during the hot season, close to the festive season when the demand is high (Uchavo, 2021).

### *1.1.2. Farming system*

The size of the farm highly defines the Mozambican farming systems, and horticulture farming is not exception. According to Cairns (2012) cited in the Mozambican Value Chain Analysis report by ACDI/VOCA (2016), small farmers divided the available plot for farming different crops. In the case of tomato, this is grown with other horticultural crops or maize on riverside bank, ponds, or irrigated area. Aniambossou, I. et al. (2015) also noted that in Moamba District, tomato is the second crop occupying the largest cultivated land after potatoes, 27% and 35% respectively.

The farming activities are often done manually, for instance, manually managed flood irrigation and hoe. An analysis of tomato chain conducted in Momba District identified that the inputs generally used include family labour and, in some cases with the hiring of paid labour, seeds, pesticides, organic and



inorganic fertilizers (Haber et al., 2015). The last input, non-organic fertilizers are less used among those small farmers, less than 4 % of farmers are using it (ACDI/VOCA, 2016). In contrast, medium and large farmers tend to apply excessive amounts of pesticides to the point of raising concerns about the environmental and human health impacts (ACDI/VOCA, 2016). Plus, contrary to small farmers the medium and large farmers have a specific plot for a tomato crop. Apart from inputs usually used by small farmers, those farmers work mainly with hired labour, either permanent or seasonal. Maposse (2020) also mentioned that large farmers tend to use more mechanized techniques for activities like land preparation and irrigation. All these techniques allow large farmers to obtain high yields than small farmers.

Tomato production in Mozambique is mainly characterized by farming in the fresh season that begins in late March, as this season provides favorable climatic conditions for growth, with less occurrence of pests and diseases. As a result, there is extreme fluctuation in supply and price throughout the year. From June-August supply peaks, and price lows, whereas from December-February the supply lows and price peaks (Aniambossou, I. et al. 2015).

#### *1.1.3. Current tomato value chain*

Studies conducted by (Haber et al., 2015; ACDI/VOCA 2016) in the Mozambican horticultural value chain identified that the tomato chain is composed only by supplying fresh tomato and with 5 actors involved in the chain. From the bottom to the top of the chain, the first actors identified are input suppliers, which include private entities and MADER (Aniambossou, I. et al. 2015). The following actors are farmers, range from small to large farmers (PEDSA, 2011-2020). Then, the wholesalers which include 2 segments, importers and local travelling traders, located mainly in the Zimpeto wholesale market (Maposse, 2020). There are also retailers, which are composed of two segments, formal and informal. Final, consumers in both urban and rural settings (Calima, 2015).

Tomato is framed in the sector's policies and strategies in the horticulture chain as it is referenced in the National Agrarian Investment Plan - PNISA and the Agribusiness Development Master Plan (MASA, 2015a). With regard to socio-cultural factors, women are an important asset due to the central role played in the production of the family economy. A study carried out by ACDI / VOCA (2016) found that one of the environmental concerns in tomato production is the growing trend in the use of pesticides and fertilizers among medium and large producers. It is important to note that the level of technology is also highly influenced by the scale of the farmer. The larger the scale of the producer, the higher the technological level.

## 1.2. The commissioner of the research and its relationship with the researcher

Bindzu Agrobusiness e Consultoria Lda (hereafter Bindzu) is the commissioner of this research. Bindzu is a private Mozambican company operating in the agribusiness sector in Mozambique. Bindzu was founded in 2010 by 4 young Mozambicans. Since 2010, the company has been working from farm to the table, especially in the horticulture sector. Bindzu offers the following products and services: i) marketing of fruit and vegetable, agricultural consulting, commercialization of inputs and agricultural equipment. In marketing of produce, currently, Bindzu is sourcing tomato only from local large and medium farmers. Regarding the relationship between Bindzu and the researcher of this study, is an employer-employee relation. The researcher works as an Agricultural Economist, where cooperates in two units, the consultancy service, and horticultural crops commercialization. In the first unit, the researcher responsibilities include preparation of proposal tenders and assistance in delivering of consultancy services. Whereas, in the commercialization, the researcher works with marketing management and sales supervision.

## 1.3. Justification

It is based on the recognition of the importance of the tomato crop in the Mozambican economy as a source of income and food security that a study on the Establishment of Farmer-Firm Relationship is carried out in the tomato value chain. Despite the role of the tomato chain in Mozambique, the relationship among the actors' is still fragmented, with few long-term commercial relations and a lack of coordination among the stakeholders. Plus, there are scarce studies on the initiative of farmer-firm linkage promoted from the private sector perspective. This study, therefore, will contribute to identify factors affecting the creation of a farmer-firm relationship chain, in the case of Bindzu and smallholder tomato farmers in the Moamba District. For Bindzu, this study will help to identify the strategies required to create and maintain a sustainable relationship with smallholders. While, for the smallholder farmers, the study will contribute to generating additional potential ways to access a secured market and understand the firms' demands. At the society level, the study will contribute to identifying opportunities and constraints for intervention in tomato chain, to improve its performance. Considering that the tomato sub-sector has great potential to add value to various segments of the society, this study will also contribute for food security as this is a highly consumed food product in Mozambican households. In the academic sphere, the study will generate empirical evidence on the linkage of smallholders based on a buyer's initiative.

## 1.4. Problem context

Local NGOs and past funded programs, like PROSUL currently PROCAVA have been working to promote market linkage in the agricultural value chain. Despite the willingness of these initiatives, the relations in the tomato chain are still characterized by a lack of coordination among the actors, few stable commercial relation and trust issues. Recent research conducted by Doherty and Kittipanya-Ngam (2021) found that firms continue facing challenges to identify the appropriate approach to build a long-term commercial relationship with smallholder farmers. Barriers encountered by companies when procuring from smallholder farmers include small volumes, inconsistent supply and contract delays. In Mozambique, the smallholder farmers dominate the tomato production, however, they are unable to establish regular supply agreement with wholesalers. The causes behind the lack of relationship between those actors include limited surplus, inconsistent supply and high transaction costs. As a result, smallholder farmers are often obliged to sell in the local markets, with limited access to formal markets. On the other side, the wholesalers end up having a stable long-term relationship with medium and large tomato farmers or import from South African farmers.

### 1.4.1. Problem statement

Like other wholesalers, Bindzu is currently have a long-term relationship with local large and medium tomato farmers. The same factors previously mentioned are hindering Bindzu and smallholder farmers to do business together. The effect is that Bindzu is facing challenges to secure the supply, as it can only source tomato from the minors' farmers segment, medium and large farmers. Acknowledging the vital role of smallholder farmers in the tomato chain, Bindzu intends to establish a commercial relationship with them. For this reason, Bindzu needs to know the possible approach to build a sustainable commercial relationship with the smallholder farmers. The insights that will be generated from this study will fill the knowledge gap of potential strategies for Bindzu to design a sourcing model to work with smallholder tomato farmers.

Bindzu is the problem owner of this research.

## 1.5. Research objective

- To identify possible strategies by which Bindzu Lda can create a sustainable commercial relationship with tomato smallholder farmers.

## 1.6. Research question(s)

### Main Question and Sub-questions

#### **1.What are the factors preventing the sustainable incorporation of smallholder farmers in Bindzu's tomato value chain?**

1.1.What are the value chain stakeholder (actors, supporters, and influencers) and their role in farmer-firm relationship?

1.2.How the current chain relations affect the creation of a trading agreement between Bindzu and Smallholders?

1.3.What factors of supply does Bindzu consider as important for sourcing from smallholder farmers?

1.4.What factors do smallholder farmers consider as important for supplying tomato to a firm?

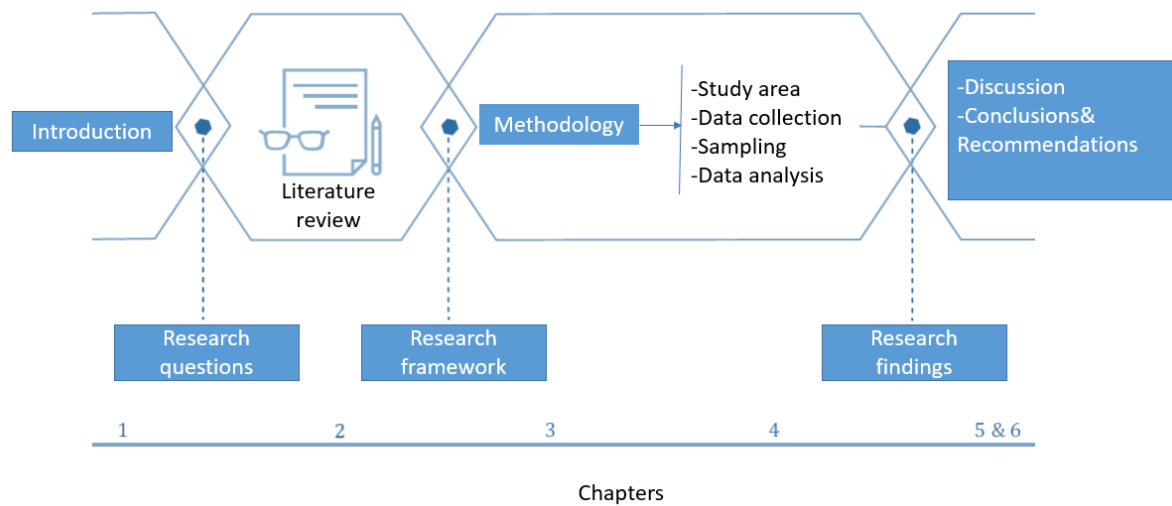
#### **2.What are possibilities to create a relationship between Bindzu and smallholder farmers?**

2.1.What are potential sourcing strategies for Bindzu to incorporate smallholders as suppliers?

2.2. What are the potential supplying strategies for smallholder to supply tomato to Bindzu?

## 1.7. Structure of the thesis

This research is built up into 6 chapters. In chapter 1 an introduction about Mozambique, an overview of tomato chain context and research questions are presented. Chapter 2 presents the literature review that was used to gain a better understanding of the topics surrounding the farmer-firm relationship, culminating in a conceptual framework. Chapter 3 describes the methodology used in this research. Chapter 4 presents the results of study. Following is chapter 5 which discusses the findings of the study. Both chapters 4 and 5 are structured according to the sequence of research sub-questions. Finally, chapter 6 contains presents the conclusions, by answering the main research questions and contains the recommendations for Bindzu and further research. The figure below gives an overview of how the research is structured.



**Figure 3.** Schematic overview of thesis structure

# CHAPTER II: LITERATURE REVIEW



2.1. Concept definition (conceptualization)

2.2. Value chain analysis

2.3. Farmer-Firm relationship

2.4. Conceptual Framework



## CHAPTER II: LITERATURE REVIEW

The literature review starts with the definitions of the research sub-questions terms. The following section of this chapter includes the review of two relevant topics for this research:

- Value chain analysis;
- Farmer-Firm relationship.

The value chain analysis was selected because it provides tools to understand the current state of the existing tomato value chain in which Bindzu and small farmers operate. The Farmer-Firm relationship helps in the identification of available models to link smallholder farmers and buyers. Both topics were used as a foundation to design the research conceptual framework.

### 2.1. Concept definition (conceptualization)

**Sustainable relation:** here is defined as long-term relation between the firm and farmers.

**Value chain stakeholders:** are people or organizations who are directly or indirectly involved in the core process (Lundy et al., 2014). These include actors, supporters and influencers. In this research, stakeholders are all people or organizations that have a stake in the Mozambican tomato chain.

**Chain actors:** people or organizations directly involved in the core process (Lundy et al., 2014). This is also the definition that will be used for those people or organizations in this research.

**Chain supporters:** people or organizations indirectly involved in the core process (Lundy et al., 2014). In this research, all people or organizations falling in that definition will also be called supporters. These supporters include mainly private organizations, government organizations and NGOs.

**Chain context:** the terms chain context and chain influencers in this study are used in an interchangeable way. These include the external factors, namely Political, Economic, Social, Environmental, Technological and Cultural (PESTEC) hindering or contributing to chain performance (Lundy et al., 2014). This research will also look at those external factors from the same angle.

**Chain relations:** the relationship among the chain actors (KIT and IIRR, 2008). In this research, the chain relation is defined not only from the perspective given by KIT and IIRR (2008) of the relation among the chain actors but also includes the existing relations among the chain supporters.

**Smallholder farmer:** the categorization of crop farmers in Mozambique is based on the area of cultivation. In line with MASA (2015a), this research defines smallholder farmers as a farmer producing on small land with an average of 1.35 ha.

**Firm:** the term firm is a synonym of company, and in this study, the terms are used in an interchangeable way. This refers to the buyer or sourcing organization of agricultural products from smallholder farmers.

**Farmer-firm relationship:** in line with Schrader et al. (2015) this research defines farmer–firm relations as trade, business or commercial relations where both parties coordinate activities with each other.

**Supplying strategy:** in line Gradl et al. (2012) the supplying model here is also defined as the approach used by smallholder farmers when operating in the formal market. It is worth noticing that supplying strategies or models are used in an interchangeable way.

**Sourcing model:** are strategies or models used by firms when purchasing agricultural products from smallholder farmers (Gradl et al., 2012). This is the same definition that is used throughout this research.

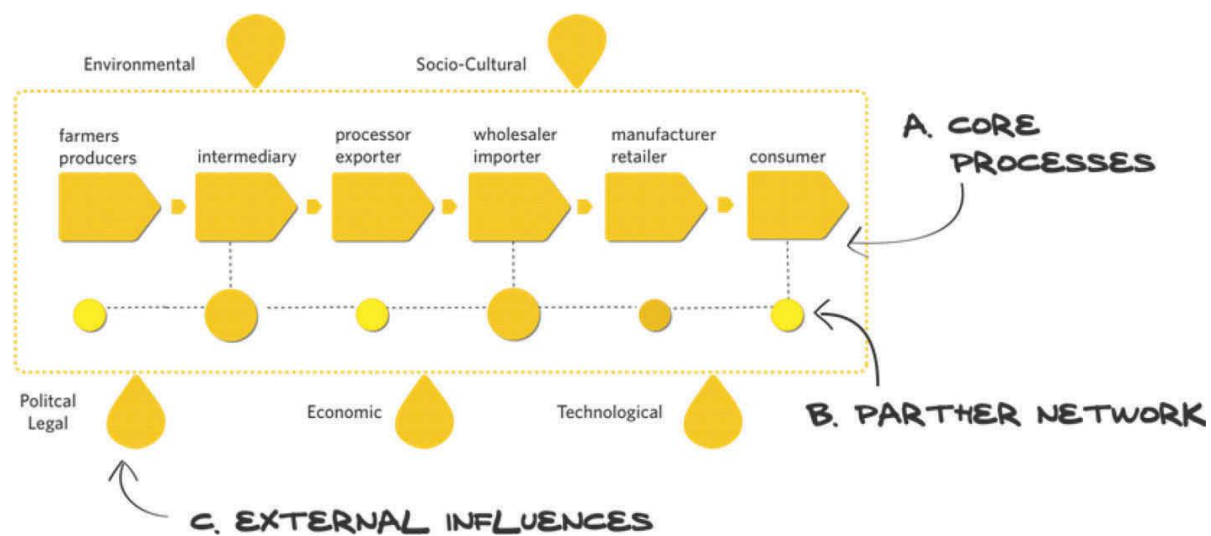
## 2.2. Value chain analysis

The value chain denotes the diverse actors involved in bringing the product from conceptualization until the delivery of the product to the final consumers (Rota & Sperandini, 2010; Chamberlain, 2019). According to Lundy et al. (2014) value chain comprises the use of resources and knowledge of the various organization to create value for the final consumer. Those various organizations are called chain actors and supporters, each connected by flows of product, information, or services (Arias et al., 2013). Several agricultural projects have been using the Value Chain Analysis (VCA) and Value Chain Development (VCD) to improve the performance of the chains. For this study, the matter of interest is VCA.

Mango et al. (2015) state that the VCA is often used as a diagnostic tool to understand the situation of the chain before designing an intervention for strengthening an existing chain or promoting a new chain. Hence, the structure of the current chain in which the actors operate partly determines the instruments that make up the most suitable commercial relationship model (Chamberlain, 2019). According to Verschuur (2020) the VCA is composed of four dimensions: stakeholder analysis, context analysis, qualitative and quantitative analysis. The first dimension, the stakeholder analysis, involves

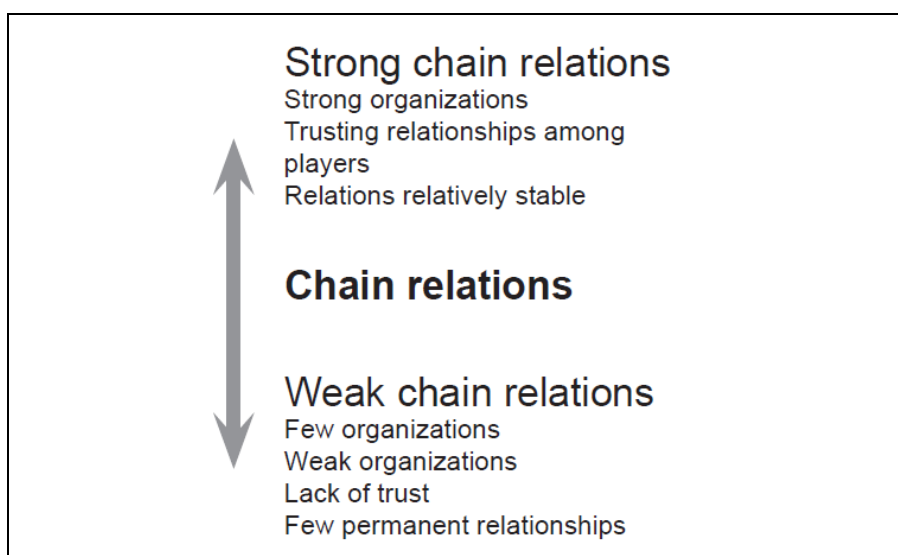


the mapping of the actors and supporters, including their role in the chain. The context covers the analysis of PESTEC factors influencing chain performance. The qualitative allows the mapping of the relation among the chain stakeholders, while the quantitative analysis covers the shared values that each actor receive in the chain (Verschuur, 2020). The focus of this study is the relationship among two actors, therefore, the VCA will cover three out of four dimensions, stakeholder analysis, qualitative analysis, and context analysis. Bindzu and smallholders are inserted in a certain chain, so there is a need to understand how the chain stakeholders can affect the creation of a farmer-firm relationship. To carry this analysis, it will be used the mapping tool (figure 4).



**Figure 4.** Agricultural value chain Map  
**Source:** Lundy et al. (2014)

The value chain mapping depicts the connection among the actors in the chain, which is an essential entry point for understanding how suppliers and buyers are linked in the chain (Lundy et al., 2014). Parts A and B allow you to carry out the stakeholder and qualitative analysis, to understand whose actors and supporters, as well as the different linkages among them. KIT and IIRR (2008) present two extremes of a situation of how chain stakeholders tend to relate with each other and its features. At the top of the matrix is a situation of strong chain relations and at the bottom the weak chain relations, as shown in figure 4. The last section of this mapping, part C, covers context analysis (Lundy et al., 2014).



