Value Chain Analysis of Afghanistan olive industry for sustainable olive production

A case of Nangarhar province

Research Thesis Submitted to Van Hall Larenstein, University of Applied Sciences in Partial Fulfilment of the Requirements for Degree of Master in Agricultural Production Chain Management, Specialization Horticulture Production Chain

BY

ZIARAT GUL RAHEL

11th SEPTEMBER 2019

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BY
ZIARAT GUL RAHEL

Supervised by:
Petros Maliotis

Examined by:
Peter van der Meer

SEPTEMBER 2019
VAN HALL LARENSTEIN UNIVERSITY OF APPLIED SCIENCES, VELP
THE NETHERLANDS

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Acknowledgment

I am very grateful of almighty Allah (God) for providing me this opportunity and giving me the ability to successfully complete the Master Degree Program.

It is also my great pleasure to thank and convey my gratitude to my supervisor, Petrios Maliotis for his valuable contribution, instructions, advices and constructive comments on my research works and thesis which I was able to develop a quality thesis.

I will also give my appreciation to Albertien Kijne and Marco Verschure, and all the other lecturers in Van Hall Larenstein University of Applied Science for their generous support and encouragement throughout my study period at the University.

I also would like to extend my gratitude to Dr. Masaood Mowahid and Mr. Najeeb Mamnoon for their genius and significant support in preparing this thesis. Moreover, I am thankful of all farmers and other chain-stakeholders who generously spent time and shared their valuable insights throughout survey, focused groups and individual interviewees.

My special appreciation goes to Dr. Parwiz Ali, Chief Executive Officer of the NVAC and the NVAC senior staffs for their continued support and assistance during the survey, interviews and focus group discussions.

Finally, it is worth mentioning to express my highest regards to my classmates for their support and encouragements and my friends in Netherlands who helped me with their timely inspirations and guidance, particularly when I felt exhausted or extremely overwhelmed.

Dedication

This research work is fully dedicated to my honourable parents who always kept me their generous prayers and advised me to keep up with right path and hardworking in order to get enough success in my life. So this sincere and supportive inspiration led me to this academic achievement and see my dreams come true. Also, I would like to dedicate this work to my older son who filled the gap and took all the responsibilities to manage all family related affairs beside his study in Engineering Faculty of Nangarhar University. He never felt tired to react any issue, his support made me assured to peruse my study here.

This piece of work also dedicated to my close friends who always kept me in touch for any assistance to my family while I was busy in my study program outside the country especially those friends who warmly welcomed me in Arnhem, the Netherlands and provided many supports and inspirational insight, enabling me pursue my program without feeling alone. This sense of being home added to my strength and I am thankful of all support and help they provided me.

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Abbreviations

AFN	Afghani Currency (€1 is equal with AFN 86.31)
CEO	Chief of Executive Officer
DOBS	Da Afghanistan Breshna Shirkat
FGD	Focus Group Discussion
Ha	Hectare
MAIL	Ministry of Agriculture, Irrigation and Livestock
MEW	Ministry of Energy and Water
MoE	Ministry of Economy
MoF	Ministry of Finance
MoIC	Ministry of Industrial and Commerce
MoJ	Ministry of Justice
NGOS	Non-governmental Organizations
NVAC	Nangarhar Valley Agricultural Corporation
NVDA	Nangarhar Valley Development Authority
PESTEC	Political, Economic, Social, Technological, Environmental and Cultural
SPS	Sanitary and Phytosanitary
SWOT	Strengths, Weaknesses, Opportunities and Threats
TLO	The Liaison Office

Abstract

Afghanistan with a favourable climate conditions for the olive production grows commercial olives in Nangarhar Valley Agricultural Corporation (NVAC) in around 1,800 hectares. The produced fruits in NVAC farms has been processed to obtain oil and pickle in the NVAC olive processing factory which was established in 1983 through the help the USSR and Italy. The final product i.e. olive oil and pickle is being sold in the domestic market. NVAC has 869 technical and administration staff, skilled and unskilled labours to manage the olive production, processing and other production affairs. NVAC partially gets the operation budget from the government to undertake the daily operations which can suffice for only 200-300 hectares' olive farms.

The main objective of this study is to analyse the existing olive value chain, and to identify production trends and opportunities to be able to develop appropriate interventions and measures to increase productivity, profitability and sustainability of the NVAC olive value chain.

This study was conducted in Jalalabad, Behsud, Batikot, Shinwar and Momandara districts of Nangarhar province for the acquiring of qualitative and quantitative data. The survey and interview methods were used to collect the necessary information about production, processing, marketing and involvement of the private sector in the chain. Survey of 44 farmers and interview of 14 key informants was conducted. A check list for the interview with key informants and survey questionnaire were used for the farmers' opinion survey. A focus group discussion with 15 participants was carried out following the interviews and farmers' opinion survey regarding the developing of new value chain.

Furthermore, different analytical tools were used to analyse the qualitative and quantitative data. CANVAS business model, stakeholder analyses, value chain map, problem tree, PESTEC and SWOT, grounded theory and Triangulations were used to analyse the qualitative data. While tabulation, percentage, graphs and correlations have been used for analyzing the quantitative data.

The result of analyses shows that, NVAC is government owned company, the important strengths of the NVAC are its governmental status and its well-made structures. However, its management system and the return from its products are not efficient. Its key resources are agricultural land with adequate water. However, main deficiencies in the resources are, budget, human capital and farm machinery. The key opportunities are the availability of donors' support and the private sector's interest. Moreover, NVAC carry out various activities including olive production and processing. Lease of land and sell of the olive products are the main streams of revenue, most of the cost goes to the staff salaries. While most of the production practices are performed manually. However, instability in the production was found due to improper and limited agricultural practices and poor management. Low quantity and quality of olive products was found as main problem in the olive value chain which was due to low quantity and quality of the olive fruits, improper processing practices and inadequate marketing skills. Higher prices of the products due to the higher production costs and lack of involvement of the private sector are the major issues in the value chain since the NVAC holds the chain power as lead actor. Furthermore, most of the farmers are interested to participate in the olive production and lease in the NVAC land.

Involvement of the private sector in all levels of the chain particularly in production, processing and marketing was proposed as new olive value chain. Public Private Partnership (PPP) is recommended as long-term contractual agreement between the NVAC and a private sector particularly in production, processing and marketing of the final products in domestic markets. In this business model, NVAC and private sector

agree upon certain resources, risks and returns and design performance standards. The NVAC provides land, irrigation water, and processing factory to the private sector to invest and contributes certain amount in terms of loan, credit, in-kind support and grant. While, the private sector is responsible for delivering entire services such as, operation, management, renovation, improvement and maintenance. Furthermore, the NVAC provides technical support, marketing support, subsidies to the private sector.

Key words: *Value chain, Private sector, NVAC, Olive, Farm*

CHAPTER 1 INTRODUCTION

1.1 Introduction

Afghanistan is located in Central Asia, north and west of Pakistan, east of Iran, and south of Turkmenistan, Uzbekistan, and Tajikistan. It has approximately 647,500 square Kilometres area. Nearly half of the country has an elevation of 2,000 meters or more with an arid and semi-arid climate. Its temperature is vary based on the regions, the summer temperature reaches 49°C in the eastern and southern regions while the low temperature range from –15°C in winter to 0°C in summer in the north-eastern regions (Congress, 2008).

In addition, Afghanistan is agricultural country and its economy is always agricultural dependent. Almost 80% of Afghanistan's population lives in rural areas depends their livelihoods on agriculture sector (Sarhadi, et al., 2014). In addition, it has 65 million hectare area where only about 8 million (12 %) is arable; the major parts of the country are comprise mountains and deserts (WorldBank, 2014).

Agriculture sector with a steady growth, chain actors are now prepared to organize the agricultural value chains into competitive and efficient value-creating systems (DAI, 2018). Agro-industry already accounts for more than 90 percent of manufacturing in Afghanistan and depends on domestic raw materials (WorldBank, 2014).

Olive is a native tree to the Mediterranean region, tropical and central Asia, and Africa while Afghanistan with semi-arid climate, is suitable for the olive species such as *Olea europaea* L. subsp. Europaea (Oleaceae). It is the famous commercial olives which produces edible and commercial oil and pickles green and black olives. Olea europaea var. sativa is the most cultivated olive tree in the world. Moreover, olive is a native plant to the Mediterranean region, tropical and central Asia, and Africa (Long, et al., 2010). According to the TLO (2019), the primary subspecies, Cuspidata Wall is found in the Pre-Himalaya ranges of Afghanistan rangeland. It is producing only small fruits with smaller percentage of oil than commercial varieties (TLO, 2019).

However, wild olives in Afghanistan are potential source of raw materials for food, medicine and beauty products development, it is still unclear that, how wild olives can contribute to community's income as stallholder farmers, enhancing natural resources management of rangeland and natural forests. The Liaison Office (TLO) started an initiative and began grafting the wild olives in Khost province in order to enhance the capacity and incomes of the local community through the alternative source of income for the smallholder farmers and local communities (TLO, 2019).