**Figure 5.** Chain relation

**Source :** KIT and IIRR (2008)

### 2.3. Farmer-Firm relationship

The farmer-firm relationship consists of a commercial relationship between the farmers and the firm. Studies conducted by (Kelly et al., 2015; Sjauw-Koen-Fa, 2018; Ros-Tonen et al., 2019) in linking smallholder farmers to the market agreed that the farmer-firm relationship can be promoted by different stakeholders. Kelly et al. (2015) state that the smallholder farmers can be linked to the market through producer-driven, buyer-driven, or intermediary driven models. The following table 5 shows the main driver and the type of organization.

**Table 5.** Drivers of smallholder farmers market linkage

Driver	Organisation	Motivation
Producer	Smallholder groups (e.g., associations, cooperatives)	Access to new markets, increased bargaining power, access to inputs, technical assistance, secure market position, farmer empowerment
Buyer	Processors, retailers, exporters, traders, wholesalers	secure steady supply
Intermediary	NGOs, development agencies, governments	Local and national economic development, farmer empowerment

**Source:** Adapted from FAO (2008) as cited in Kelly et al. (2015)

It is worth mentioning that smallholder farmers can be linked to the market either by one or via a combination of drivers. In Mozambique, the common drivers are intermediary, and buyer driven. The intermediary driven initiatives are being promoted mainly by funded programmes, such as the ongoing PROCABA and SUSTENTA, as mentioned in the first chapter. While the buyer-driven include mainly processors and exporters, mainly in cash crops such as cotton and sugarcane (ACDI/VOCA

2016). In this study, the driver is a buyer, Bindzu, a tomato wholesaler in Mozambique interested in sourcing from smallholder farmers located in Moamba district.

In terms of the rationale for the interest in a farmer-firm relationship, this also differs among the drivers. Apart from the factor mentioned by Kelly et al. (2015) in table 5, other recent studies (Sjauw-Koen-Fa, 2018; Ros-Tonen 2019) found that the buyers' motivations are also associated with Corporate and Social Responsibility (CSR) activities, or a combination of this one with the securing supply. On the other side, for the smallholders, the advantage of this approach includes access to inputs and technical assistance. Moreover, Kelly et al. (2015) stated that through this commercial relationship, the smallholders can reduce the market risks associated to sell in the farm gate to the middlemen or local spot markets.

### *2.3.1. Factors affecting farmer-firm relationship*

In recent years, an increasing number of companies have recognized the economic potential of sourcing from smallholder farmers. A recent study conducted by Doherty & Kittipanya-Ngam (2021) found that yet both sides have an interest in doing business together, companies and smallholders still find challenges to enter into a long-term commercial relationship. Studies conducted (Lundy et al., 2012; Kelly et al., 2015; Doherty and Kittipanya-Ngam, 2021) found out that factors preventing companies and smallholder farmers to cooperate have three root causes, smallholder farmers' farming system, chain environment and supporters. According to Ros-Tonen (2019), the environment is highly depended to the supporter organization role for its improvement, as there are some areas that are out of firms' scope to intervene.

#### *Smallholder farming system*

Smallholder farmers in developing countries are characterized by dispersed production and small volumes, which have a high impact on transaction costs. Moreover, smallholders' product quality and delivery time are inconsistent, which is a critical factor for a firm (Kelly et al., 2015; Doherty and Kittipanya-Ngam, 2021).

#### *Chain environment*

Both studies (Kelly et al., 2015; Doherty and Kittipanya-Ngam, 2021) mentioned that the actors in developing countries are operating in areas with poor physical infrastructure (roads and storage facilities), difficult access to services (extension and finance) and poor market institutions (contract enforcement and quality systems). Gradl et al. (2012) categorized the factors influencing this hindering

environment into 5 pillars: a lack of information, a lack of skills, insecurity, insufficient resources and gaps in local infrastructure. According to this author, those are structural challenges and are critical to a smoother farmer-firm relationship. The willingness and effort of both actors of doing business together can be frustrated if the interventions look at the farmer-firm as a business operating as isolated organizations and overlook at the effect of the chain context as well as the role of the intermediary organization in the creation of the farmer-firm relationship.

### *Chain supporters*

The role of outsider organizations from the core process on this topic cannot be overestimated. The firms and farmers cannot do everything together, hence need external support to initiate and maintain the relationship (Kelly et al., 2015; Ros-Tonen, 2019). Following are described some of the roles that supporters can play in order to smoother the relationship:

**Facilitator:** Government agencies and NGOs can oversee the contracts, and support farmers with additional financial, training and extension services (Ros-Tonen 2019). Kelly et al. (2015) also support that view, however, the authors warn about the danger of excessive involvement of external partners in the process, which can undermine the local market dynamics and create overdependence. Additionally, the authors recommend two main roles that the third party can play in the process. The neutral mediator in case of conflict management and facilitator of the process without taking over activities that must be carried out by the chain actors.

**Lobbying:** the third-party role includes creating the enabling business conditions. According to Hebebrand (2011) cited in Sjauw-Koen-Fa, (2018), these might include the lobbying for improvement of the physical infrastructure (e.g. roads, transport systems, and creating storage facilities) to lower the transaction costs and reduce post-harvest losses. The high transaction cost is one of the main factors hindering farmers and firms to do business together.

**Services providers:** additional involvement of stakeholders in the chain can be as a services provider (Lundy et al., 2014). These may include national financial service providers for the capital investment required for upgrading the hard inputs of a business model, such as modernizing agro-processing equipment, warehouse or other infrastructure needs, which will require building partnerships with investors (Ros-Tonen, 2019). Moreover, Chamberlain (2019) emphasizes that it is important that the financial service is committed and willing to create new financial products suitable for smallholder farmers, to support the firms in providing and managing finance to numerous smallholders.

### 2.3.2. Smallholder sourcing models

There are three common models adopted by buyer-driven actors when procuring from smallholder farmers (Gradl et al., 2012). In the table 6 below are described those sourcing models, its applicability and characteristic of the relations.

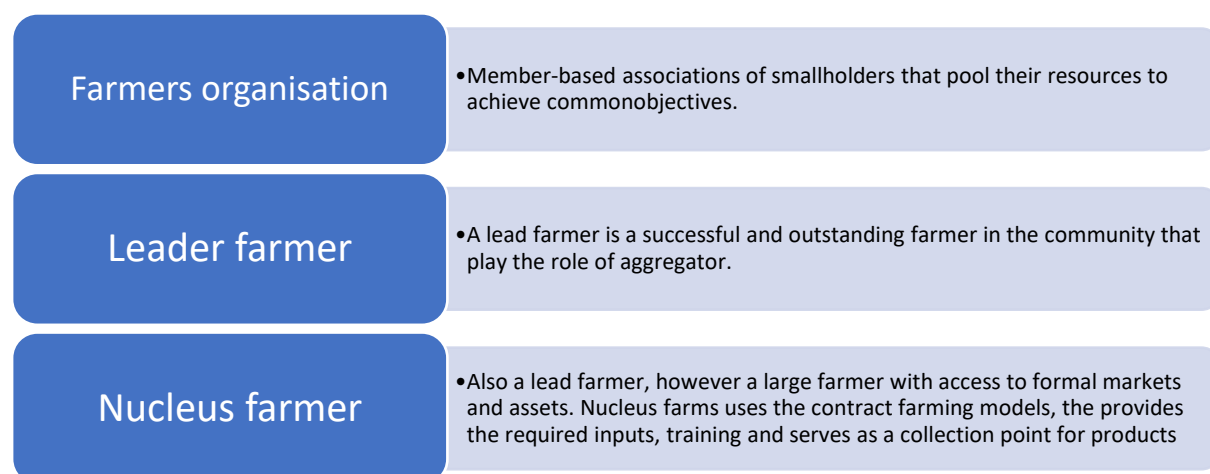
*Table 6. Smallholder sourcing models*

Model	Concept	When to use it	Relationship features
Aggregator or middlemen	Traders collect agricultural products from smallholders and sell them to the firm.	Large numbers of smallholders need to be reached. Company does not have its own product-collection infrastructure, and does not intend to build one.	Company contracts the aggregator that is responsible for: -Providing forward commitments. -Sharing the procured volume with the smallholders, to ensure reliable business relationship. -Provide value-added services (e.g., sorting, drying)
Procurement	Company purchases directly from smallholder farmers, on spot-market basis, without agreed price or quantity.	Company is dealing with perishable products that need highly quality control (e.g., fresh products).	-Collection of agricultural products often takes place at the company-owned collection centres, where smallholders can deliver their products before grading and shipping. -Quality control is usually performed at the collection facilities, pushing smallholders to improve quality. -Training of smallholders and instruction on market requirements is under company responsibility.
Contract farming or outgrower scheme	A contract farming is an agreement between farmers and a buyer, which places conditions on the quantity, quality, price at agreed date.	Company wishes to source a specific product that is not yet being produced or has specific quality requirements (e.g., organic products).	-Company sources from smallholders based on a future arrangement with fixed prices. - Company often provides inputs upfront. -Smallholders grow and deliver a specific quantity of products at specific quality at an agreed date.

*Source: Gradl et al. (2012)*

### 2.3.3. Smallholder aggregation supplying models

Gradl et al. (2012), also presented the three usually supplying models used by farmers when selling to the formal market, as following: farmer organizations, lead farmers or nucleus farms. Each of these models can be combined with any of the smallholder relationship models. Following is a brief definition of each approach (Figure 7).



**Figure 6.** Smallholder Aggregation models  
**Source:** Gradl et al. (2012)

According to the Bijman & Wolnii (2008) the collective action approach such as farmers organisation challenges are members commitment, member heterogeneity and governance.

### 2.3.4. Tools for creation of commercial relationship with smallholders

Connecting smallholder farmers and buyers, such as agribusiness firms, has been placed in the priority of agricultural development projects in middle-low-income countries. Large numbers of market linkage tools, such as Trading up, Link and 2-2 Trade were developed and the pilot test results are well documented (KIT and IIR, 2008; Lundy et al., 2012; Kelly et al., 2015; Schrader et al., 2015). The creation of those tools have almost the same background, helping the smallholder farmers to overcome the challenges faced when trying to enter in formal value chains (Chamberlain, 2019). Furthermore, smallholders sourcing models have gained attention also from private agribusiness due to its economic and social benefits. Table 8 shows the well-known tools for the creation of a commercial relationship with smallholder farmers and buyers.

**Table 7.** Tools for creation a commercial relationship with smallholder farmers

Tool	Concept	Phase of implementation
Trading-Up, KIT and IIR (2008)	This tool has two base pillars to improve the trading relations, the strengthening chain relations and building of market institutions.	<p>1.Strengthening chain relation covers:</p> <ul style="list-style-type: none"> <li>-Organisation of the both actors in groups</li> <li>-Development of mutual understanding by both actors</li> <li>-Specialization in the chain roles</li> <li>- Chain partnering</li> <li>-Chain coordination</li> </ul> <p>2.Building Market institutions covers:</p> <ul style="list-style-type: none"> <li>-Access to market information</li> <li>-Creation of quality systems</li> <li>-Contract enforcement</li> <li>- Involvement of financial services</li> <li>- Policy leverage</li> </ul>
LINK Methology, Lundy et al. (2012)	Developed on a set of participatory tools and it was designed to create a relationship through a participatory process between buyer and seller in agribusiness sector.	<p>1.Conduct a Value Chain Analysis</p> <p>2. Conduct a Business model Analysis</p> <p>3. Design a New Business Model Principles</p> <p>4. Test the Prototype</p>
2-2 TRADE, Schrader et al. (2015)	The 2-2 Trade is a tool for understanding, assessing and improving farmer–firm relations. It identifies the strengths and weaknesses in the relationship between farmers and firms by getting both assess their business relationship and deciding on ways towards the creation of farmer-firm relation.	<p>1.Analyses: Understanding the farmer-firm relation</p> <p>2.Assessment: Valuing the farmer-firm relation</p> <p>3.Action: Improving the farmer-firm relation</p>
Inclusive Business Model (IBM), Kelly et al. (2015)	Designed to complement value chain thinking, with a specific emphasis on business models adopted by the farmers and its buyer.	<p>1. Appraise the current business model: Understanding the parties business model.</p> <p>2.Identify common upgrading priorities: Prioritize needs that are common to both seller and buyer.</p> <p>3. Design an upgraded business model: draw interventions that address the identified priorities</p> <p>4. Measure progress: set indicators to be monitored</p>

**Source:** Adapted from KIT and IIR (2008); Lundy et al. (2012); Schrader et al. (2015); Kelly et al. (2015)

The VCA is only carried in one tool while, the assessment of both businesses is included in three tools, namely 2-2 Trade, IBM and the Link tool. Moreover, these tools also include the participatory approach, which allows the actors to identify together with the areas for improvement to establish a relationship. On the other hand, the Trading-up has a different approach when compared to the other tools, as it only covers two dimensions, the chain relations and market institutions. For this study, the steps for identification of possible ways to create a relationship between Bindzu and smallholder will include, the VCA as previously mentioned. The study will also use the IBM tool, the first and second step, to design the Business Model Canvas (BMC) of the Bindzu and smallholder farmers identify common upgrading priorities for both actors, hence the potential model or combination for creation of a sustainable relationship.

### 2.3.5. *Success cases of farm-firm relationship*

Following are described examples of the case that resulted in an improved relationship between smallholders and buyers through using some above-mentioned tools.

#### **Case 1- The use of IBM tool to incorporate smallholder farmers as suppliers in Vanuatu, in Oceania**

##### **Contextualization**

A multi-stakeholder workshop identified fruit and vegetables as a promising sector for improving the livelihoods of smallholders, the segment that dominates the agriculture sector in Vanuatu. Tomato was part of the products with potential for development. While large farmers were already supplying to supermarkets, restaurants, and hotels. Smallholder farming system and country policies prevent them to access formal markets.

##### **Strategies for linking smallholder with buyer**

Through following of IBM steps, smallholder farmers engaged in negotiation with the two largest vegetables and fruits distributors in the country. Barriers mentioned by the buyers and farmers that could prevent the relationship included poor harvest management, lack of good quality inputs and inexperienced public and private extension services in high-value vegetable crops. Both actors identified the strategies for the creation of a commercial relationship, as described in the following paragraph (outcome). Supporters involved in the process were the Farmers' Association and the government, under the Ministry of Agriculture.

##### **Outcome**

- Developed a new procurement model for smallholder farmers.
- Developed of seed company for high-quality inputs.
- Improved chain coordination and relation, large farmers and smallholder farmers come together for transferring knowledge.

*Source: Kelly et al. (2015)*



## Case 2- The use of trading Trading-up tool to strengthen cooperation between traders and tomato farmers in Ghana, in Africa

### **Contextualization**

Ghanaian farmers had a dispute with the local traders because they were importing tomato from Burkina Faso instead of getting from the local farmers. The reason that made the traders to prefer the imported tomato was because the Burkina farmers allowed them to grade and purchase only the best quality, unlike the Ghanaian farmers.

### **Strategies for improvement of trading relation between farmers and wholesalers**

The government intervened in the conflict resolution and held a meeting involving the parties. Common challenges and needs from both actors were presented with the assistance of an external working committee. Additionally, two associations were formed, one for the traders and the other for the farmers. Farmers agreed to allow the traders to select the best grade, and traders agreed to buy large quantities of local produce. Regarding price, it was agreed that it will be negotiated each week.

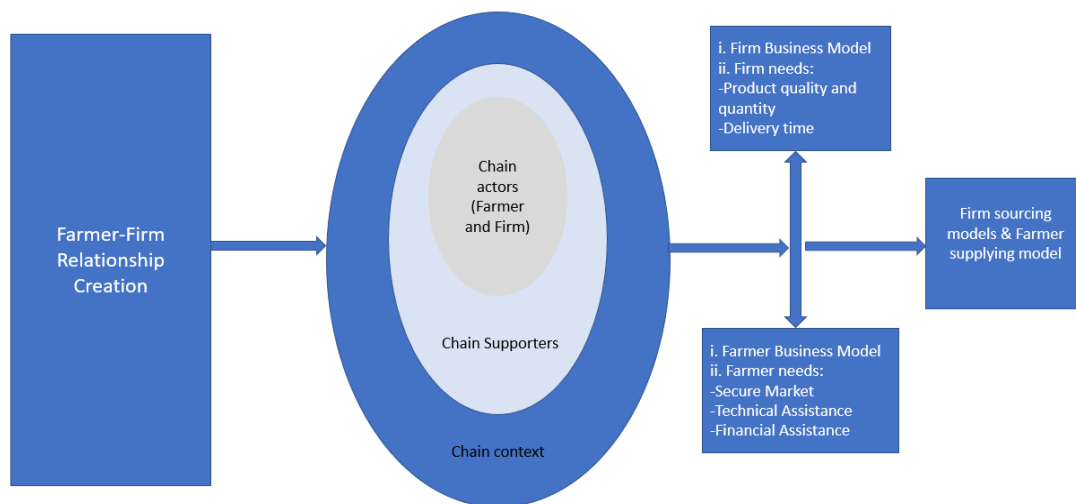
### **Outcome of the intervention**

- Strengthening of chain relation between farmers and traders resulted in the creation of a mutual trust, transparent transaction and reduction of accusation.
- Coordinated supply market glut minimized and prices are more consistent.
- Additional partnership with the drivers union to agree on standard freight charges for each crate.

*Source: KIT and IIR (2008)*

## 2.4. Conceptual framework

The following conceptual framework was designed based on some parts of the above market linkage frameworks and tools. The first is the VCA, which was selected because it allows obtaining the x-ray of the current situation of the tomato chain. The VCA covered 3 dimensions, stakeholder analysis, qualitative analysis and context analysis. The zoom-in in those three parts is because they are critical and appropriate to address the research main questions. Through them, it was possible to gain an understanding of how the tomato value chain stakeholder and chain context might influence in the creation of a relationship between Bindzu and smallholders. The study also used the IBM tool first and second step, to identify the existing business model used by both and discuss the common upgrading priorities for both actors. The selection of this tool was because it brings together both actors to discuss ways to create relationship, which in turn increase the likelihood of meeting their needs. Figure 7 depicts the research framework.



**Figure 7.** Conceptual Framework

**Source:** Author's based on the literature review

Table 8 presents the dimension and topics of the conceptual framework.