Though, Afghanistan has a favorable climate conditions for the olive production it grows commercial olives only in Nangarhar province by Nangarhar Valley Agricultural Corporation (NVAC) in around 1800 hectares' olive orchards (Lucock, 2018). The produced fruits process in the olive processing factory of the NVAC was established in 1983 *(TLO, 2019)*.

NVAC (Nangarhar Valley Agricultural Corporation) which used to be called NVDA (Nangarhar Valley Development Authority), recently changed its legal status and became a state owned liability company

instead of a governmental organization (Afghanistan-MoJ, 2018). NVAC was established by USSR in the 1960s with aiming to convert the disserts to agricultural land, introduce a modern mechanization system in the country, introduce the olive, citrus varieties, livestock breads in the region and extend a main canal to provide sufficient water to 31,000 ha of public and private land *(MAIL, 2017)*.

The NVAC is a large government owned entity which has economic, social and environmental importance in the region. According to the Lucock, (2018), the current available land of NVAC includes, 4,988 ha for cereal, vegetable and seasonal fruit production. These crops provide net incomes in the range of AFN 47,000-217,000 (Euro 550-2550) per ha. In addition, the 4,988 ha could generate 1847 person years of permanent employment and 59,856 person days of casual labor. Moreover, it strongly contributes to the environment due to its large greenery coverages (Lucock, 2018).

NVAC olives were planted by USSR in 1960s which the main varieties were Gamlic, Hamdi, Azerbaijan, Evalic and Chamlali which were imported from Azerbaijan, Turkey and Egypt. Olive fruits are processed for oil extraction and pickle production in the NVAC olive processing factory *(Ikhlas, 1984)*. However, the quality of the produce is low (key informant 06). The average oil ratio in the fruit for other countries such as Spain ranges between 15-25 % *(Castillo-Ruiz, et al., 2015)*, while this ratio is only between 8 to 12% for the olive fruit produced by NVAC (Key informant 11).

The olive processing factory was established in 1983 with the capacity to process 8,000 MT olives in a year (MAIL, 2018). This factory has two sections, one is the oil extractions which was established through the support of Italian government in 1984 and the other is pickle production section which was established by the USSR in 1983 (MAIL, 2012). Now, its machinery, equipment, and building have become obsolete, outdated and work at much less than its capacity (MAIL, 2018). The olive products produced by NVAC are marketed domestically (key informant 06).

According to the Afghanistan Agriculture Sector Review (2014) report by the World Bank that the agrarian agriculture like Afghanistan, main pillars of the prosperity will be achieved only by production risk management, investment in the climate smart agriculture activities, promotion of the agricultural trade and integration of the small holder farmers into the value chains of commercial agriculture. In addition, with the combination of some other efforts like enabling policy environment for private investments into the commercial agriculture, functioning the agricultural sector institutions, diffusion of the new technology can ensure the long term higher yields and quality products (WorldBank, 2014). Moreover, strengthening or establishing value chains is an instrument of private sector development that is widely used by donors and researchers (Stamm & Drachenfels, 2011).

Taking this into account, a big gap exists in the NVAC olive value chain due to no involvement of the private sector in the olive production, processing and marketing, lack of the enabling policy for the inclusion of the private sector and diffusion of the new technology in the farms' operation and processing. This has caused a decline in the NVAC overall business and losses particularly in the olive component.

1.2 Problem statement

Afghanistan produces commercial olives only in Nangarhar province in the NVAC farms in around 1,800 hectares of land and the produced fruits are processed in the olive processing factory of the NVAC which established in 1983. The olive orchards were established in 1967 to produce olive fruit for the olive processing plant of the NVAC *(Ikhlas, 1984)*. The olive processing plant was established in 1980 with the capacity to process 8,000 MT olive fruits annually into olive oil and pickles for the domestic and international markets *(MAIL, 2018)*. However, since its establishment, it has not been able to reach its full capacity due to the war, conflicts, and severe droughts which seriously affected the olive groves and 40% of the groves were cut down by people *(MAIL, 2017)*. Moreover, some of the factory machines and equipment were either stolen or destroyed.

After the establishment of new government in 2002, some renovation works have been done by the government and its donor partners, however, there are still lots problems exist which hamper the production of olive fruits and processing activities.

Due to the lack of enabling policy for integration of small scale farmers in the olive production and investment of the private sector in the olive value chain, the whole chain remained in losses and this fact was indicated by the World Bank (2014). The olive value chain is fully controlled by the NVAC, although, there have been signs of private sector players' involvement e.g. in the input supply, wholesaling and retailing of the olive products.