**Table 8.** Conceptual framework matrix

Outcome	Dimension	Topic
<b>Farmer-Firm Relationship Creation</b>	Mapping and stakeholder matrix	-Functions and roles
	Chain relations	-Chain partnering and coordination
	Firm needs	-Product quality and quantity -Delivery time
	Farmer needs	-Secure Market -Technical Assistance -Financial Assistance
	Relationship model	-Firm sourcing strategies
		-Farmer supplying strategies

**Source:** Author's compilation

# CHAPTER III: METHODOLOGY



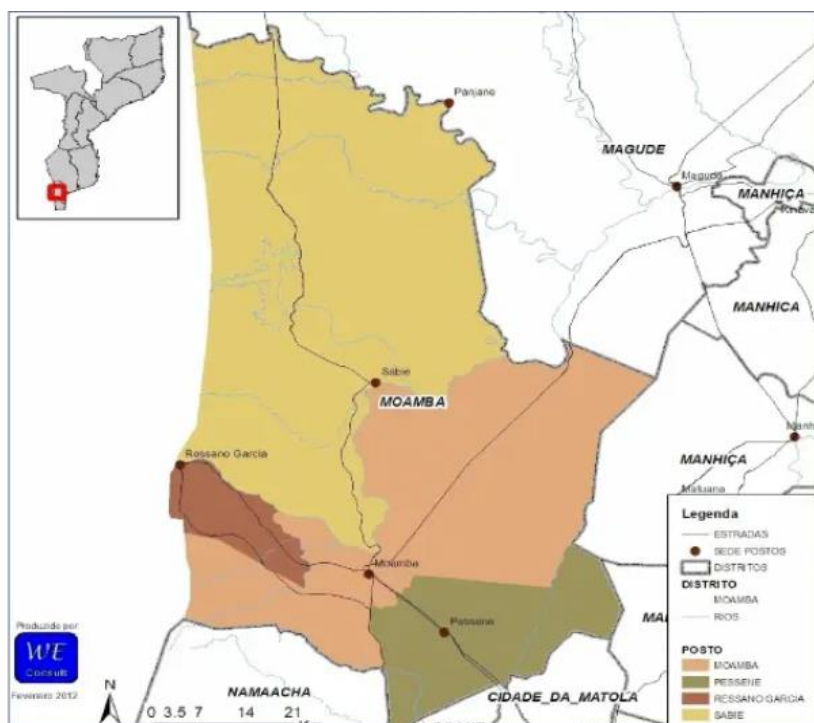
- 3.1. Study area
- 3.2. Research strategy
- 3.3. Data collection
- 3.4. Sampling
- 3.5. Field research in the context of COVID
- 3.6. Data analysis
- 3.7. Data validation and limitations
- 3.8. Ethical consideration

## CHAPTER III: METHODOLOGY

This chapter presents the methodology used in this research. First, is described the study area, Moamba district. Second, the research strategy used is presented. Third, a detailed overview of the data collection methods is provided. This is followed by the description of the sampling strategy, as well as how the research was conducted in the context of COVID. Finally, is provided a description of the data analysis procedure and the results' validation process, including the ethical consideration observed throughout the fieldwork.

### 3.1. Study area

The study was carried out in Moamba a District of Maputo Province in Southern Mozambique, not Mavhota district, as previously planned. The first proposed study area does not have enough statistical representation of tomato farmers, for this reason, the researcher was forced to change. After discussing with the commissioner, it was decided to carry the study in Moamba District, as it is among the largest supplier of tomato. Moamba is located in the western part of the province, and borders with Magude District in the north, Manhica and Marracuene Districts in the east, the city of Matola in the southeast, Boane District and Namaacha District in the south, and with Mpumalanga Province of South Africa, in the west, as shown in figure 8.



**Figure 8.** Study area map

**Source:** We Consult (2012)

Due to its geographical location and favourable land for farming of horticulture, the district plays an important role in the production and supply of horticulture to the capital city. A variety of horticultural crops are produced there (potatoes, tomatoes, onions, etc.).

The rains are concentrated in the period October / November to March, in general, precipitation occurs during the winter. The average annual precipitation values that occur in this region are between 600 and 800 mm, approximately. The Zone is characterized by alluvial and basaltic soils, generally flat. The texture is varied from sandy-to-sandy loam, with marginal to good fertility (PROCAVA, 2021).

### 3.2. Research strategy

This research is a case study based on a mixed approach using qualitative and quantitative research approaches. The reason behind the selection of a case study was based on the aim of the study, which requires designing a specific recommendation for the commissioner of the research, Bindzu, and not a statistical generalization. Another reason for its selection was due to the possibility to obtain a deep understanding of a specific studied group in relation to a certain issue, the particular unit of analysis of this research are Bindzu and smallholder farmers from Moamba district. The above-mentioned factors make the case study the most appropriate research design to address the research aim.

The case consisted of collecting qualitative and quantitative information from the studied group and other tomato chain stakeholders. The selection of a combined type of information was due to the possibility to get data from different sources that included perception and quantifiable data from respondents about the Farmer-Firm relation. Which in turn, enable the researcher to triangulate the findings and increase the confidence of the research output. In addition, the use of a combined approach helped to balance the weakness of the approaches by using the other one strength. For instance, the qualitative allow to obtain a detail information of the studied topic, but not numbers. Whereas, the quantitative filled that gap by allowing to get numbers regarding the studied topic.

### 3.3. Data collection

To increase the reliability and precision of data, a triangulation method including questionnaires, focus group discussions, key informant interviews and literature review were used, as described below:

#### 3.3.1. Desk study

The desk study consists of data collection from a secondary source. This method enabled to relate of the current study to the previous studies, mainly identification of the most relevant research studies done in the sphere of farmer-firm relationship. Which in turn, helped to lay a foundation for the

current research, identify the successful case of farmer-firm relationship in countries with similar conditions to Mozambique, as well as design the research framework. In this regard, the desk study involved a review of documents through an online search engine such as Google Scholar, Greeni, specialized journal database of agriculture, including reports from government agencies and official organizations.

### *3.3.2. Semi-structured interviews*

Another source of information used was the semi-structured interview, which is part of the qualitative tool. In a semi-structured interview, the researcher asks informants a pre-settled interview checklist, but not a strict set of questions like in a structured interview. The use of this method was due to the possibility to understand the perceptions of Bindzu and key informants concerning the farmer-firm relationship, which would have not been possible if the survey was used. Additionally, the method enabled flexibility and eventually skip of certain topics that were not applicable to the informant. This usually happened with the key informants that tend not to have a domain of certain topics, such as the laws affecting the farmer-firm relationship.

The interviews were conducted by the researcher using two online platforms, namely WhatsApp and Google Meets. In total were interviewed 5 people and each interview lasted 1 hour. To familiarize with the topics, the interviewees received the topics of the checklist before the meeting (see annex 2 and 3). Besides, it gave the interviewee opportunity to confirm whether is the right source or should recommend another person or organization. The approach was effective, as one of the informants ended up realizing that the Ministry of Industry and Commerce (MIC) would be a rich source of information, which was added, since it was not part of the interviewees list.

Due to formal procedures, all interviewees with exception of Bindzu's key informant received a research letter from Hogeschool Van Hall Larenstein (VHL) as a way of identification of the researcher, and in some cases obtain approval from the organization to participate in the research. As a result of this process, one of the key informants returned to the email while the Agricultural Production Chain Management (APCM) coordinator was on vacation. Therefore, the researcher had access to this email after completing the data processing. The responses were in a written format, however, most of the questions were not answered, and even those that were answered were unclear. Due to time limitation, the researcher did not follow up to schedule an interview, just replied thanking them for their cooperation.

Annex 5 illustrates the overview of the key informants and the date of the interview.



### *3.3.3. Survey/Questionnaire*

This tool was used to collect quantitative data from the farmers. This tool was selected due to the fact of requiring less time for data collection and processing. For this case study, this proved to be time-effective for the total number of farmers required to participate in the research, in less than a week was possible to administrate the questionnaire to 35 farmers.

The data collection took place in the week of 12-16 July. 3 field assistants administered the questionnaire to the farmers, one is Bindzu's staff who works in the study area. Previously, the data collection had been planned to be through an e-questionnaire, however, the change of study area also affected implementation through this platform, as the internet connection is not stable in the study. Therefore, the field assistants filled the hard copy and sent the scanned document to the researcher through WhatsApp, every day after finishing the activities. This also enabled the researcher to debrief with the team to learn about any difficulties, and to get suggestions about how to improve the data collection process.

The majority of the questions were multiple-choice, therefore, for these types of questions, the tables of frequency were generated based on the total sample. The information collected includes, but is not limited to, the number of farmers who received market support (the questionnaire can be seen in annexe 1).

### *3.3.4. Focus Group Discussion (FGD)*

FGD is a qualitative tool that consists of a group interview where the respondents discuss and agree on a certain issue was also used. This tool was used with the same purpose in this study, where farmers and Bindzu met and discussed issues surrounding the initiation of farmer-firm relation. The FGD was planned for 10 farmers and 1 Bindzu's manager, however, due to the pandemic scenario in Mozambique, it was only possible to have 5 farmers. The session was facilitated by the field assistant coordinator, as the researcher could not attend the meeting online due to internet quality. Thus, the session was recorded and sent via WhatsApp. After receiving the audio, the researcher summarized the discussed points to add to what the notetaker did. The session lasted 1 hour and was held in Bindzu's warehouse located in Moamba District. The checklist used is included in annex 4.

Table 9 illustrates the summary of research questions, data collection methods and its source.

**Table 9.** Research methods matrix

Q. N°	Details	Method	Source	Data analysis tool
<b>1</b>	<b>What are the factors preventing the sustainable incorporation of smallholder farmers in Bindzu's tomato value chain?</b>			
<b>1.1</b>	What are the value chain stakeholder (actors, supporters and influencers) and their role in farmer-firm relationship?	Interviews (Semi-structured) Survey/questionnaire Desk research	-Bindzu -Extensionist officer of Ministry of Agriculture - Ministry of Industry and Commerce (MIC) -Development Programmes: Horticulture Specialist from PROCAVA Project -Farmers - Secondary sources	Chain Map Stakeholder matrix PESTEC Power and interest grid of stakeholder
<b>1.2</b>	How the current chain relations affect the creation of sourcing agreement between Bindzu and Smallholders?			Radian Institutionogramme Trading-up matrix
<b>1.3</b>	What factor of supply does Bindzu consider as important for sourcing from smallholder farmers?	Interviews (Semi-structured) and FGDs	Bindzu	Trading requirements
<b>1.4</b>	What factors do smallholder farmers consider as important for supplying tomato to a firm?	Survey Questionnaire and FGDs;	Farmers	Trading requirements
<b>2.</b>	<b>What are possibilities to create a relationship between Bindzu and smallholder farmers?</b>			
<b>2.1</b>	What are potential sourcing strategies for Bindzu to incorporate smallholders as suppliers?	Interview, FDGs and Desk research	-Bindzu -Secondary sources	BMC
<b>2.2</b>	What are the potential supplying strategies for smallholder to supply tomato to Bindzu?	Survey, FDGs and Desk research	Farmers -Secondary sources	BMC

*Source: Author's compilation*



### 3.4. Sampling

Overall, the unit of analysis of this research was selected based on convenience purposive sampling. On the side of the key informants, the criteria used to select was the purposive sampling strategy, because there are limited primary sources who have experience in the tomato value chain. The limited primary sources also influenced the number of interviewees. The target informants were people working for MADER, one extensionist from the study area and one informant Directorate for Cooperation and Markets. However, with the last one was not possible to conduct the interview, for the reasons present in the section of data collection (interviews). The funded programs, SUSTENTA and PROCAVA were selected due to their current intervention in the development of the horticulture chain, in which tomato is one of the target crops. The last key informant from MIC was included after the advice of one of the key informants. On the other hand, the use of this type of sampling for smallholder farmers was due to the accessibility. Small farmers are located in a dispersed way, which could require more time to reach them if adopted the random sample strategy. Besides that, the location of the farmers also influenced the number defined for the total sample for the survey, which was defined taking into consideration the statistical representation to build a conclusion on the findings. Hence, the data were collected with the farmers that were found on the farm during the days of data collection. In total, 35 farmers participated in the survey and 5 informants in the interview.

### 3.5. Field research in the context of COVID

In line with COVID-19 regulations measures in Mozambique, which include but are not limited to restrictions on foreign travel, and a ban on social gathering. The researcher did not travel to the home country for the primary data collection. Hence, the data was collected via online platforms for interviews, while surveys and FGD with the assistance of the 3 field assistants. The field assistants were selected based on their ability to communicate in local language (changana), familiarization in working with farmers of the study area and experience in coordination of FGDs.

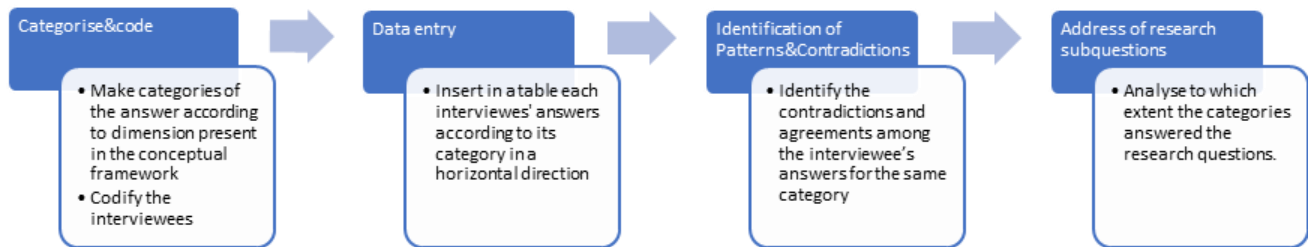
Additionally, to increase the accuracy of the results the researcher prepared all the material and shared with the field assistant to get the feedback on clarity, interpretation and evaluate the appropriateness of the design.

### 3.6. Data analysis

The analytical tools used for the data analysis per sub-questions are indicated in table 9. In this section are described the methods used for data analysis according to type of data.

### 3.6.1. Qualitative data

Analysis from interviews of key informants were analysed using core process of Laws et al. (2013), which consists of four major steps described below:



**Figure 9.** Qualitative data analysis

*Source:* Adapted from Law et al. (2013)

### 3.6.2. Quantitative data

The data collected from the questionnaire was introduced to IBM SPSS Software version 26. This statistical analysis included descriptive statistics, which consisted of the generation of frequencies outputs, as illustrated in table 10.

**Table 10.** Descriptive analysis according to type of variable

Type of variable	Type of response	Descriptive
Category or nominal	The response choice does not imply meaningful order to the list.	-Crosstabulations -Charts -Frequencies
Scale or ration	The response are numbers, which will be reclassify the data into age groups.	-Mean -Charts - Frequencies

*Source:* Author's compilation

In the research proposal, it was planned to have the ordinal variable, however, due to challenges encountered by farmers to answer the question 9, it was not possible (detailed explanation can be seen in 3.7 data validation). Equally, the inferential statistic was not possible to perform. Detailed explanation can be seen in 3.7 data validation.

## 3.7. Data validation and limitations

Errors occurred during the questionnaire administration. The pilot of the questionnaire was only done with the researcher classmates and field assistants, the suggestion provided was incorporated into the questionnaire. Although the researcher recognizes the importance of testing the instrument with the real respondents, this was not possible, due to the costs associated with the transportation of the

field assistants to Moamba District. Plus, the estimated budget was designed based on the first area of study, which is closer to Maputo City, the address of the field assistants. As a result of not testing the tool with the farmers, 2 questions were not answered accordingly, and affected its analysis. Following are described the challenge encountered with the questions and methods used to deal with the errors.

- Question 9: farmers who are not yet selling to a wholesaler were expected to answer about the important factors to selling to a wholesaler in the future. However, farmers failed to select the option based on the level of importance, thus most of them were left blank. To address this challenge, the researcher relied on the triangulation methods: i) analysing only the choices with the majority number of respondents; ii) use the data collected from the FGDs; and iii) use the reason for selling to a wholesaler indicated by farmers that are already supplying to a wholesaler.
- Question 13: most farmers had difficulties indicating the level of influence and willingness of chain stakeholders in the creation of a farmer-firm relationship, perhaps they are not aware. Since the question did not include the option "I am not aware", there were not able to select appropriate choice. Moreover, the few that responded were not statistically representative. Therefore, it was not possible to analyse the response from the farmers. Hence, the researcher used only responses provided by the key informants. However, even them, were only able to answer about the level of influence of the stakeholders and the willingness level was not possible to capture.

Other limitations of the studies include:

- Delay in response of the data collection request by one of the key informants.
- Limited number of FGD participants due to the restriction imposed due to the Pandemic situation in Mozambique.
- Not performing of statistics tests, for the reason described in the table below:

**Table 11.** Limitation to do the inferential statistical analysis

Question	Type of test	Limitation
Is there a difference between sex and type of selling agreement with a buyer?	X2-Square test	Out of 35 farmers interviewed, only 7 farmers have a long-term commercial relationship with the buyers.
Is there a correlation between association membership and access to market information?	Spearman correlation	All respondents are members of farmers association

Is there a difference between age and access to market support?	Independent T-test	86% of farmers are adults
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*Source: Author's compilation*

Despite these difficulties, the researcher believes that the data obtained is accurate enough to build realistic and solid recommendations for Bindzu.

### 3.8. Ethical consideration

Ethical issues frequently discussed in research process are consent of respondents' participation and confidentiality of data (Law et al., 2013). Apart from the two issues above-mentioned, another ethical issue considered is the management of survey respondents' expectations regarding the outcome of the study. Thus, the field assistants were instructed to explain the purpose of the study to the local authority and the farmers, to avoid raising expectations such as an intervention as a follow-up. Additionally, before the administration of the questionnaire, the field assistants requested the consent of the respondents to participate in the study and explained the research contextualization (as given in the questionnaire preamble). Likewise, before starting an interview, the researcher asked the respondents' permission to audio record the interview, and the interviewees were coded to ensure their anonymity. During the interview, they had the right to skip a question. Afterwards, the researcher handled the shared information confidential.

# CHAPTER IV: RESULTS



- 4.1. Stakeholders and their role in farmer-firm relationship
- 4.2. Chain relations and its influence in creation of Farmer-Bindzu relation
- 4.3. Important factors for Bindzu to source tomato from small farmers
- 4.4. Important factors for smallholder farmers to supply for a firm
- 4.5. Potential sourcing strategy for Bindzu to incorporate smallholders as suppliers
- 4.6. Potential supplying strategies for smallholders to supply tomato to Bindzu

## CHAPTER IV: RESULTS

This chapter reports findings from the primary source using the various methods of data collection, namely: survey/questionnaire in annex 1, interviews' checklist in annex 2 and 3, and focus group discussion in annex 4. Reference of respondents are given according to the method used for data collection.

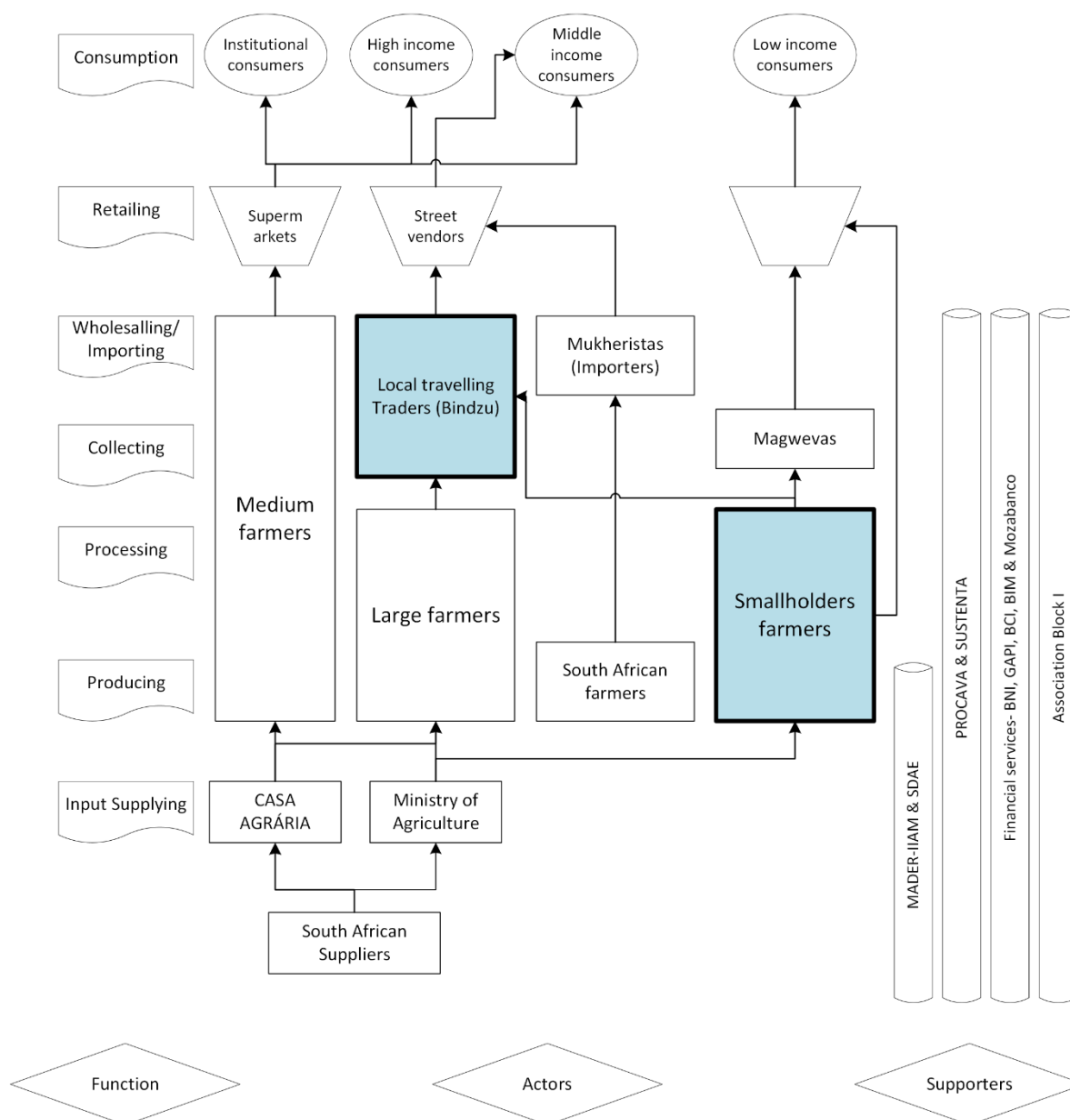
In terms of structure, the results are presented following the sequence of the study sub-questions. The analytical tools used to present some results are chain map, stakeholder matrix, PESTEC, power and interest grid, radian Institutiongramme, trading up matrix as indicated in table 9.

### 4.1. Stakeholders and their role in farmer-firm relationship

Sub-question 1.1: *What are the value chain stakeholder (actors, supporters, and influencers) and their role in farmer-firm relationship?*

#### 4.1.1. Actors and their roles in the chain

The tomato value chain in which Bindzu and farmers operate comprises the fresh tomato. According to the Bindzu's key informant and farmers from the survey the process starts by farmers acquiring inputs from local private agro-shops (see table 12). Then the farmers grow tomato and sell to 3 actors, namely, wholesalers, retailers, and consumers, as shown in Figure 10. On the other hand, Bindzu's key informant mentioned that the company buys tomato from medium and large farmers, and then, resell to mainly to the informal retailers. Figure 10 depicts the chain in which farmers and Bindzu are involved, according to the information provided by group these actors.



**Figure 10.** Fresh tomato value chain map  
**Source:** Bindzu and Survey results

**Input suppliers:** the majority of small farmers from the questionnaire buy the inputs from the private agro-shop, as illustrated in table 12.

**Table 12.** Input suppliers

	Responses		
	N	Percent	Percent of Cases
Agro-shop	33	89.2%	94.3%
Ministry of agriculture	1	2.7%	2.9%
Others	3	8.1%	8.6%
<b>Total</b>	<b>37</b>	<b>100.0%</b>	<b>105.7%</b>

**Source:** Survey results



**Farmers:** findings from the survey reveal that the average production per season is 4032,70 kg, which is equivalent to 20 plastic crates of 20kgs (vide table C in annex 6). According to the BMC designed during the FGD and survey results (as shown in figure 17), small farmers sell their produce at the farm gate or local markets, to wholesalers, retailers or direct to the consumer, different from the channels used by large and medium farmers.

Results regarding characteristics of survey respondents by age and sex, results from the survey shows that most of the farmers are men (57%), as shown in figure A in annex 6. An analysis of the respondents' age based on Mozambican age division in two main groups, young (18-35 years) and the adults (over 35 years old), shows that majority of farmers are above 35 years old (86%), as illustrate in figure B in annex 6.

According to Bindzu's key informant, farmers are also responsible for the processing activity, which consists in primary processing involving sorting and grading of tomato into batches: first, second, and third quality tomato. After sorting and grading, tomato is kept in 20 kg plastic crate with the destination to the markets. This was also mentioned by the farmers during the FGD session. Figure 11 illustrates the processing done on the farm.



*Figure 11. Farmer processing tomato during the fieldwork in Moamba district*  
*Photo credit: Field Assistant*

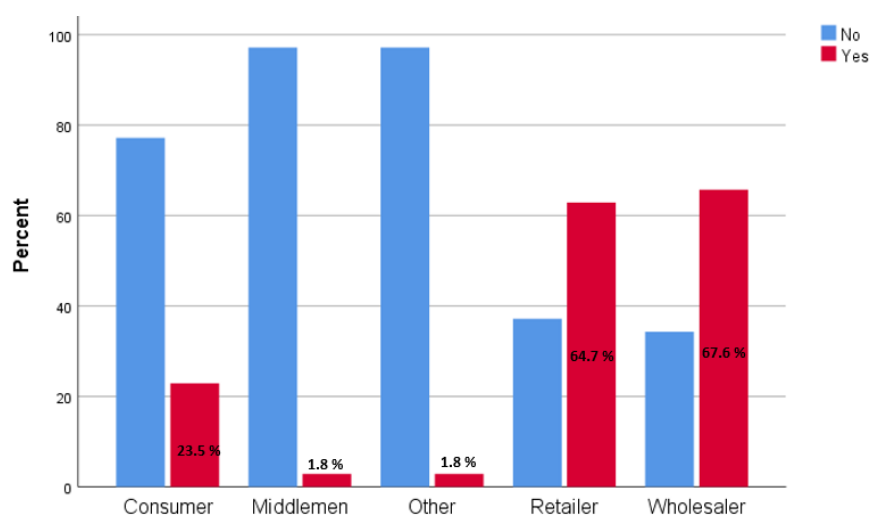
**Wholesalers:** during the interview, Bindzu answered that the company collects tomato in plastic crates of 20 kg in the farm gate of medium and large farmers. Other key informants (hereafter KI), 2 and 3, also mentioned that wholesalers often collect the product by themselves at the farm, then transport to the market located in Maputo city.

Results from survey shows that out of the total sample, 67.6% of the small farmers sell tomato to a wholesaler, as indicated in figure 12. During the interview, 2 key informants, 2 and 3, mentioned that

some wholesalers called "magwevas" in local language, which translated to Portuguese means wholesalers buy tomato from different smallholder farmers.

**Retailers:** results from survey indicated that the second main buyer of tomato of this group of farmers are retailers (64.7%) as indicated in figure 12. On contrary, Bindzu mentioned during the interview that retailers are their major segment of the company's clients, approximately 95%, from which the majority are women involved in the informal market, as street vendors.

**Consumers:** the survey results revealed that out of the total participants of the questionnaire, 23.5% of farmers sell tomato direct to the consumers, as indicated in figure 12.



**Figure 12.** Buyers of farmers tomato

**Source:** Survey results

#### 4.1.2. Supporters and their roles in the chain

Following are described the supporters mentioned by the key informants during the interview who are operating in the Mozambican horticulture value chain, which tomato is one of the priority crops.

**Table 13.** *Tomato chain supporters*

Supporter	Roles
Block 1 Farmers 'Association	-Producing tomato and selling as a group.
MADER	-Extension service: MADER through District Economic Activities Service (SDAE) provides technical assistance at zero costs for small farmers. -Knowledge transfer: SDAE is also responsible for transferring knowledge disclosed by Institute of Agricultural Research of Mozambique (IIAM). IIAM is the research institute from the Ministry of Agriculture.
Ministry of Industry and Trade-MIC	-Monitoring of commercialization: MIC through the Directorate of Internal Trade (DCI) makes use of the Commercialization Booklet to monitor the volume of tomato traded. This is a document that must be used by all agents involved in wholesaling stage. -Loan for a wholesaler: DIC has a fund called the Short-term Revolving Fund for wholesalers to finance the trading activity. The fund is managed by a financial institution. -Market linkage: DIC connects farmers with large buyers, such as supermarkets and wholesalers. -Restrict tomato importation: DIC other role involves influencing the customs import duties for tomato coming from South Africa. The customs import duties are increased during the local harvest season.
Financial Institutions	- Agrarian Fund for Development (FDA): Commercial and Investment Bank (BCI) and Millennium BIM: are the commercial banks that oversee the management of FDA. -Short-term loans: apart from the funds above-mentioned, BCI and Millennium BIM offer short-term financing to horticulture crops production, in which tomato is included. -SUSTENTA Fund: Moza Banco and National Investment Bank of Mozambique (BNI) are the two commercial banks responsible for the management of this recently launched fund. Those banks are required to disburse part of the funds that are not a grant, 25% of the fund that is given as a loan for farmers. In the case of private company, the loan is 40% of the funds disbursed. -Revolving Fund for Wholesalers: GAPI - Sociedade de Investimento, SA is a financial development institution that is managing MIC's fund.
Funded programs	PROCAVA aims to support smallholder farmers and is being implemented through 3 components: - Component 1: Production Improvement and Market Linkages. - Component 2: Market Oriented and Climate Resilient Infrastructures. - Component 3: Institutional, Policy Strengthening and Implementation Support. SUSTENTA aims to integrate small farmers in strategic agricultural chains. The interventions include: -Establishment of linkage among farmers: connecting 100 small farmers to 1 Small Emergent Commercial Farmer (PACE), which is a model producer from the same production area. PACE is responsible for managing the financing, 25% financed by a commercial bank is allocated to buy inputs, and the remaining 75% as a grant is for the acquisition of machinery and other equipment. -Linking farmers to agribusiness Small and medium-sized enterprises (SMEs): SUSTENTA also finances SMEs to invest in the remaining stages of the chain, such as processing, marketing.

**Source:** *Results from the interview with the key informants*

Despite the existence of these supporters in tomato chain mentioned by the key informants, more than 50% of farmers from the survey answered that they have not received support, as shown in table 14.

**Table 14.** *Receiving of support*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	42.9	44.1	44.1
	No	19	54.3	55.9	100.0
	Total	34	97.1	100.0	
Missing	System	1	2.9		
Total		35	100.0		

**Source:** *Survey results*

In contrast, Bindzu's key informant mentioned that the company has already benefited from the support of commercial banks and MADER. The company received loans from banks, while from MADER was a grant fund and management software. However, Bindzu was not aware of the fund available for wholesalers provided by MIC, mentioned by KI2. Regarding the two ongoing funded programs, neither Bindzu nor farmers mentioned having received support from them, but both actors are aware of the existence of these initiatives.

#### 4.1.3. *Stakeholder matrix in relation to role in farmer-firm relation*

Table 15 indicates the role of the identified tomato chain stakeholders in creation of farmer-firm relation indicated by the KIs.

**Table 15.** *Stakeholder matrix in relation to promotion of farmer-firm relation*

Stakeholder	Function in the chain	Role in farmer-firm relation
Input supplier	Actor	Supplying of production inputs by local private agro-shop.
Farmers	Actor	-Small farmers: farming and supplying of fresh tomato. Additionally, farmers showed willingness to design a project with Bindzu to seek for funds to finance production. -Medium and large farmers: the current Bindzu's suppliers, will also continue to supply the product to complement the one provided by the small farmers.
Wholesalers	Actor	Bindzu (Firm): Organizational role in terms of technical assistance for production, buying of tomato from farmers and resell in the market. The funds sought with farmers would be allocated to finance the logistics costs of transporting tomato from farm to the market. Other wholesalers that are currently buying from small farmers are Bindzu's competitors in the establishment of farmer-firm relation.
Retailers	Actor	Street vendors are the main buyers of Bindzu's tomato and are responsible for supplying the consumers.

		Retailers that are already buying from small farmers are also Bindzu's competitors in the establishment of farmer-firm relation.
MADER	Supporter	SDAE is not very active in supporting marketing, only on a rare basis helps wholesaler traders who approach them requesting for farmers' contacts to purchase the product.
MIC-DCI	Supporter	DIC promotes links between producers and large-scale buyers such as wholesalers and supermarkets. Equally, DIC helps in the identification of surplus and deficit areas, so that the farmers can supply to these areas. In terms of funding, as previously mentioned, there is a Revolving Fund for wholesalers to finance the activity assistance in connection with different suppliers.
PROCAVA	Supporter	PROCAVA, through the component of market linkage will help farmers to elaborate financeable business plans. Moreover, farmers will be trained in basic accounting, determination of critical levels of production, negotiation techniques, formalization of sales contracts and connection with funding sources. The other component linked to market access is the development of agricultural infrastructure, such as the rehabilitation of roads, irrigation schemes, establishment of processing units and new markets.
SUSTENTA	Supporter	SUSTENTA intends to establish a commercial relationship among three actors in the chain. Small farmers will have contracts with the commercial emergent farmers, which is, in turn, responsible for the aggregation of the product and delivery to the SMEs.
Block 1 Association	Supporter	Farmers from the association sell together their produce.

Source: Key informants and FGD

Despite the role of supporters in the promotion of market linkage mentioned by all the KIs, only 25.7% of survey respondents answered to have received market support, as shown in table 16.

Table 16. Access to market support

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	9	25.7	25.7	25.7
No	26	74.3	74.3	100.0
Total	35	100.0	100.0	

Source: Survey results

The response of most farmers (74.3%) coincides with Bindzu informant response, who mentioned that there are limited supporters promoting farmer-firm relationship. According to Bindzu, wholesalers often look for farmers for supplying by themselves.

For farmers that indicated that have received support (25.7% of farmers), they mentioned the following organizations as supporters, as illustrated in table 17.

**Table 17.**Supporters of market linkage

		Responses		
		N	Percent	Percent of Cases
	Ministry of Agriculture	1	11.1%	11.1%
	NGOs	1	11.1%	11.1%
	Farmers' associations	3	33.3%	33.3%
	Private companies	1	11.1%	11.1%
	Others	3	33.3%	33.3%
Total		9	100.0%	100.0%

Source: Survey results

As it can be seen in table 17, Farmers' association and others score high. Selling is part of the activity that farmers answered that do collectively (97.1%) as shown in table F in annex 6.

However, Bindzu mentioned the company is not part of the existing traders' association. One of the reasons mentioned for not belonging to the association is the lack of its legalization, which affects its ability to influence in the government policies.

#### 4.1.4. Influencers in the tomato chain

The table below presents the PESTEC factors mentioned by the KIs that might support (opportunities) or hinder (constraints) the creation of farmer-firm relationship between small farmers and Bindzu.

**Table 18.**PESTEC analysis

PESTEC	Constraints	Opportunities
<b>POLITICAL</b>	<p>Lack of competitiveness of the national tomato towards the imported product</p> <p>Increase of corporate tax from 10% to 30%.</p> <p>Lack of agricultural insurance by law.</p>	<p>Free customs duty for some inputs (seedlings and pesticides).</p> <p>Fuel at subsidized price.</p> <p>Newly introduced Marketing booklet for the trader which is used to present to all the government authorities.</p> <p>Legal framework regulating the commercial revolving fund for agri-wholesalers.</p> <p>Regulation of annual volume of importation through establishment of high reference price of tomatoes in the act of taxation during the local harvest season</p>

<p><b>ECONOMIC</b></p>	<p><b><u>Macro:</u></b></p> <p>Trade agreements that the country has with other countries in the Southern African region, lack of competitiveness of the national product.</p> <p>Exchange rate, when the currency appreciates, traders prefer to import tomato.</p> <p>Influences of the sales flow by the consumer's purchasing power, peak occurs in the week of salary receipt (last week and first week of the month).</p>	
	<p><b><u>Micro:</u></b></p> <p>Absence of factory producing inputs in the country.</p> <p>Lack of purchasing power to acquire quality input by small farmers.</p> <p>Limited access to qualified and up-to-date public extension network in agriculture.</p> <p>Poor quality infrastructure, roads, and power grid.</p> <p>Absence of post-harvest infrastructure.</p> <p>Dependence in only one wholesale market (Zimpeto) in the country.</p> <p>Limited banks branch in rural areas, coupled with high cost of mobile money transactions.</p> <p>Lack of financial capacity to produce off-season to get better prices and supply throughout the year.</p>	



<b>SOCIAL-CULTURAL</b>	<p>Lack of negotiation power by small farmers.</p> <p>Trust issues among the actors, farmers complaint about the delay in payments and firm about mixing of products of different quality and side sales.</p> <p>Resistance to adopt new technologies by farmers.</p>	
<b>TECHNOLOGICAL</b>	<p>High cost of technology to produce in the hot season (shade net and the irrigation system), which is the best season that offers better prices.</p> <p>Absence of industry for the manufacture and maintenance of agricultural equipment and machinery.</p> <p>Lack of tomato varieties developed to tailor local condition.</p>	
<b>ENVIRONMENT</b>	Lack of resilience to climate change of smallholders	

Source: Key informants

#### 4.1.5. Level of influence of stakeholders in creation farmer-firm relation

Table 19 shows the level of influence for each stakeholder in creation of farmer-firm relation given by the interviewees. As explained in section 3.7, it was not possible to get answers from all respondents.

Table 19. Grid of stakeholders' power in creation farmer-firm relation

	Power											
	Low				Medium				High			
	KI 1	KI 2	KI 3	KI 4	KI 1	KI 2	KI 3	KI 4	KI 1	KI 2	KI 3	KI 4
Small Farmers	X	X	X	X								
Wholesaler									X	X	X	
MADER												X
MIC										X		
Funded programs												
Private companies												

Source: Key informants

Farmers have low level of influence, according to the KI3. " *Farmer's low literacy affects their ability to negotiate with the buyers, hence they can be easily manipulated. While the wholesalers tend to have more power because they are more literate than farmers. Plus, they have more access to market information (KI 3).*"

#### 4.2. Chain relations and its influence in creation of Farmer-Bindzu relation

Sub-question 1.2: *How the current chain relations affect the creation of a trading agreement between Bindzu and Smallholders?*

- **Relation of Bindzu and farmers' with other actors in the chain**

Bindzu mentioned that is a resident wholesaler in the only largest wholesale market in the country. In this market, there is an association of wholesalers, however Bindzu said that is not a member of the organization. On the other hand, farmers that participated in the survey are all member of farmers association called Block I Association, as illustrated in table 20.

**Table 20.** *Member of association*

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	35	100.0	100.0	100.0

*Source: Survey results*

Bindzu when asked about the length of relationship of its supplier answered that has a relationship of about 9 years. However, Bindzu and its suppliers do not have a written contract, the relationship is based on trust and commitment in relation to verbal agreements, of price, quantity and quality. Likewise, Bindzu mentioned that did not have contract with its buyers. Unlike the relationship with the tomato suppliers, Bindzu stated that did not sell tomato to fixed buyers.