The yield and quality of olive fruits produced in the NVAC orchards are low, and the consequent low profitability has affected the sustainability of NVAC (MAIL, 2017). As NVAC is responsible for producing and marketing of olives' products, it looks forward to expand its olive production, improve quality, and increase the profitability (MAIL, 2018).

Furthermore, there are weak relations among the chain of actors. The linkages between NVAC and its wholesalers, retailers, and consumers of the olive products involved in the chain are weak. Moreover, the chain actors were never asked to participate in the decision making process and consumer preference has never been considered. Also, it has been a time consuming and difficult process to market the final product due to the excessive bureaucracy and formalities in the government. Given this, there is a need to analyze the olive value chain of the NVAC, production trends and opportunities to be able to develop appropriate interventions and measures to increase productivity, profitability and sustainability of the NVAC olive value chain.

1.3 Problem Owner

The owner of the problem is the Nangarhar Valley Agricultural Corporation (NVAC) and Ministry of Agriculture, Irrigation and Livestock (MAIL).

1.4 Research Objectives and Questions

The main objective of this research is to analyze the olive value chain of the NVAC and develop the new value chain for the sustainable production of the NVAC olives.

Objective 1: To analyse the olive value chain of the NVAC, its production, marketing and constraints.

Question (s): 1. What is the current structure of the olive value chain and its performance?

1.1 Who are the stakeholders and their roles in the NVAC olive value chain?

1.2 What is the value share of the NVAC olives among the chain actors?

1.3 What are the current production practices, market channels and requirements for the NVAC olive products?

1.4 What constraints are hindering the current NVAC olive value chain?

Objective 2: To identify farmers' perception and their attitudes on olive production.

Question (s) 2: What are the measures and opportunities for developing of NVAC new olive value chain?

2.1 What are the private farmers' perception about current production practices, methods, and developing of new value chain?

Objective 3: To Identify profitable and sustainable business model and recommend appropriate policies and interventions.

3.1 What are the stakeholders' opinions regarding the NVAC new business model?

3.2 What are the factors supporting inclusion of private sector in developing NVAC new value chain?

3.3 What is the appropriate business model for the new value chain of NVAC?

1.5 Expected output

This study comprised analyses of the NVAC olive value chain in Nangarhar province of Afghanistan. The research extracted the main causes of low income and revenue for reinvestment in the olive component of the NVAC. The other expected outcome of this research was to provide applicable recommendations for the developing of successful new value chain. The recommendation would submit to Nangarhar Valley Agricultural Corporation (NVAC) and to the Ministry of Agriculture, Irrigation and Livestock (MAIL).

CHAPTER 2 LITERATURE REVIEW

The aim of this chapter is to highlight various theoretical concepts about the value chain, analyses of the value chain, role of the stakeholders' in the chain, enabling policies for the involvement of the private sector and its role in the chain, production trends, marketing and quality related issue of the horticultural crops particularly of olives. According to the Schmitz (2005) statement that, a value chain analysis is very effective in tracing product flows, showing the value adding stages, identifying key actors and the relationships with other actors in the chain. In addition, this chapter gives comprehensive thoughts to the reader about the value chain analyses, integration of the private sector and small scale farmers in the value chain and adaption of the new value chain.

2.1 Definition

Value chain is the sequence of such activities that required to make a product or provide a service (Schmitz, 2005).

2.2 Concept of the Value Chain

Value chain concept is defined as, the full range of activities which bring products or services from conception, through the several phases of production, delivery to final consumers, and final disposal after use (Boudi, et al., 2016). This includes activities such as design, production, marketing, distribution and support services up to the final consumer (Nutz & Sievers, 2015).

Most of business researches, however in the context of industrialised countries, initially focused on domestic and international value chains. While in the context of developing countries, researchers and donors were mainly focusing on private sector development, and adopted value chain concept later (Stamm & Drachenfels, 2011).

2.3 Value chain analyses

According to the Stamm & Drachenfels (2011), a value chain analysis describes the commodity chains developed over time, division of the labour in the production and processing, distribution of income and profits among the chain actors. Similarly, the value chain analysis usually starts with linear mapping of activities in the chain. These activities including by supply of the inputs, production, collecting and processing, wholesaling/exporting, retailing and consuming (Stamm & Drachenfels, 2011).

2.4 Stakeholder or the Chain Actors' Role

The term stakeholder is used to identify actors who are involved or have a role in a system as they have different levels of involvement or interest in the chain (FAO, 2018). Furthermore, it is elaborated the stakeholders' roles in a value chain, similarly, four ways of capture value added in a value chain includeing, a) as increased profits by firms, returns to asset owners, savings and rents from leasing land, b) as increased worker wages, c) as increased tax revenues, and d) as increased value for money for consumers (FAO, 2018).