The same situation was found within the farmers that responded to the questionnaire, 91.4% answered "No" when asked about having of a contract with a buyer, as shown in table 21.

**Table 21.** *Contract with buyer*

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	3	8.6	8.6	8.6
No	32	91.4	91.4	100.0
Total	35	100.0	100.0	

*Source: Survey results*

Only 7 of the respondents answered that have a long-term relationship with their buyers, however, only two have a contractual agreement as shown in the following table 22.

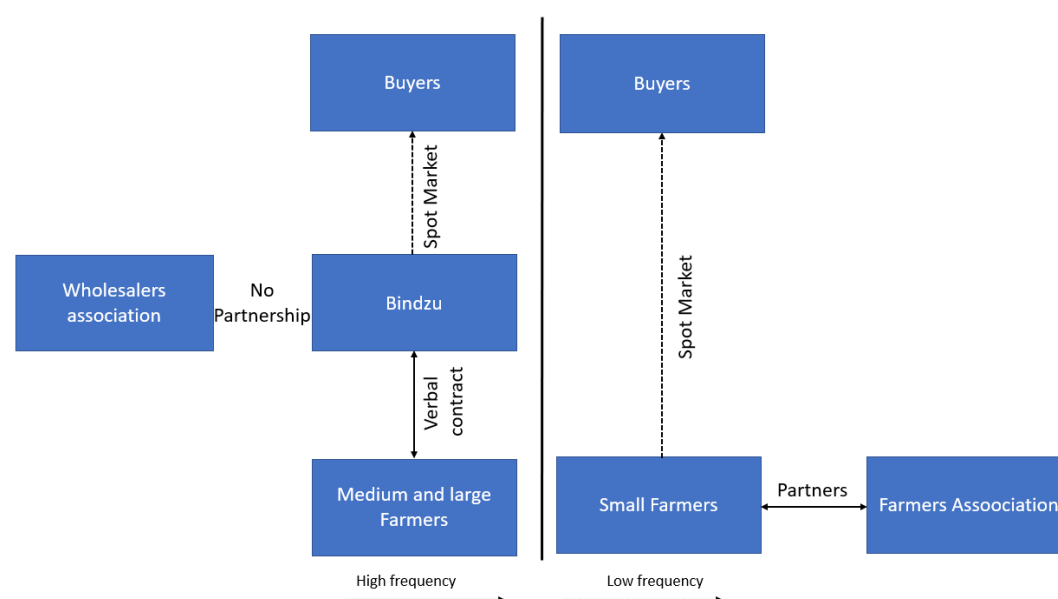
**Table 22.** Frequency of selling to buyer and contract

		Contract with buyer		Total
		Yes	No	
Do you often sell to the same buyer	Yes	2	5	7
	No		28	28
Total		2	33	35

Source: Survey results

The findings of commercial relation that Bindzu have with its suppliers and buyers, as well as farmers with the buyers was also mentioned by all interviewees. Furthermore, the key informants stated that farmers lack organized accounting, which is one of the requirements demanded in the formal market. According to KI2, the type of relationship between Bindzu and its suppliers is common among medium and large farmer and the traders. *"Wholesalers and medium and large farmer tend to do business continually without a written contract (KI 2)"*. It is important to mention that, during the interview, KI4 mentioned that SUSTENTA is promoting contractual relationship, as a requirement for applying for the program funds.

The figure below shows how Bindzu and farmers are connected to the other chain actors, in terms of type of relationship and its duration.



**Figure 13.** Trading-up matrix

Source: Author's adaptation based on survey and interviews

According to all the key informants, the predominance of informal relationships in tomato chain is also related to inconsistency quality and quantity by small farmers. On the other hand, Bindzu pointed out that the business structure of their customers, as one of the factors preventing them to set a contract, as those buyers do business by opportunity.



## Farmers

The majority of farmers (74.3%) indicated that they have access to market, as shown in table 23.

**Table 23.** Access to market information

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	26	74.3	74.3	74.3
No	9	25.7	25.7	100.0
Total	35	100.0	100.0	

*Source: Survey results*

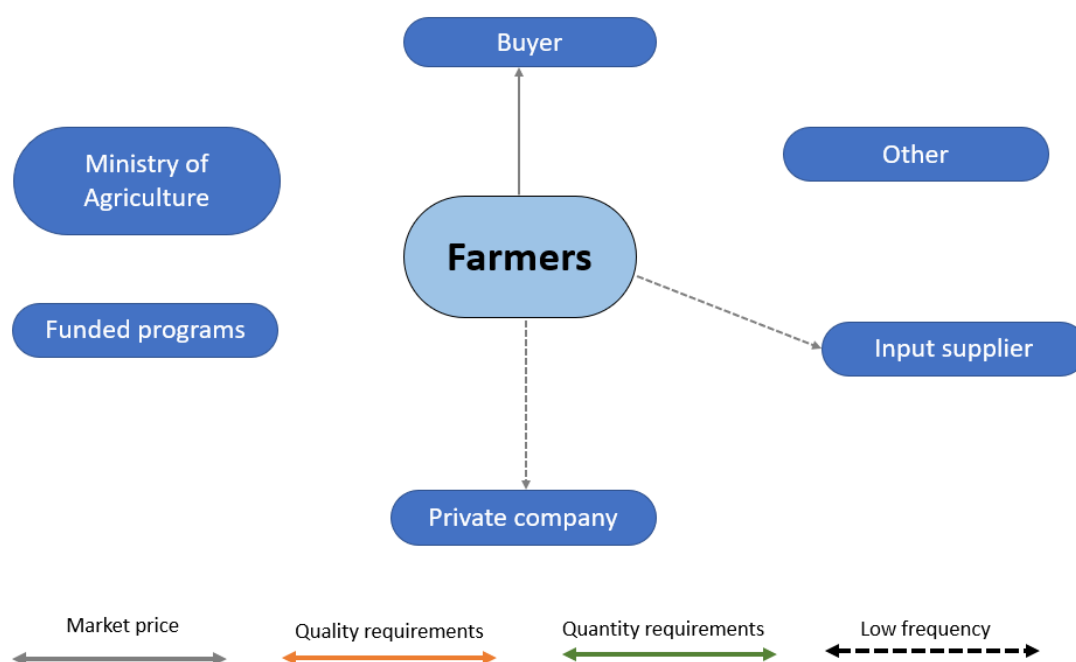
Out of 26 farmers that responded "yes" for access to market information, 24 of them said that have access to market price information and only 3 had access to market quality requirements, as show in table below.

**Table 24.** Type of market information

		Responses		Percent of Cases
		N	Percent	
	Market price	24	70.6%	96.0%
	Quality requirements	3	8.8%	12.0%
	Quantity requirements	7	20.6%	28.0%
Total		34	100.0%	136.0%

*Source: Survey results*

Farmers indicated that receive the information mainly the buyers, as show in figure 15.



**Figure 15.** Farmers' Radian Instituionagramme

*Source: Author's adaptation based on the survey results*

Despite the price was the factor that farmers mentioned having more access, none of them mentioned having access via MADER, newspaper or local radio stations, which were the platforms mentioned by the KI2 as the ones used to disclose prices. Neither Bindzu mentioned using the newspaper to monitor the tomato's price. Furthermore, SDAE only mentioned that the information exchanged with farmers is related to the technology transfer on a regular basis for small producers. However, this is not in line with the answers given by farmers when asked about access to farming support (see table 16).

#### 4.2.2. *Relation among chain supporters*

Below are described the organizations with which the identified supporters cooperate in the chain according to the interviewees.

- **MIC:** MIC has a strong relationship with the MADER-SDAE, where SDAE share information about the cultivated area/crop, through this information, MIC influences the tomato importation taxes. MIC also cooperates with two more organization, the National Inspection of Economic Activities (INAE) and National Institute of Standards and Quality (INOQ). With INAE to inspect the prices, while with INOQ to inspect pre-measured items.

*"MIC and these organizations are members of a committee. Weekly, we meet to report on each other activities (KI 3)."*

- **SDAE:** in addition to cooperating with the MIC, SDAE works with the IIAM for the dissemination of research results among the farmers.
- **PROCAVA:** the KI from the program mentioned that PROCAVA intends to create synergies with other supporters, which include MIC, IIAM, SDAE and INOQ. The role of IIAM will also be for the transfer of technology to define technological packages for intensive production (demonstration fields). While the district SDAE will assist the producers during the project in the implementation and INOQ will support in the certification.
- **SUSTENTA:** the current cooperation is with two commercial banks (BNI&Moza Banco). SUSTENTA will also cooperate with MIC in the market component, and with IIAM for the research and development. The last one is SDAE which will perform the same role, provision of public extension services.

#### 4.3. *Important factors for Bindzu to source tomato from small farmers*

Sub-question 1.3: *What factors of supply does Bindzu consider as important for sourcing from smallholder farmers?*

Bindzu pointed that currently purchases tomato from medium and large producers for the following reasons: i) guarantee of consistency in quality and quantity, ii) reliability and iii) transparent communication. Therefore, to incorporate small farmers based on their current production capacity, Bindzu mentioned the following requirements:

i) Ensure constant production: small farmers must be able to supply continuously for a period of 1 month.

ii) Loyalty: honesty in fulfilling contract agreements, including product quality. This factor is critical to avoid mixing the quality and affect the price of the product with better quality or loss of credibility in the market.

iii) Openness for post-payments: producers should be open to receive payment after 3-4 days maximum.

iv) Being organized in groups: it is important that farmers are organized to minimize transaction costs, if possible, production in the same land, only delimiting the area of each farmer. This factor will also facilitate the provision of technical assistance to producers.

#### 4.4. Important factors for smallholder farmers to supply for a firm

Sub-question 1.4: *What factors do smallholder farmers consider as important for supplying tomato to a firm?*

Most of farmers (65.7%) that participated in the survey indicated that are selling their produce to a wholesaler, as indicated in table below.

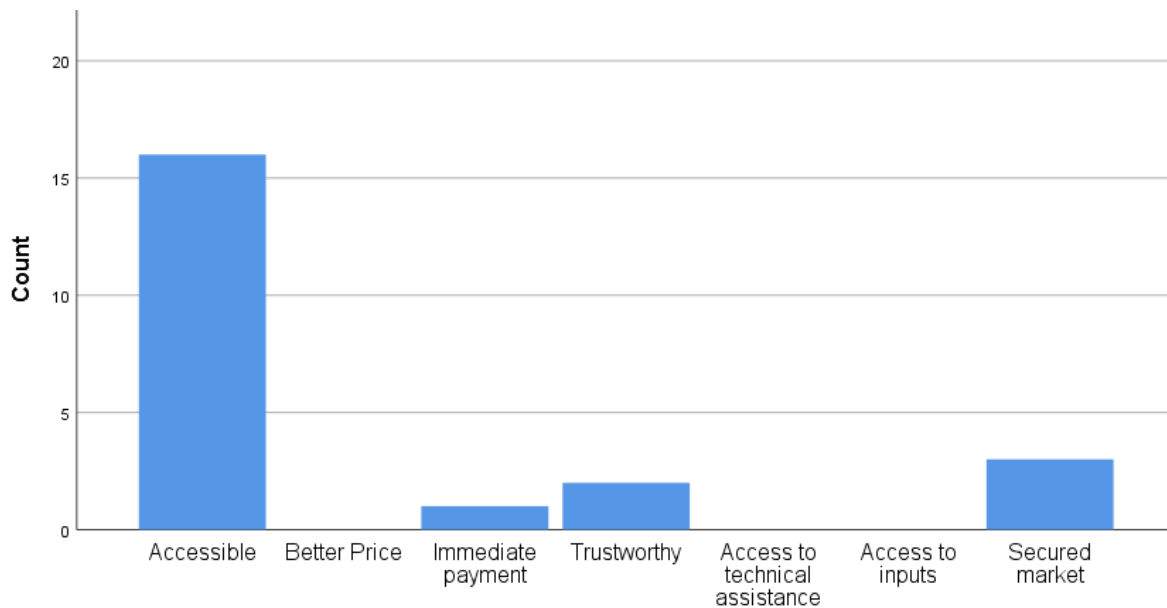
**Table 25.** *Selling to a wholesaler*

	Frequency	Percent	Valid Percent	Cumulative Percent
No	12	34.3	34.3	34.3
Yes	23	65.7	65.7	100.0
Total	35	100.0	100.0	

**Source:** Survey results

Figure 16 illustrates the most reason for selling to a wholesaler, farmers sell to wholesalers due to accessibility (more than 15%). As mentioned by KI 3 and Bindzu, wholesalers tend to buy the product at farm gate.





**Figure 16.** Reason for selling to a wholesaler  
**Source:** Survey results

The accessibility was also one of the 5 important factors to sell to a wholesaler mentioned during the FGD.

When asked about selling to other buyers, farmers responded that are selling to consumer due to the fact of getting better price. They are selling to retailer due to accessibility and middleman due to immediate payment (vide annex 6, tables G, H and I).

For those that are not already selling to a wholesaler, selected as important factor, provision of market information and finance. The last one was also mentioned during the FGD, as in can be seen table 26.

During the FGD, Bindzu presented to the farmers the requirements that they should fulfil to be sustainable incorporated as a supplier. Likewise, farmers during the FGD emphasized in one factor that also outstood in survey, finance of production. Moreover, farmers in a group mentioned again the importance of accessibility. Farmers said that Bindzu should be responsible for the collection of the product.

**Table 26.** Important factor for establishing a farmer-firm relationship

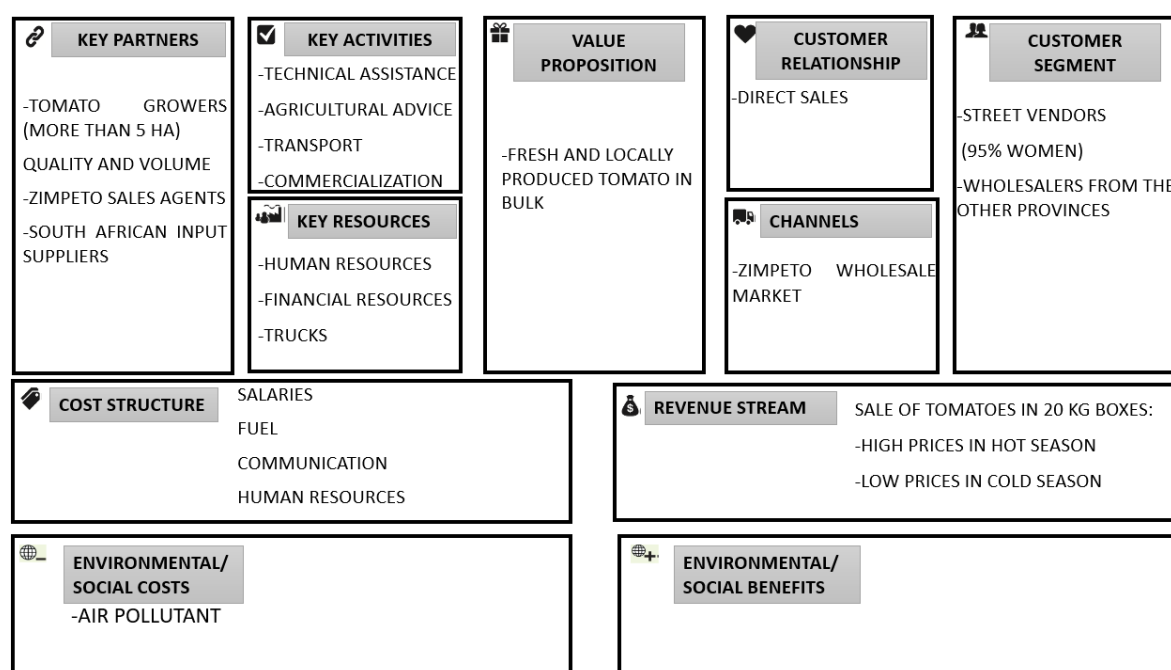
No.	Important factors for Bindzu	Important factors for farmers
1	Minimum volume 500 boxes per day	Guarantee of production financing (revolving fund to scale production and production according to quality)
2	Production continuity min. 1 month	Availability of machinery in time for the execution of activities.
3	Quality (separate the tomato qualities in the packaging)	Guarantee of payment within the agreed time
4	Supply at least 2-3 times a week (scaling production)	Pick up the product at the production site (transport the product to the market by wholesaler)
5	Trust, responsibility, transparency, openness to payment flexibility (3-4 days maximum)	Respect of all contractual agreements

*Source: Focus Group Discussion*

#### 4.5. Potential sourcing strategy for Bindzu to incorporate smallholders as suppliers

Sub-question 2.1: *What are potential sourcing strategies for Bindzu to incorporate smallholders as suppliers?*

The current Bindzu's business model is depicted in the figure 17.



**Figure 17.** BMC of Bindzu

*Source: Key informant from Bindzu*

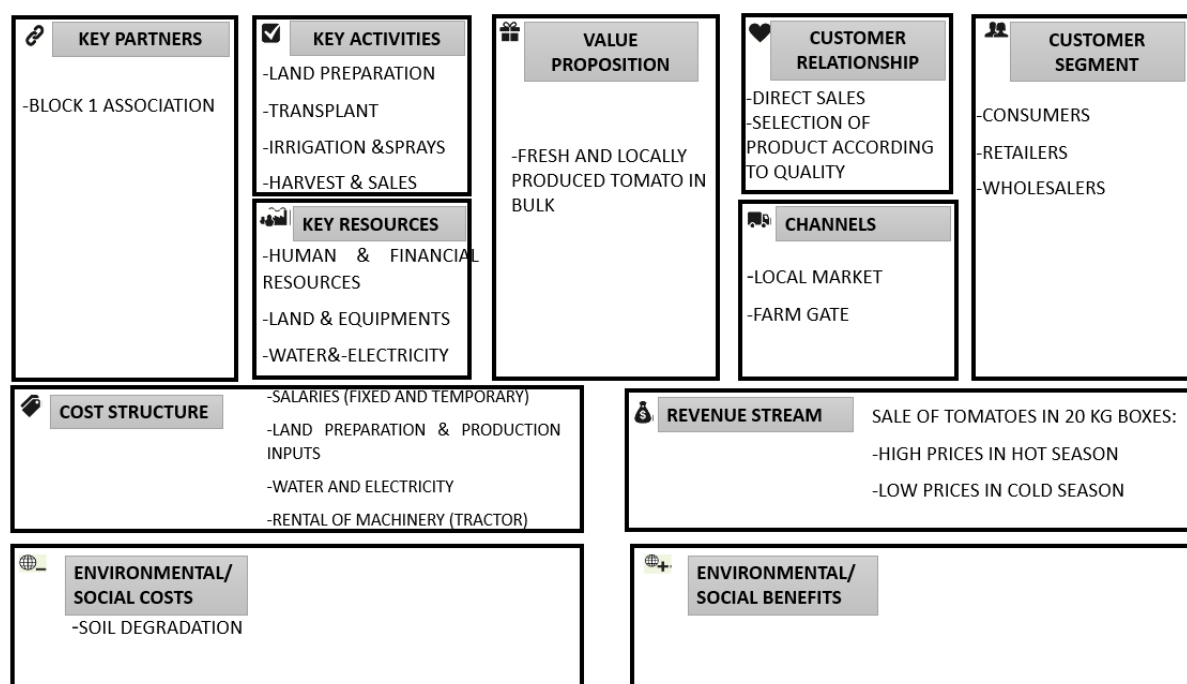
Based on the current business model, Bindzu indicated that the aggregation schemes would be the appropriate strategy to work with a group of small farmers. The aggregation would consist not only in the collection of tomato, but that the selected farmers produce close to each other. According to

Bindzu, this strategy will allow the company to save on logistics costs. Besides that, it will also facilitate the provision of technical assistance, as Bindzu recognized the importance of this component to meet the quality of tomato required.