According to Lelea (2014), in the value chain context, in terms of power, social differences and relations; the stakeholders are divided into two categories such as primary and secondary. Primary or direct stakeholders are those who are directly involved in the value chain or issue/process from the producers till the end-consumers. Secondary stakeholders are the ones who are indirectly affecting or being affected by an issue/process or those who influence the primary stakeholders by setting rules, or controlling access to resources or markets, e.g. government officials or policy makers (Lelea, et al., 2014). Based on that, NVAC acts as primary stakeholder through its involvement in production and processing of olives, wholesaling and retailing (MAIL, 2018). Similarly, Ministry of Agriculture, Irrigation and Livestock (MAIL) is the secondary stakeholder for setting policies, researches, technical assistances, regulations of required inputs, investment/financing and other forms of support (MAIL, 2016).

2.5 Public Private Partnership (PPP)

According to the definition of PPP by Kyei and Chan (2015), Public Private Partnership (PPP) is the long-term contractual agreement between public and private sectors particularly targeting key activities and services such as implementation, operation, planning, designing, financial issues and infrastructure. Both parties (private sector and public sector) are agreed upon certain resources, risks and returns. This approach of utilizing public utilities by private sector is under a certain terms and conditions. Moreover, In order to bridge the huge infrastructure gaps, governments across the world are increasingly adopting Public Private Partnership policies (Kyei & Chan, 2015).

2.6 Comparing Public and Private Sectors Decision Making

The private sector managers' decisions are to support budget with analysis and less instead to move through bargaining. While, public sector managers' decisions are based on the bargaining and less likely to support budget decisions backed up by analysis (Nutt, 2006). According to Dillon, et al., (2010), public sector decisions making is characterised based on bottom-up approach while the public sector decision making is characterised as top-down approach. The public sector approach appears to have more structured decision processes as necessitated by political context. The public sector decision supports in politics of bargaining without compromising the value of the information which already collected while the private sector decision making approach seems to be an essential enabler of a company's growth and competitiveness, foreseen and pro activeness (Dillon, et al., 2010).

2.7 Integration of the Private Sector and Small Scale Farmers

According to the World Bank (2014) in Afghanistan Agriculture Sector Review report, for agrarian agriculture like Afghanistan, the main pillars of the prosperity will be achieved only by production risk management, investment in climate-smart agriculture activities, promotion of the agricultural trade and integration of small holder farmers into the value chains of commercial agriculture. In addition, the combination of other efforts such as an enabling policy environment for private investment into commercial agriculture, improving the functioning agricultural sector institutions, and diffusion of new technology are needed to ensure long term higher yields and quality products (WorldBank, 2014).

2.8 Constrains in the agro industry

Major constraints of the agro-industry in Afghanistan are including lack insufficient electricity, difficulties in acquisition and access of industrial land, low access to investment and working capital and difficulties in obtaining licenses and permits from the government (WorldBank, 2014).

2.9 Environment Enabler (Policy Maker)

Ministry of Agriculture Irrigation and Livestock of Afghanistan as policy maker is the main institutional actor influencing agriculture and agro-food policies in regulating the agricultural sector, controlling and monitoring, supporting the sector development, providing extension services, planning and coordinating and documentation (Consultation&ResearchInstitute, 2018).

2.10 Identifying areas which need for improvement

Value chain analysis has generated as simple and effective tool for its assessment and analyses. In order to compare the producers with the buyers and their competitiveness, some useful techniques and criteria are essential to break down what one means by competitiveness and to operationalise the components in simple terms. For instance, in the production enterprises, the relevant criteria are, product quality, prices, time of production and time from order to delivery, punctual delivery, flexibility and innovative design (Schmitz, 2005).

2.11 Value Addition and Shares

Boudi, et a., (2016), defined value addition as "the difference in sales price and production costs at each stage of the value chain". The majority of actors involved in the olive value chain sell their products through traditional and informal market arrangements (Boudi, et al., 2016). Moreover, value can be added in different ways to an intermediate food product not only by processing it, but also by providing services to store it (to enable value increasing over time) and by shipment or transporting it (which the value increasing over space) (FAO, 2018).

Tahir and Anwar (2016) declared Market Analyses for Value Chain and Olive Oil Consumption in Pakistan, producing or importing the olive products mainly depend on its consumptions in a particular country, whether they produce olives or import them to fulfil their requirement. For instance, Pakistan imports bill annually exceeds $2.5 billion for edible oil. In this case, Importers play major role in the supply chain who import the olive products but receive low profit shares while other chain actors in the supply chain, such as distributors and retailers receive more (Tahir & Anwar, 2016). Moreover, according to Boudi, et al. (2016), producers in a better-managed olive farms get higher share of the added value than the other actors. Furthermore, producers in Algeria have adopted a vertical development strategy in the chain which they receive the maximum share of the values by eliminating intermediaries who control the chain (Boudi, et al., 2016). Similarly, high quality olive oil actors are able to secure both domestic and export market share (Consultation&ResearchInstitute, 2018).

2.12 Chain Sustainability

According to Schneemann and Vredeveld (2015), the combination of four different sustainability pillars of the value chains such as economic, environmental, social and institutional are interconnected and overlooking anyone of them during the value chain selection will affect other phases of value chain analysis and development. Furthermore, bottom line for value chain development is the economic dimension, specifically the potential for market growth, employment creation, comparative advantage and added value. Similarly, without strong economic potential, prospects for sustainable development are low. Institutional factors, such as the policy environment, must be favourable, in order for a project to achieve greater impact (Schneemann & Vredeveld, 2015).

2.13 Quality control

According to Boudi, et al., (2016), lack of market transparency; market uncertainties; lack of quality control; absence of traceability monitoring system throughout the olive value chain are important issues. In addition, lack of certification and labelling; absence of organized structures around the product; limited effectiveness of agricultural extension services, low involvement of farmers and millers in professional organization related to olive oil industry hamper the value chain development (Boudi, et al., 2016). Furthermore, packaging standard has not been experienced for horticultural products in Afghanistan.

2.14 Production Practices

According to the European Commission, Directorate-General for Agriculture and Rural Development report (2012), olive yield varies significantly depending on the year, operating system, planting density, growing practices, climate conditions and the biological alternation of the olive tree, for example, in 2009 and 2010, average yield was 2.67 t/ha of olives in Spain and 2.92 t/ha in Italy, while yield in Afghanistan was zero due to its operating system and growing practices (EC, 2012). Moreover, MAIL (2019) mentioned investment capital is the main requirement for olive production in NVAC. It also stated that, the olive production is mainly dependent on investment capital. In 2016, due the lack of budget for investment in the olive production, less than an effective 20% of the olive orchard area provided fruit for processing while the remaining 80% was just a source of firewood and shade (MAIL, 2018). In addition, NVAC reports show only three times in the past 16 years that the agro-technical activities were fully performed. Only small quantities of fertilizer and pesticides were applied, resulting in an insignificant yield of olives. Moreover, it is evident that without proper agronomic practices, olive trees produce very little product even smaller than the input cost (MAIL, 2017).

2.15 Production Problems

Major bottlenecks to improve productivity and value addition activities in the developing countries include, poor agricultural practice and institutional environment; natural issues, structural, technology and economic environment (Boudi, et al., 2016). Furthermore, MAIL (2017) stated in a report that, in 2016, staffing expenses comprised 96% of total NVAC expenses, while, very little money was programmed for production inputs such as agronomic practices and fertilizer. This budget administrative approach has led to low productivity; with annual operating losses (MAIL, 2017).

In addition, according to the data mentioned by Russo (2016) in a sustainability article, the comparison of olive yield per hectare land of different European countries with Afghanistan show a huge difference. Spain produced 2.436 MT/ha, Italy 2.720 MT/ha and Greece 2.157 MT/ha during the 2010-2012 years. (Russo, et al., 2016). While Afghanistan produced 1.92 MT olives in one hectare land during 2013-2014 (MAIL, 2017).

In addition, World Bank (2014) report categorized the major constraints into two categories, a) constraints in the agro industry that include lack of reliable electric power, difficulties in acquisition and access of industrial land, no access to investment and working capital and difficulties in obtaining licenses and permits from the government, and b) constraints in production and processing that include; insufficient irrigated land for expansion the horticultural area, limited access to improved and certified seeds/seedlings, neglected and no bearing orchards, insecure property rights that discourage long-term investment, limited access to credit, inadequate extension, poor on-farm water management practices and pests control (WorldBank, 2014).

2.16 Processing of olives

TLO (2019) highlighted the general issues related to the olive processing in Afghanistan particularly about NVAC which include, the run-down condition of the olive processing factory, operating losses, limited primary production, inefficient processing, inadequate storage and obsolete machinery. Moreover, poor storage, high milling temperatures and poor oil conservation practices lead to oil quality deterioration issues. In addition, without significant investment in the olive production and marketing, any singular investment will still face barriers to enter the business (TLO, 2019).

2.17 Main challenges facing Perennial Crops

According to the Yousufi, (2016) that, main challenges to the perennial crops in Afghanistan include, unstable marketing, storage, packaging and processing (Yousufi, 2016).