#### 4.6. Potential supplying strategies for smallholders to supply tomato to Bindzu

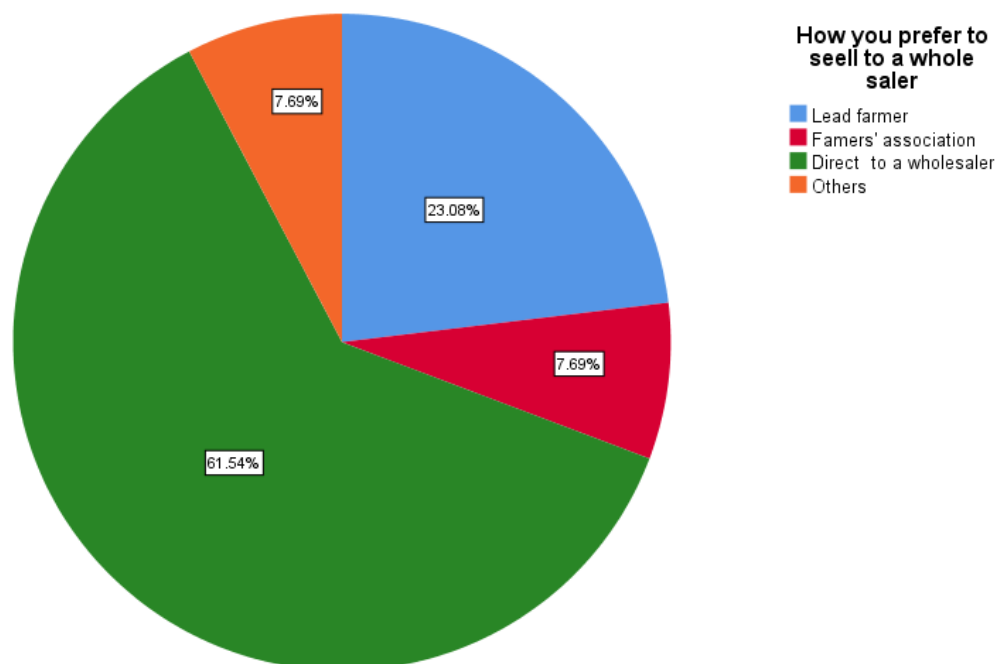
Sub-question 2.2: *What are the potential supplying strategies for smallholder to supply tomato to Bindzu?*

The figure below illustrates small farmers' current business designed during the FGD.



**Figure 18.** BMC of farmers  
**Source:** FGD

During the FGD and results from survey indicated that some farmers are already selling to wholesalers (see figure 12). From the group of farmers that indicated not selling to a wholesaler, most of them (61.4%) pointed that would prefer to sell directly to a wholesaler, as shown in figure 19.



**Figure 19.** Preference to sell to a wholesaler

**Source:** Results from survey

This finding is in line with what farmers in FGD pointed out regarding the need of Bindzu taking the role of collector and transporter of the product to the market.

Regarding the possible priority area to initiate a relationship, during the FGD, farmers and Bindzu decided together on priority areas and the respective action steps for intervention to initiate a farmer-firm relationship. Table 27 shows the outcome of this discussion.

**Table 27.** Priority areas and action strategies

No.	Priority areas	Action strategies
1	Consistent supply	Fundraising together to finance production (design the value chain project)
2	Trust	Adoption of suggested production techniques
3	Quality (separate the tomato qualities in the packaging)	Coordinate production and assistance training throughout the process

**Source:** FGD

The picture below illustrates the FGD in Bindzu warehouse, where Bindzu and farmers discussed issues regarding establishment of farmer-firm relationship.



**Figure 20.**FGD between Bindzu and farmers  
**Photo credit:** Field assistant

# CHAPTER V: DISCUSSION



- 5.1. Stakeholders and their role in farmer-firm relationship
- 5.2. Chain relations and its influence in creation of Farmer-Bindzu relation
- 5.3. Important factors for Bindzu to source tomato from small farmers
- 5.4. Important factors for smallholder farmers to supply for a firm
- 5.5. Potential sourcing strategy for Bindzu to incorporate smallholders as suppliers
- 5.6. Potential supplying strategies for smallholders to supply tomato to Bindzu
- 5.7. Reflection

## CHAPTER V: DISCUSSION

This chapter discusses the findings gathered from the primary source. This section follows the line of the sub-research questions and results are interpreted in the context of the research problem, in order to answer the research aim. Additionally, this chapter compares the findings of this research with previous research and models for farmer-firm relationship.

### 5.1. Stakeholders and their role in farmer-firm relationship

Sub-question 1.1: *What are the value chain stakeholder (actors, supporters, and influencers) and their role in farmer-firm relationship?*

#### 5.1.1. Actors and their roles in the chain

The research identified five actors in the tomato chain in which farmers and Bindzu operate. The actors involved in the core process are the input suppliers, farmers, wholesalers, retailers, and consumers. This matches with the tomato actors identified by Haber et al. (2015) in the same study area and ACIDI/VOCA (2016) in the horticulture value chain analysis. These results might be related to the fact of that some farmers and wholesalers do more than one function in the chain. As found during the data collection, farmers are performing three activities, producing, processing and selling. The wholesalers do two activities, apart from wholesaling, they do the collection by themselves.

An analysis of the profile of the tomato farmers from the survey revealed that most of the farmers of the survey are men (57%). This result is in line with the studies by Haber et al. (2015) & Aniambossou et al. (2015), which found that tomato production is a male-dominated sector in the study area. Recently study by PROCAVA (2021) found that in Moamba district there are more women, however the difference is only of 4%. This difference between the sex of the total population can be probably the reason also behind this finding.

Findings revealed that the production stage is dominated by adults (86%), this result matches with the studies conducted by PROCAVA (2021) & Aniambossou et al. (2015), which also found that more than 80% of farmers in the horticulture chain are adults. PROCAVA explained that this scenario results of the migration of young people from the countryside to the big cities to look for jobs in other sectors. This situation can be probably related to the reward of farming. Hence, the other sectors seem more attractive for the youth.



Regarding to the role of Bindzu and farmers in farmer-firm relationship, Bindzu and farmers agreed that to engage in sustainable farmer-firm relationship each actor should focus on their core businesses. This is in line with KIT & IIRR (2008) who stated that actors' specialization is one of the conditions to improve trading relations and generate mutual benefits. As expected, in the farmer-firm relation, farmers will be the tomato supplier, as they have experience in farming. Whereas Bindzu will buy and resell the product, since they have experience in commercialization of tomato in the wholesaler market.

### *5.1.2. Supporters and their roles in the chain*

The supporters identified in the tomato chain are funded programs, financial institutions, MIC, MADER (SDAE and IIAM) and Block 1 Association. Notwithstanding the stakeholders and their roles in the tomato value chain, there is limited assistance in general as gathered from the survey, less than 50% of respondents received support. Specifically, for the case of farmer-firm linkage, only MIC is active in its promotion. However, Bindzu was not aware of the existence of a fund tailored for agricultural wholesalers and MIC's role. Moreover, the majority of farmers (74.3%) mentioned that have not received supporter for a business relationship between wholesalers and producers. Information provided by Bindzu and farmers contradicts the level of support that the supporters mentioned that are providing.

Two reasons can be mentioned for these results. First, supporters promoting farmers are weakly linked to main actors, with exception to the farmers' association, Block I. Second, the level of knowledge of supporters' role and intervention in the chain among the chain actors might not be sufficient. Studies conducted Kelly et al. (2015) & Ros-Tonen (2019) have stressed the importance of active engagement of supporters in mediation and creation of enabling for this business relation. The authors claim that firms and farmers cannot do everything alone. Properly, lack of coordination between supporters and future business partners might negatively influence the initiation of the farmer-firm relationship by factors such as duplication of efforts and lack of information of where to access assistance for specific services.

Table 28 illustrates the position of the supporters according to the roles presented by Kelly et al. (2015) & (Ros-Tonen, 2019) in the promotion of farmer-firm relations.

**Table 28.** Role in farmer-firm relationship

Name of supporter	Role	Features of role
	<b>Facilitator</b>	
MIC		-Linkage of farmers and wholesalers
Block I association		-Set of selling contracts
MADER-SDAE		-Extension services
SUSTENTA		-Training farmers in agribusiness -Promotion of contractual relations
PROCAVA		Training farmers in agribusiness
	<b>Lobbying</b>	
PROCAVA		Improvement of infrastructure as part of the program, refurbishment of roads, build o processing units for vegetables and build of nev markets
	<b>Services providers</b>	
MIC (GAPI)		-Provision of loan
SUSTENTA (Moza Banco and BNI)		-Provision of loan and grant

*Source: Author's compilation based on Kelly et al. (2015) & (Ros-Tonen, 2019)*

### 5.1.3. Influencers in the tomato chain

An analysis of the chain environment revealed that out of the 6 PESTEC factors, only the political offers an enabling environment for the establishment of farmer-firm. Following is discussed each factor in relation to its role in farmer-firm relation:

- Political:** Bindzu and other interviewees agreed that there are some policies supporting the activities done by farmers and Bindzu in the tomato chain. This result of support from policies was also found in the study about Horticulture market study in Mozambique conducted by ConsultUS (2014). However, the same author claimed that the support is not yet enough to strengthen the sector. Another study by Springer-Heinze (2017) stresses that adequate policies regulating and supporting the value chain environment are fundamental requirements for a healthy business environment. Thus, the lack of agricultural insurance by law has been hindering small farmers to access available loans for the agriculture sector. Barriers to access finance for production can also form constraints for the establishment of farmer-firm, considering that farmers and Bindzu mentioned as one of the three priority factors to initiate the relationship.
- Economic:** the weak enabling environment from the perspective of economic factors mentioned by the key informants were also identified by PROVACA (2021) and Haber et al. (2015). These findings made PROVACA program to conclude that for effective integration of small farmers in formal value chain it is critical to intervene in the rehabilitation of existing infrastructure and construction of the absent ones. Gradl et al. (2012) also mentioned the

importance of good physical infrastructure to attract the private business to the production center where farmers are located. Moreover, Hebebrand (2012) cited in Sjauw-Koen-Fa (2018) stated that weak infrastructure plays a critical role to lower the transactions costs and reduce post-harvest losses. Therefore, the current situation of the infrastructure might hinder the establishment of the farmer-firm relationship. Another factor identified is the lack of financial capacity of farmers to get high-quality inputs, one of the reasons behind the limited access to loans was already mentioned. These findings also made PROCAVA include in the intervention the support of producers in the development of financeable projects and business plans, including the development of local tomato seed variety to improve their yields and attraction of banks to the production centres. The last one is the regional trade agreements, studies by ConsultUS (2014).and Springer-Heinze (2017) emphasized the role of policies on creating supportive business environment. The current scenario can affect the return of investment of farmer-firm relationship, as the national product cannot compete with the imported tomato.

- **Social-Cultural:** the hindering factors from a social perspective include the lack of negotiation power by farmers, trust issues among the actors from past experience and resistance to adopt new technologies. KIT & IIRR (2006) stress the importance of negotiation power for proper relationship management, farmers must have the ability to negotiate. The approach of grouping farmers is one of the strategies that has been used to strengthening the negotiation capacity of the smallholders. However, PROCAVA (2021) found that the existing farmers organization are not yet strong in negotiation, hence one of the interventions will be in capacity building of the producers' organizations. Regarding trust issues, farmers and Bindzu pointed out this factor as critical to initiate and maintain the relationship, mainly regarding the payments, adoption of technologies and supplying of agreed product. These actors concern was also stated by KIT & IIRR (2008) as a factor that can undermine the business relationship in the chain. Studies by Odongo et al. (2016) in the study of the maize supply chain of Uganda found that trust had a positive effect of trust in the performance of the chain. Another factor found is the resistance to adopt new technology by farmers. Against this background PROCAVA (2021) included in its program the installation of a demonstration plots to increase the likelihood of farmers to adopt the innovations promoted. Considering that Moamba District is one of the targets areas of the program, this might help in convincing farmers to give a benefit of doubts to the technologies introduced.
- **Technological:** findings revealed that small farmers lack financial capacity to access technologies that could boost productivity and obtain high yields while adopting sustainable

production techniques (e.g. shade house to produce on and off season). Various studies (Kelly et al. (2015); Sjauw-Koen-Fa, (2018); Ros-Tonen, 2019) found that large buyer engages in farmer-firm relation to secure steady supply. Hence, if farmers cannot acquire that innovation to help to increase productivity, they might fail to satisfy Bindzu's requirements.

- **Environmental:** results from interviews showed that small farmers are vulnerable to climate changes. As a result, the lack of resilience to climate change can compromise smallholders' ability to fulfil contracts. One of the factors that can help to strengthen farmers' resilience is the adoption of technologies appropriate for that kind of event, such as shade net house. Additionally, farming in protected environment will help farmers to manage the natural resources in a sustainable approach. However, as previously mentioned, farmers' financial capacity is low. In this context, the financial institutions responsible for the management of SUSTENTA funds can play an important role in building the resilience of farmers. Results about the role of a financial institution in providing loans for farmers to purchase hard inputs corroborate with the study by Ros-Tonen (2019), who stated that access to financial services is required to purchase both agricultural equipment.

#### *5.1.4. Level of influence of stakeholders in farmer-firm relationship*

According to interviews results, the most powerful actor in the farmer-firm relation is the wholesaler. The farmers had the least power. The lower bargaining power of the farmers is one of the challenges identified by KIT & IIRR (2008), hence, the buyers often dictate the rule of the market. KIT & IIRR (2006) also mentioned that this is a result of lack of market institution (setting prices mechanisms and quality standards), which should be regulated by the public organizations. In this sense, the government level of influence mentioned by the interviewees falls under the regulation of the market institution elements. The critical market institution elements for this case are price and quality standards, to ensure that both actors benefit from the investment in the farmer-firm relation.

## **5.2. Chain relations and its influence in creation of Farmers-Bindzu relation**

*Sub-question 1.2: How the current chain relations affect the creation of a trading agreement between Bindzu and Smallholders?*

#### *5.2.1. Relation of Bindzu and farmers' with other actors in the chain*

Two typologies of market interactions matrix relationships presented by KIT & IIRR (2008) are predominant among tomato actors in which Bindzu and farmers operate. Following are described the existing commercial relation:

- **Stable trade relationship:** wholesalers, such as Bindzu, tend to have a formalized relationship with their suppliers, though without a written contract. This result is in line with KIT & IIRR (2008), who mentioned that actors can do business together using verbal agreements, based on trust and transparency. In the market matrix developed by KIT & IIRR (2008) this falls under strong chain relations characterized by trust and stable relation, which according to the authors have a positive influence on trading relations. The fact that Bindzu has 9 years with its suppliers, can also be a positive factor, as the company can leverage from its experience to replicate good practices and avoid past mistakes from this relationship.
- **Ad hoc spot trading:** typically, at the smallholder farmers' level and Bindzu with its buyers, the trend is to engage in short-term transactions, where prices and volumes are negotiated on the moment. In the market matrix by KIT & IIRR (2008), this finding is under the weak chain relations characterized by 4 features, namely, lack of trust, few permanent relationships, few and weak organizations. As a result, of weak chain relations at the actor's levels, each actor may tempt to take advantage of each other, cheating with the quality and price. Thus, this current scenario can undermine the commercial relations in the chain. The lack of trust in the chain was also acknowledged by Bindzu and farmers, and they are aware of the importance of building trust to foster a long-term relationship.

Regarding the relationships with actors at the same level, it was found that farmers are already organized in a group, whereas Bindzu is not. The result of farmers fulfils one of the principles for establishing a long-term trading relation pointed by KIT & IIRR (2008). The authors stated that actors of the same level need to be organized in groups. In the case of small farmers, this makes them eligible and attractive for large traders, as well as for the exchange of experience and support each another. In this same line of thought with KIT & IIR (2008) and Drost et al. (2012) stated that organized farmers can develop the capacity to be able to ensure a steady supply in volumes and quality, which is one of the requirements of the firms. Taking in consideration the current average production per season equivalent to 20 crates per farmer, only supplying as a group those farmers can be able to meet Bindzu's requirement, which is minimum of 500 crates of tomato per day. The fact that Bindzu is not affiliated with a trade association can affect the company access to fellow experience and leverage it to develop a sourcing model tailored to the country condition.

#### *5.2.2. Chain stakeholders with whom Bindzu and farmers exchange information*

The radar institutionogramme shows that Bindzu is connected with others of stakeholder in the chain. From the supporters, Bindzu is connected to MADER and commercial banks. However, this relation is not in the level of multi-stakeholder partnership, which according to Drost et al. (2012) is the highest

strategic level of cooperation, required to make coordinated interventions in the chain. On the other hand, Bindzu is not connect with ongoing program, PROCAVA and SUSTENTA. This does not corroborate with KIT & IIRR (2006) and Kelly et al. (2015), who stated that the collaboration with external partners working in line with the same purpose can contribute for mediation and facilitation of farmer-firm relation. KIT & IIRR (2006) emphasize the need of coordination among the stakeholders, as the contrary scenario most often results in underdeveloped and fragmented chains.

Regarding farmers' relation with the supporters, findings reveal that farmers mainly receive the market information from others means, not from the supporters that claimed that are providing it, namely MIC and SDAE. The results regarding the low support for farming from farmers were not expected, as SDAE is present in the study area. Moreover, the fact of being already organized in group increase the likelihood to receive support. The researcher believes that farmers might have answered that they do not have support thinking that the research aims to identify future beneficiary for a certain project, that might include only those that lack support, even with the preamble in the questionnaire.

### *5.2.3. Relation among chain supporters*

Contrary to farmers and Bindzu relation with the supporters, there is a collaboration among identified supporters according to the interviews' findings. Each organization tend to play a role according to its mandate. This conforms with KIT&IIRR (2008), who point to the importance of specialization of stakeholders on specific roles and services to create synergies for interventions in the chain development. The reason behind this collaboration might because the existence of a committee, where all those organizations are part. The existing coordination can be a supportive factor for a farmer-firm relationship, as efforts can be capitalized, hence contribute to a mutual growth process.

### *5.3. Important factors for Bindzu to source tomato from small farmers*

Like any buyer, Bindzu has its own requirements for potential suppliers. Bindzu, therefore, presented 4 factors to incorporate small farmers in the company value chain. The first one is constant production that conforms with a study by Kelly et al. (2015), which found that large buyers engage with smallholder farmers to ensure a steady supply. The second requirement is loyalty, this is in line with Drost (2012), who points that trust is a key element in creating common ground among chain actors. This will eventually affect the willingness of farmers to trust that they will receive the payment in the agreed time as proposed by Bindzu. The last one is being organized, results from the survey show that farmers fulfil this requirement, since all of them are members of the farmers' association. This

requirement conforms with Gradl et al. (2012) who says that farmers organization can allow them to achieve a common goal. In this case, the minimum volume required by Bindzu is 500 crates of fresh tomato daily.