2.18 Market Information and Consumer preference

Ministry of Commerce of Afghanistan has established the market information and export criteria, the Agriculture Bank of Afghanistan and some cooperatives also provided market information to farmers (Yousufi, 2016).

In general, considering preferences of the consumers is very important in developing value chains as stated by Tahir and Anwar (2016). It is vital to take into account the preferences of the consumers, so that demand for olive oil can be well established. Unaffordability due to high prices, lack of awareness and having no taste of olive oil are the main constrains for not using olive oil in Pakistan. Therefore, the knowledge of consumer preferences will assist the stakeholders and the policymakers (Tahir & Anwar, 2016). Similarly, like other developing countries, very little efforts have been made in Afghanistan to understand the dynamics of the diffusion, product development, supply chain, consumer preferences, demand and marketing prospects for local and regional markets (Tahir & Anwar, 2016).

2.19 Market support

According to the Consultation and Research Institute (2018), access to international and domestic markets can be supported by strategies which increase the competitiveness of agricultural production by increasing

its productivity and conformity with international sanitary and phytosanitary requirements. While, the contribution of international donors and private sector also important in the sector development through direct financing and project implementation (Consultation&ResearchInstitute, 2018).

2.20 Policy to promote business and inclusion of private sector

The aim of Public policy to the private sector is to try to influence decisions of entrepreneurs to facilitate, grow and improve its performance (Schmitz, 2005).

According to MAIL (2016) report, developing of value chains needs the active engagement of private sector to contribute to market development and value addition activities. This will be achieved by the involvement of policy makers in adopting a strategy of rationalizing public and private sector roles, establishing regulatory frameworks and providing technical assistance for a variety of local institutions and private sector agents (MAIL, 2016).

In addition, the government of Afghanistan has stated a commitment in principle to fostering private-sector-led economic development and increasing domestic and foreign investment. However, the Government's efforts to build an enabling environment for a competitive private sector, expand the scope of private investment by developing natural resources, infrastructure, promote investment from domestic sources, the Afghan diaspora, and foreign investors will necessitate structured reforms (MoIC, 2018).

Strengthening or establishing value chains is an instrument of private sector development and it is widely using by donors and researchers. Moreover, promotion of the value chains within the realm of the private sector development is quite a challenging issue since there are different range of actors in the value chain ranging from microenterprises to large corporations. So, combining different levels of entrepreneurs and developing a holistic approach to respond to such diverse actors is challenging and can be embedded in quite different environments (Stamm & Drachenfels, 2011).

2.21 Insecurity Issues

According to MAIL (2018), much of the NVAC farm area is under the influence of, or subject to, insurgency. Although, insecurity mitigation is the responsibility of MAIL/government, due to the financial inability of MAIL to hire a big number of security police, an alternative option is to bring private sector farmers in as farm land lessees whereby the private sector farmers can use their influence and rely on a large number of such users themselves to address the threats of insurgency and stealing of produce by local inhabitants (MAIL, 2018). Strong influence of the political instability has been indicated as the biggest impediment to trade and economic in the value chain approach (Consultation&ResearchInstitute, 2018).

2.22 Limitations of the value chain approach to upgrade

Transaction costs: Some buyers want to limit the transaction cost by reducing the number of small suppliers and work through key grouped suppliers. The local entrepreneur making sub contracts with a group of small farmers can ensure that the main buyers' requirements are met (Schmitz, 2005). Furthermore, some buyers need to be able to trace where products come from so that they can "guarantee" that they conform to advertised quality standards, safety standards, labour standards, or environmental standards. (Schmitz, 2005).

2.23 Mixed cropping system

A combination of the horticultural crops and perennial crops such as fruits makes a mixed farming systems. This will also make a horticulture-based farming system economically diverse, nutritionally balanced, and environmentally sustainable (Kemal-ur-Rahim, 2003).

2.24 Conclusion

Based on the above literature and information extracted from the different sources, successful olive value chain comprises several factors in terms of investment capital, high productivity and quality, supporting policies for the sector development, integration of the private sector and small scale farmers in the chain.

In the Afghanistan context, literature showed that, there are major gaps in the horticultural value chain particularly in olives which have badly affected NVAC's whole business. These gaps include low production due to the lack of investment capital for the production purposes, more involvement of NVAC in the chain, unused land area due to low capacity of processing factory, producing of low quality fruits resulted low quality products, low range of quality control mechanism in production sites & markets and poor agricultural practices by unskilled staff and existing obsolete machinery. Moreover, lack of marketing information, no involvement of private sector in the production, processing and marketing functions, no involvement of small scale farmers in the production, insecurity and insurgents control over the production area, and a bureaucratic management system are the main gaps evidenced from literature and experiences that need to be addressed and analyzed.