#### 5.4. Important factors for smallholder farmers to supply for a firm

Most of the farmers (65.7%) that participated in the questionnaires, indicated that are selling their produce to a wholesale, due to accessibility. This factor was also selected for the second main buyer, retailer. These findings are not in line with Fafchamps and Hill (2005) who say that small farmers when deciding to sell are more likely to go to the market to receive a higher price, even though it implies transport costs. In contrary, the farmers selecting the farm gate option is because they cannot afford to carry their crop to the market (Fafchamps and Hill, 2005). The reason for not selling mainly direct to the market by the farmers might also be related to the limited financial capacity to afford the transportation costs. This might have been the reason that farmers indicated accessibility as the main reason for selling for the main buyers.

#### 5.5. Potential sourcing strategy for Bindzu to incorporate smallholders as suppliers

Sub-question 2.1: *What are potential sourcing strategies for Bindzu to incorporate smallholders as suppliers?*

In the case of Bindzu, the sourcing model indicated is an aggregation, which is part of the common sourcing models used by large buyers identified by Gradl et al. (2012). However, based on the explanation of the KI from Bindzu on the features that the model will include, provision of training and technical assistance, these are features found in the procurement model according to Gradl et al. (2012). Thus, the model applied by Bindzu will be a mix of aggregation and procurement model. From the aggregation model, Bindzu will be responsible for the collecting of tomato from the farm to the market without intermediary. Whereas, in the procurement model, Bindzu will take two roles out of 3, training and technical assistance. The provision of support in these two elements might be because the company is already doing it with the current suppliers. Mixing two sourcing can be effective for the establishment of this relationship. The aggregation model will allow Bindzu to obtain the minimum volume required, while the procurement will ensure that farmers produce the quality required.

## 5.6. Potential supplying strategies for smallholders to supply tomato to Bindzu

Sub-question 2.2: *What are the potential supplying strategies for smallholder to supply tomato to Bindzu?*

Farmers would prefer to sell directly to Bindzu, this preference of this channel might be a result from trust issues with relationship that involved intermediaries. Oguoma, Nkwocha and Ibeawuchi (2011)

stated that the middlemen tend to take advantage by paying lower prices to farmers and charge a higher price to the buyer. Hence, the studied group might be reluctant thinking that the intermediary agent can take advantage of them.

- **Priority areas and action strategies**

Farmers and Bindzu agreed that can work together to fundraise funds to finance this intervention. Additionally, both actors recognized that is important also to work together to build trust. For farmers', the trust is concerning to kept of payment terms, while for Bindzu the honesty with the tomato that is supplied. Both factors are in line with Drost (2012) and Kelly (2015), who pointed out the need for finance for the establishment of farmer-firm relations and trust to build healthy commercial relations.

## 5.7. Reflection

### **Research design**

I started the thesis trajectory with a mix of feelings, I was confident and optimistic, but at the same time anxious about the process. The confidence was due to the experience that I had with the mini-thesis and a rapid rural appraisal assignment that gave me exposure to the thesis cycle. On the other hand, the anxiety was coming from the fact of writing an academic paper in a language in which I am not a native speaker. Finally, the optimism was because I knew that I was close to reaching my academic goal, which was always my driver to work to overcome the challenge encountered during the process.

Right at the begging of the research design, I had some challenges. First, in defining the research questions that would answer my commissioner problem. What helped me was the tip given by my supervisor of thinking ahead on the kind of information that would be relevant to answer the commissioner need, to then formulate the research questions. Second, the design of the conceptual



framework, since in my case I had to design my own as I could not find in the literature one that addresses the research questions. Once again, the tip of think ahead worked and together with the desk review, I finally got a conceptual framework that I believe was supportive in providing guidance to effectively conduct my research.

Moving on, I had also to work on the methodology, a section of the research that might highly influenced the research outcome. This stage involved selecting the research strategy, a case study. The limitation of the case study is the impossibility to generalize the outcome, however this was the most effective way to approach the research to answer the commissioner problem. Another task in the methodology was the selection of research methods, for this study, 4 methods were used to collect the data. The usage of different methods was to allow gaining different angles on the topic, and also to work around the weaknesses of other methods with the strengths of others. The critical point here is to ensure that the information collect from the different research methods is connected. To cross-check the connection, I designed a matrix (in annex 7), where I wrote the questions from the different research methods under the respective sub-question. The primary sources of this research were selected based on a convenience purposive sample. Because of this, I may have missed some interesting people or other insights which could have influenced the results. In the case of farmers, some that are not part of the association could have provided me with information such as why they do not join the network as well as compare if there is a difference in selling channels and access to market linkage support.

### **Fieldwork and researcher influence**

Moving to fieldwork, the process was challenging but also provided a unique learning process. The challenge encountered was related to the management of the field team online, as I could not travel due to the COVID situation in my country, as planned. Personally, I have little experience in a management position, so I learned a lot from planning to monitoring the activities. From managing a team, I learned that when delegating a task, it is important not to assume, rather ask the person to explain again to make sure that you are on the same ground. On the other side, the fact of using field assistants might have influenced the results, but to reduce the influence, I scheduled a meeting with them before. From the interview side, it was not something new, I just practised what I am used to doing in my workplace. I preferred to conduct the interview on my own to be able to probe more with the respondents in case something was unclear.

### **Data analysis and validation**

Data analysis was also an opportunity to improve my data analysis skills. At this point, I had challenges of missing data, as explained in section 3.7 data validation process. I had to search techniques used to deal with missing data in research. Hence, my decision for handling the omitted cases was the fruit of this research. On the other side, using SPSS and qualitative analysis steps was interesting for me. For SPSS, I watched a lot of tutorial videos, because I used multi-choice questions, which is usually avoided by researchers due to the level of complexity in the processing, but I had to take the risk because of the level of details of the information that I was looking for. The processing of interviews was more time demanding, but the pattern of the answer helped in the categorization, not too much contradiction was found.

## **Results and discussion**

I felt the pressure to present the results in a way that answer the research sub-questions while making easily understood by the reader. I kept pushing, but then I almost broke down, when I realized that the deadline to send to my supervisor was close, then I decided to ask for an extension. A comparison of this research results with other studies revealed that the majority of findings are not in live with supportive principles for establishing a farmer-firm relationship.

# CHAPTER VI: CONCLUSION & RECOMMENDATIONS



6.1. Conclusion

6.2. Recommendations

## CHAPTER VI: CONCLUSION & RECOMMENDATIONS

### 6.1. Conclusion

This research was conducted to identify possible strategies by which Bindzu can create a sustainable commercial relationship with tomato smallholder farmers. In this section is presented the answers to the 2 main research questions.

The following are the conclusions drawn for research question 1:

1. What are the factors preventing the sustainable incorporation of smallholder farmers in Bindzu's tomato value chain?

The study found that the factors hampering Bindzu to incorporate farmers are:

- Poor communication between the identified supporters in the farmer-firm relationship and the target actors, Bindzu and small farmers. Findings revealed that Bindzu was not aware of the fund for wholesalers provided by MIC and less than 50% of farmers received market linkage support.
- Weak supportive chain environment, the study found that all the 6 PESTEC factors do not offer opportunities for the establishment of a farmer-firm relationship, except the political factor. However, even this one provides a very limited enabling environment. Political constraints identified include the lack of agricultural insurance by law to support farmers to present guarantees to the financial institution, to finance the production, a critical factor to meet Bindzu volumes and quality requirements. From an economic perspective, the farmer-firm relationship is constrained by the absence or poor existing physical infrastructure, poor coverage of public extension services and commercial banks in the production areas. At the socio-cultural level, hindering factors identified are trust issues among chain actors and unbalanced negotiation power among chain actors. Regarding technology, the study found that farmers lack the financial capacity to purchase improved technologies, like a shade net house, that might contribute to increase their productivity. Other technological factors that are constraining this relationship are the absence of local industry of agricultural machinery, lack of tomato seed variety developed for local production conditions. Finally, on the environmental side, specifically the climate change, coupled with a lack of financial capacity to deal with those events, compromise the ability of farmers to adopt practices that would help to deal with the climate changes related events.

- Predominance of spot commercial relationships. Farmers usually sell to any buyer that is more accessible, without agreed requirements.
- Weak actors' organizations, the existing trader's association role has limited ability to defend the members' interest and influence change at the chain environment level.
- Small production volumes, farmer's average production per season is 20 plastic crates of 20kgs, which is far from meeting the minimum required volume of 500 boxes per day by Bindzu, for at least one month, even with all the survey participants.
- Limited capacity of Bindzu to finance the production and make immediate payment of tomato, which are among the important factors indicated as important by farmers to supply to a firm.

## 2. What are possibilities to create a relationship between Bindzu and smallholder farmers?

Based on the hampering factors found by the study, the most appropriate strategy for initiation of farmer-firm relationship between Bindzu and farmers is a mix of procurement and aggregation models presented by Gradl et al. (2012). In the procurement model, Bindzu will provide training and technical assistance to ensure that farmers produce according to the market requirement. Whereas in the aggregation model, farmers will supply direct to Bindzu, without a middleman to mediate the relationship. The product aggregation will be under Bindzu responsibility to ensure that the minimum daily volumes are met. Plus, the company has experience with this role, since is already doing with the current tomato suppliers. The procurement will contribute to ensure that farmers meet the required product quality.

## 6.2. Recommendations

### Bindzu

Based on the findings, discussion, and conclusion, the following are possible areas of intervention for Bindzu to create a sustainable commercial relationship with tomato smallholder farmers:

- Strengthen connection in the chain to benefit from the services provided by funded programs, like SUSTENTA and PROCAVA.
- Support small farmers from Moamba District build their network with identified supporters of the farmer-firm relationship.
- Design a project of a smallholder sourcing model together with the farmers to apply for SUSTENTA funds, which will also help to build trust with the farmers. SUPPORTS cover the equipment costs, therefore, funds can be allocated to improve farmers' production capacity by building a shade net house in the association. On top of that, the protected farming will also allow farmers to apply sustainable production techniques while strengthening their capacity to deal with climate change.

The intervention in Bindzu and farmers' business model will bring following changes:

Business model of Bindzu after expanding the pool of partners by incorporating the identified supporters of the farmer-firm relationship and the implementation of sourcing project, which contributes to the indicator of people in the sustainability profile.

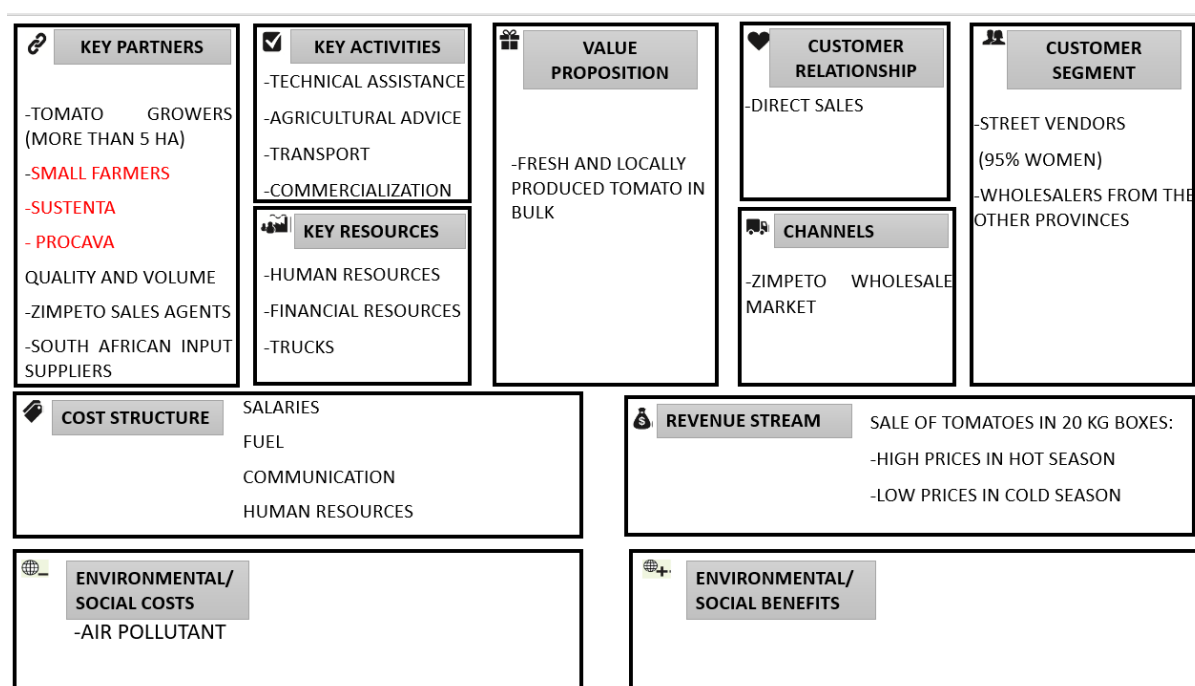


Figure 21. Proposed new BMC for Bindzu

Figure 22 depicts business model of farmers after being connected with identified supporters of farmer-firm relationship and the implementation of sourcing project, which contributes to the indicator of planet in the sustainability profile.

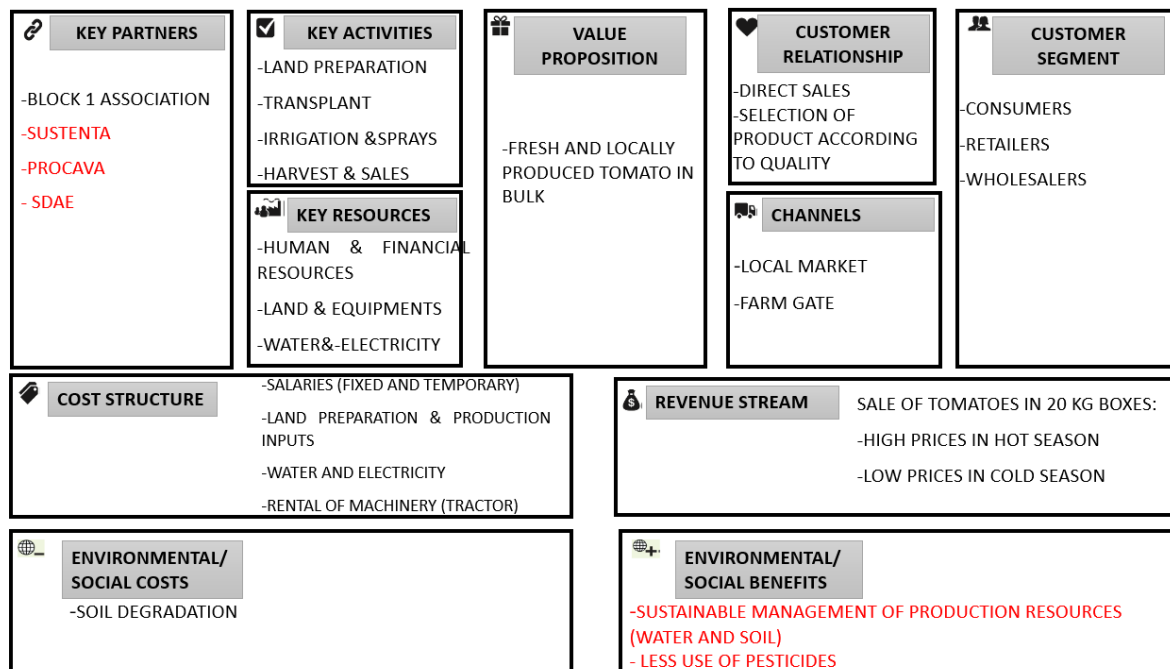


Figure 22. Proposed new BMC for farmers

### Further research

- There is no further research recommended for Bindzu, but due to the impossibility to generalize conclusions for a case study and growing interest in sustainable smallholders sourcing models by private actors. It is recommended that holistic research be carried out involving more actors of the chain, from input suppliers to retailers, to enable the generalization of the findings and help more actors to incorporate sustainably small farmers in their chain.

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- Figures & illustrations

Cover page pictures

Field Assistant (2021) &  
<https://www.alamy.com/>  
Encyclopaedia Britannica, n.d

Map of Mozambique- Figure 1.

Introduction front page

<http://www.sunrise.ug>

Literature review front page

<https://www.messengersaintanthony.com>

Methodology front page

<https://www.one.org>

Study area map-Figure 8

We Consult (2012)

Results front page

FW Archive, n.d

Farmer processing tomato during the fieldwork in Moamba district- Figure.11

Field Assistant (2021)

FGD between Bindzu and farmers- Figure 20

Field Assistan (2021)t

Discussion front page

<https://www.alamy.com/>

Conclusion and recommendation front page

<https://www.alamy.com/>

# ANNEXES

## Annex 1. Questionnaire for farmers

**Dear Farmer,**

You have been selected to be part of academic research entitled "Establishing Farmer-Firm Relationship in the Tomato Value Chain: A Case Study of Bindzu Agrobusiness Lda And Smallholder Farmers' of Moamba District-Mozambique". You are kindly requested to answer the following questionnaire as your participation is important, that's why the questionnaire won't show your name and highly appreciated. All your responses will be kept entirely confidential and processed together with those of other farmers. The questionnaire takes approximately 30 minutes to be completed.

### Part A: Respondent Identification

1. Sex ☐ Female ☐ Male

2. What is your age?

3. How many kilograms of tomato do you trade on average per production season? (e.g. 1 plastic crate=20kg)

### Part B: Association Membership

4. Are there any farmers' organization in your area?

☐ Yes ☐ No

If your answer in question 4 was **Yes**, please answer questions **4.1** and **4.2**.

If your answer in question 4 was **No**, go to question **4.3**.

4.1. Are you a member of the association?

☐ Yes ☐ No

4.2. What is done in the association? (tick all that apply)

☐ Producing ☐ Collection ☐ Processing (sorting and grading) ☐ Selling ☐ Other (specify) \_\_\_\_\_

4.3. Why are you not a member of the farmer organization? (tick according to the level of reason of not being a member)

	Major factor	Minor factor	Not a factor
Past trust issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unequal distribution of share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I do not see the benefits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Part C: Supplier and buyers

5. Where do you buy your production inputs?

☐ Agrosshop ☐ Fairs of the Ministry of Agriculture ☐ Fellow farmer ☐ Other(specify) \_\_\_\_\_

6. Who do you often sell your tomato to? (tick all that apply)

☐ Consumer ☐ Retailer ☐ Wholesaler ☐ Middle-man ☐ Other(specify) \_\_\_\_\_

7. Do you have a contract with your buyer (s)?

☐ Yes ☐ No

If your answer in question 7 was **No**, please answer question **7.1**.

7.1. Do you often sell to the same buyer(s)?

☐ Yes ☐ No

8. Why do you sell to this buyer? (tick all that apply)

	It is accessible	Better price	Immediate payment	Trustworthy	Access to technical assistance	Access to inputs	Secured market
Consumer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retailer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wholesaler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle-man	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you are not yet selling to a **wholesaler**, please answer questions **9** and **9.1**.

9. What characteristics can a wholesaler adopt to be able to create a relationship with you? (tick according to the level of importance)

	Very important	Important	Neutral	Less important	Not at all important
Provide market information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Finance production					
Provide Technical Assistance					
Flexible contract agreement (price setting and payment time)					

**9.1 How would you prefer to sell your product to a wholesaler? (please select one option)**

☐ Leader farmer ☐ Farmers' Association ☐ Directly to a wholesaler

**Part D: Supporters**

**10. Are you receiving support for your farming activity?**

☐ Yes ☐ No

**11. Are you receiving market linkage support?**

☐ Yes ☐ No

If your answer in question 11 was **Yes**, please answer questions **11.1** and **11.2**.

**11.1. What are the organization that provides the market linkage support?**

☐ Ministry of Agriculture ☐ Agricultural NGOs ☐ Farmers' Association ☐ Private company ☐ Others (specify)

In case you have answered **Agricultural NGOs or Private company** specify the names:

a) Agricultural NGOs \_\_\_\_\_

b) Private company \_\_\_\_\_

**12. Do you have access to market information (price, product quality and quantity)?**

☐ Yes ☐ No

If your answer in question 12 was **Yes**, please answer questions **12.1**, **12.2** and **12.3**.

**12.1. What type of information do you have access? (tick all that apply)**

☐ Market price ☐ Market quality requirement ☐ Market quantity demand ☐ Others (specify) \_\_\_\_\_

**12.2. How often do you exchange information with those actors and supporters?**

☐ Rarely ☐ Always

**12.3. Who provides you with that information? (select all that are applicable to you)**

	Market price	Market quality requirement	Other (if you selected in question 12.1)
Ministry of Agriculture			
NGOs			
Private company			
Buyer			
Supplier			

**13. Select the level of influence and willingness of the following organizations regarding the capacity to connecting you with a wholesaler.**

	Influence			Willingness		
	Low	Medium	High	Low	Medium	High
Farmers' Association						
Ministry of Agriculture						
Agricultural NGOs						
Private companies						

## Annex 2. Interview checklist for the key-informants

### PROCAVA/SUSTENTA/ MADER/MIC

#### Dear Respondent

You have been purposively selected to be part of a sample of experts of academic research entitled "Establishing Farmer-Firm Relationship in the Tomato Value Chain: A Case Study of Bindzu Agrobusiness Lda And Smallholder Farmers' of Moamba District-Mozambique". You are kindly requested to answer the following question, as your participation is important and highly appreciated. Your responses will be pooled together with those of other experts and analysed for academic purposes.

Data of interview \_\_\_\_\_

Name of respondent \_\_\_\_\_

Organization name \_\_\_\_\_

#### Part A: About the organisation and relation with the tomato chain stakeholders

- What is the role of the organization in the tomato chain?
- What kind of support do you provide in the tomato chain and in market linkages, specifically?
- Who are the target beneficiaries of your assistance and in market linkages, specifically? (e.g. farmers, wholesalers...)
- Why do you assist these actors?
- What are the characteristics of the existing business relationship between the actors in the tomato chain? (e.g. intensity/duration of the relations)
- Who are the other stakeholders operating in the tomato chain, including their roles?
- What type of information do you exchange in the chain?
- Who are the actors and supporters that you exchange that information with?
- How often do you exchange information with these stakeholders?

#### Part B: Commercial relationship between a farmer and a wholesaler / company

- Who of these supporters promotes the creation of a commercial relationship between the farmer and the wholesaler/company?
- How can other actors and supporters influence the creation of a commercial relationship between farmers and wholesalers?
- What is your level of influence in the formation of relations between the farm and the company?
- Is there a lack of services for the creation of a commercial relationship between farmer and wholesaler/company?
- What are the missing services?
- Who could provide these services?

#### Part C: Influencers/Chain environment

- What macro-economic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. local market conditions, trade agreements with the SADC region)
- What microeconomic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. infrastructure access, credit accessibility, quality inputs access)
- What laws, regulations, standards or taxes might influence the creation of a commercial relationship with smallholder farmers?
- What cultural factors (education level, values and attitudes) might influence the creation of a commercial relationship with smallholder farmers?
- How might climate change influence the creation of a commercial relationship with smallholder farmers?
- How do the costs and availability of technology might affect the creation of a commercial relationship with smallholder farmers?

### Annex 3. Interview guide for Bindzu

Thesis theme: Establishing Farmer-Firm Relationship in the Tomato Value Chain: A Case Study of Bindzu Agrobusiness Lda and Small Farmers in the District of Moamba-Mozambique.

#### Introduction

Data of interview \_\_\_\_\_

Interview Method \_\_\_\_\_

Name of company representative \_\_\_\_\_

#### Part A: Relation with tomato stakeholders

- Does Bindzu belong to any trade association?
- What type of services does the association provide to the members?
- Who are your current tomato suppliers?
- Why do you source from them?
- What type of contract do you have (formal/informal)?
- For how long have you been sourcing tomato with those suppliers?
- To whom do you sell your tomato?
- Do you have a contract with your buyers?
- Who are the current chain supporters?
- From whom, of these supporters, Bindzu receives support?
- Who do you change information within the chain? (e.g. actors and supporters)
- What type of information do you exchange in the chain?
- How often do you exchange information with those actors and supporters?
- Whom of these supporters promote the creation of a commercial relationship with smallholders?
- What is the level of influence of those chain supporters on the creation of a commercial relationship with smallholders?
- What is your level of influence on the creation of a commercial relationship with smallholders?
- What is the level of interest of those chain supporters on the creation of a commercial relationship with smallholders?
- Are there services missing for the creation of a farm-firm relationship?
- What are the services missing?
- Who could provide these services?

#### Part B: Commercial relation with smallholders

- What criteria should small farmers fulfil to be incorporated as suppliers? (e.g. quality requirement, quantity and delivery time)
- Why is important that farmers fulfil those criteria?
- Which approach might be applied to initiate a commercial relationship with farmers? (Aggregation schemes or contract farming)

#### Influencers/Chain environment

- What macro-economic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. local market conditions, trade agreements with the SADC region)
- What microeconomic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. infrastructure access, credit accessibility, quality inputs access)
- What laws, regulations, standards or taxes might influence the creation of a commercial relationship with smallholder farmers?
- What cultural factors (education level, values and attitudes) might influence the creation of a commercial relationship with smallholder farmers?
- How might climate change influence the creation of a commercial relationship with smallholder farmers?
- How do the costs and availability of technology might affect the creation of a commercial relationship with smallholder farmers?

## Annex 4. Focus Group Discussion Guide

**Venue:** Moamba, Bindzu warehouse    **Date:** 19<sup>th</sup> of July 2021    **Duration:** 14-15.30hrs

Activity	Responsible
Participants reception	
Welcome Presentation of the day's agenda	Coordinator (Field assistant)
Presentation of Bindzu's business model for fresh tomato commercialization (BMC)	Márcia Maposse, Bindzu Operations Manager
Drawing of farmers' business model for fresh tomato commercialization	Farmers guided by Coordinator
5 Important Factors for Incorporating Small Farmers as Suppliers	Márcia Maposse, Bindzu Operations Manager
5 Important Factors in Supplying Tomato to a Wholesaler	Farmers
Definition of 3 priority areas of intervention to create a commercial relationship between Bindzu and small farmers	Farmers and Bindzu
Definition of 3 strategies to respond the priorities areas for creating a business relationship between Bindzu and small farmers	Farmers and Bindzu
Closing and snack	

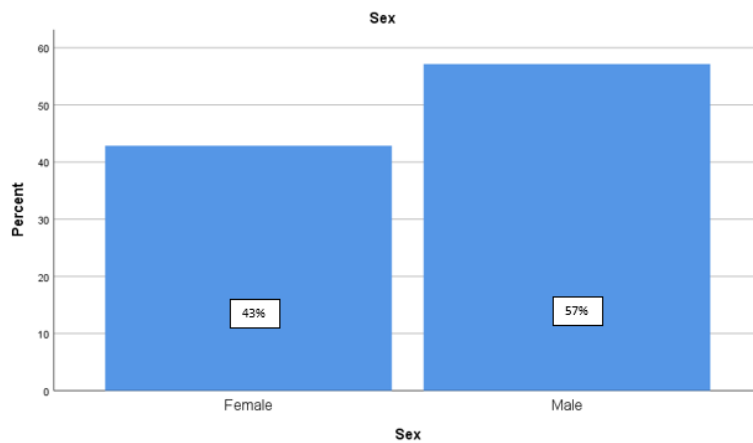
## Annex. 5 Overview of the interviews

<b>Bindzu</b>		
Function	Location	Date
Operation Manager	Whatsapp	10/07/2021
<b>Government</b>		
Function	Location	Date
Director of Internal Trade-MIC	Whatsapp	16/07/2021
Agrarian Extensionist- SDAE Moamba	Whatsapp	17/07/2021
<b>Funded programmes</b>		
Function	Location	Date
Horticulture Value Chain Specialist- PROCAVA	Whatsapp	15/07/2021
Project Coordinator- SUSTENTA	Google meets	22/07/2021

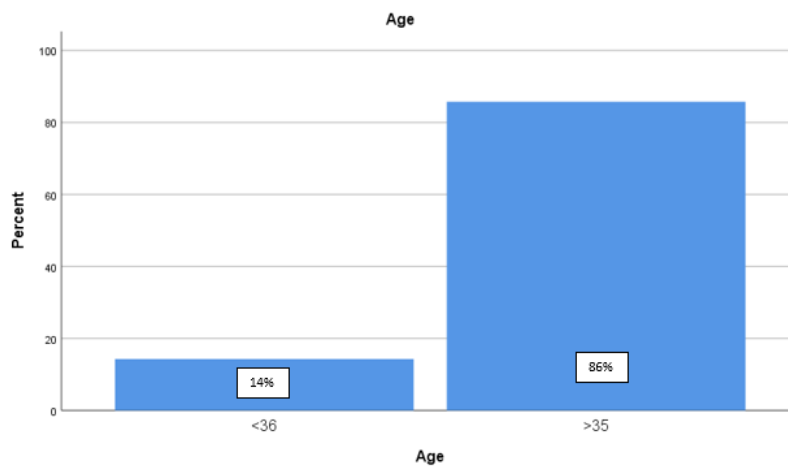


## Annex. 6 Statistics output

### A. Division of respondents per sex



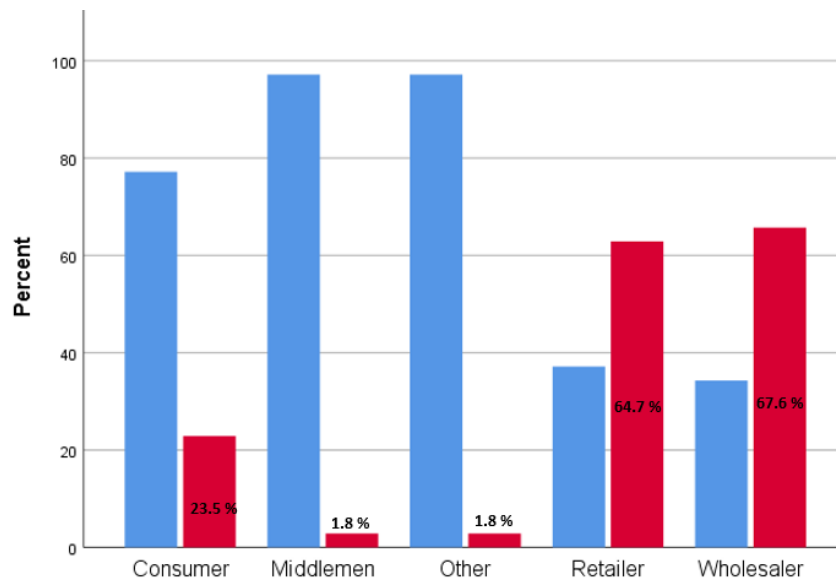
### B. Distribution of respondents by age group



### C. Tomato produced per season/kg

Valid	33
Missing	2
Mean	4032,70

### D. Buyer of farmers' tomato



#### E. Access to market support

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	9	25.7	25.7	25.7
No	26	74.3	74.3	100.0
Total	35	100.0	100.0	

#### F. Activities done in the association

		Responses		
		N	Percent	Percent of Cases
\$Activitiesinassociation <sup>a</sup>	Producing	35	45.5%	100.0%
	Collection	8	10.4%	22.9%
	Selling	34	44.2%	97.1%
Total		77	100.0%	220.0%

#### G. Reason for selling to consumer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	it is accessible	1	2.9	14.3	14.3
	Better price	3	8.6	42.9	57.1
	Immediate payment	2	5.7	28.6	85.7
	Secured market	1	2.9	14.3	100.0
	Total	7	20.0	100.0	
Missing	System	28	80.0		
Total		35	100.0		

#### H. Reason for selling to retailer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accessible	10	28.6	50.0	50.0
	Better Price	5	14.3	25.0	75.0
	Immediate payment	4	11.4	20.0	95.0

	Trustworthy	1	2.9	5.0	100.0
	Total	20	57.1	100.0	
Missing	System	15	42.9		
Total		35	100.0		

#### I. Reason for selling to middle-man

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Immediate payment	1	2.9	100.0	100.0
Missing	System	34	97.1		
Total		35	100.0		

## Annex. 7 Connection of questions from the tools with the sub-questions

1.1.What are the value chain stakeholder (actors, supporters, and influencers) and their role in farmer-firm relationship?
<p style="text-align: center;"><b>FARMERS</b></p> <p>Are there any farmers' organization in your area?          Are you a member of the organization?          What is done in the association?          Why are you not a member of the farmer organization?          Where do you buy your production inputs?          Who do you often sell your tomato to?          Why do you sell to this buyer?          Are you receiving support for your farming activity?          Are you receiving market linkage support?          What are the organization that provides the market linkage support?</p> <p style="text-align: center;"><b>BINDZU</b></p> <p>-Does the Bindzu belongs to any trade association?          -What type of services does the association provide to the members?          -Who are your current tomato suppliers?          -Why do you source from them?          -What type of contract do you have (formal/informal)?          -To whom do you sell your tomato to?          -Who are the current chain supporters?          -From whom, of these supporters, Bindzu receives support?          -Whom of these supporters promote the creation of relationship with smallholders?          -Are there services missing for creation of farm-firm relationship?          -What are the services and who could provide?</p> <p><b>Influencers/Chain environment</b></p> <p>-What macro-economic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. local market conditions, trade agreements with the SADC region)          -What microeconomic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. infrastructure access, credit accessibility, quality inputs access)          -What laws, regulations, standards or taxes might influence the creation of a commercial relationship with smallholder farmers?          -What cultural factors (education level, values and attitudes) might influence the creation of a commercial relationship with smallholder farmers?          -How might climate change influence the creation of a commercial relationship with smallholder farmers?          -How do the costs and availability of technology might affect the creation of a commercial relationship with smallholder farmers?</p> <p style="text-align: center;"><b>PROCAVA/SUSTENTA/MADER-SDAE/MIC</b></p> <p>-What is the role of the organization in tomato chain?          - What kind of support do you provide in tomato chain and in market linkages, specifically?          -Who are the target beneficiaries of your assistance and in market linkages, specifically? (e.g. farmers, wholesalers...)          -Why do you assist these actors?          -Who are the other stakeholders operating in the tomato chain, including their roles?          -Who are the chain supporters promoting the creation of commercial relationship between a farmer and wholesaler/firm?          -Are there services missing for the creation of commercial relationship between a farmer and wholesaler/firm?          -Follow-up: What are the services and who could provide?</p> <p><b>Influencers/Chain environment</b></p> <p>-What macro-economic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. local market conditions, trade agreements with the SADC region)          -What microeconomic forces might affect the creation of a commercial relationship with smallholder farmers? (e.g. infrastructure access, credit accessibility, quality inputs access)          -What laws, regulations, standards or taxes might influence the creation of a commercial relationship with smallholder farmers?          -What cultural factors (education level, values and attitudes) might influence the creation of a commercial relationship with smallholder farmers?          -How might climate change influence the creation of a commercial relationship with smallholder farmers?          -How do the costs and availability of technology might affect the creation of a commercial relationship with smallholder farmers?</p>
1.2. How the current chain relations affect the creation of a trading agreement between Bindzu and Smallholders?
<p style="text-align: center;"><b>FARMERS</b></p> <p>-Do you have a contract with your buyer?          -Do you often sell to the same buyer?          -Do you have access to market information (price and product quality and quantity)?          -What type of information do you have access?</p>

<p>-How often do you exchange information with those actors and supporters?</p> <p>-Who provides you with that information?</p> <p>-Are there any farmers' organization in your area? (Used also for sub-question 1.1)</p> <p>-Are you a member of the organization? (Used also for sub-question 1.1)</p> <p style="text-align: center;">BINDZU</p> <p>-For how long have you been sourcing tomato with those suppliers?</p> <p>-What type of contract do you have (formal/informal)? (Used also for sub-question 1.1)</p> <p>-Do you have a contract with your buyers?</p> <p>-Who do you change information within the chain? (e.g. actors and supporters)</p> <p>-What type of information do you exchange in the chain?</p> <p>-How often do you exchange information with those actors and supporters?</p> <p>-Does the Bindzu belongs to any trade association? (Used also for sub-question 1.1)</p> <p style="text-align: center;">PROCAVA/SUSTENTA/MADER-SDAE/MIC</p> <p>-What are the characteristics of the existing business relationship between the actors in the tomato chain? (e.g. intensity/duration of the relations)</p> <p>-What type of information do you exchange in the chain?</p> <p>-Who are the actors and supporters that you exchange that information?</p>
<p style="text-align: center;">FARMERS</p> <p><b>Power</b></p> <p>Select the level of influence of the following organizations in connecting you with a firm (low to high)</p> <p><b>Interest</b></p> <p>Select the level of willingness for each organization regarding connecting you with a firm (low to high)</p> <p style="text-align: center;">BINDZU</p> <p><b>Power</b></p> <p>-What is the level of influence of those chain supporters on the creation of farm-firm relation?</p> <p>-What is your level of influence on the creation of farm-firm relation?</p> <p><b>Interest</b></p> <p>-What is the level of interest of those chain supporters on the creation of farm-firm relation?</p> <p style="text-align: center;">PROCAVA/SUSTENTA/MADER-SDAE/MIC</p> <p><b>Power</b></p> <p>-What is your level of influence on the creation of farm-firm relation?</p> <p>-How can other actors and supporters might influence the creation of commercial relationship between farmers and wholesalers?</p> <p><b>Interest</b></p> <p>-What is your role in creation of commercial relationship with smallholders?</p> <p>-Who from these supporters promotes the creation of commercial relationship between a farmer and wholesaler/firm?</p>
<p><b>1.3. What factors of supply does Bindzu consider as important for sourcing from smallholder farmers?</b></p>
<p>What criteria should small farmers fulfil to be incorporated as suppliers? (e.g. quality requirement, quantity and delivery time)</p> <p>-Why is important that farmers fulfil those criteria?</p>
<p><b>1.4. What factors do smallholder farmers consider as important for supplying tomato to a firm?</b></p>
<p style="text-align: center;">Farmers</p> <p>What characteristics can a wholesaler adopt to be able to create a relationship with you? (very important to less important)</p>
<p><b>2.1.What are potential sourcing strategies for Bindzu to incorporate smallholders as suppliers?</b></p>
<p style="text-align: center;">BINDZU</p> <p>Which approach might be applied to initiate a commercial relationship with farmers?</p>
<p><b>2.2. What are the potential supplying strategies for smallholder to supply tomato to Bindzu?</b></p>
<p style="text-align: center;">Farmers</p> <p>How would you prefer to sell your product to a wholesaler?</p>