In addition, the overall objective of this study is to analyze the olive value chain of the NVAC and evaluate the production trends, market constraints, and opportunities to enable the researcher to develop appropriate interventions and measures to increase productivity, profitability and sustainability of the NVAC olive value chain.

CHAPTER 3 RESEARCH METHODOLOGY

This chapter describes the steps for carrying out the research work which includes, research type, methods of the data collection, size of the samples, data collection processes, data analysis tools and limitation of researcher during research period.

3.1 Research Framework

Research framework indicates the sequence of the research activities that carried out in the field and also processing the data. During the research proposal, the research problem, objective and questions are developed, it created an arena for the researcher to stepped up to conduct literature review and establish a background by deriving relevant and essential information from the credible available literature. Following this, the field study has been conducted by applying of surveys, conducting of interviews and focus group discussions. The researcher analyzed data based on the information collected from the field, detached from literature and compared both outcomes in discussion chapter. Therefore, conclusion and recommendations are made through combination of the mentioned data and resources.

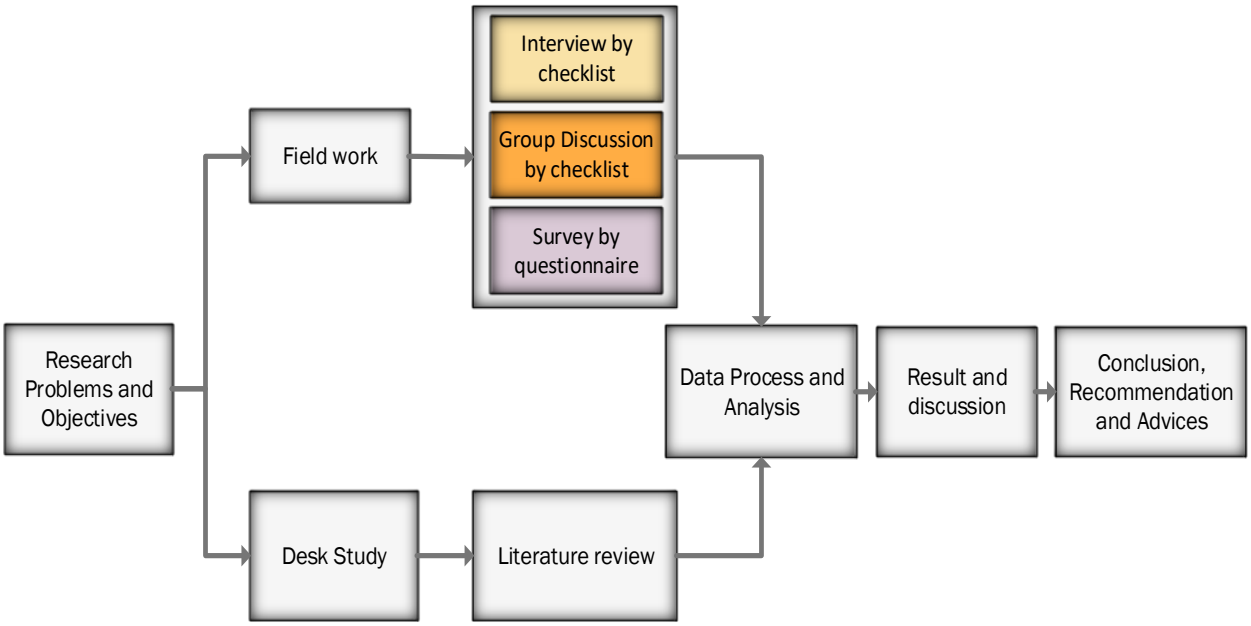


Figure 1: Research Framework

3.2 Technical Design

3.2.1 Research Strategy

This study was a descriptive research on the value chain analyses of the NVAC olives in Nangarhar province. This research has covered by qualitative and quantitative data. A farmers' opinion survey has been conducted in Jalalabad, Behsud, Batikot, Shinwar and Momandara districts for the acquiring of quantitative data. While the interviews and focus group discussion toke place with the key informants, policy makers, supporters and experts to collect the qualitative data.

Interview checklist (Appendix 1), well-structured and pre-tested questionnaire (appendix 2), and the focus group discussion checklist (appendix 3) could help the researcher to find out some essential information regarding the topic. Representatives from the private sector, the NVAC staff, the wholesaler, representatives from the Agricultural Development fund (ADF), policy and agricultural advisors for the Nangarhar governor, the olive experts and farmers participated in the focus group discussion.

In addition, however, this study stands on primary and secondary data while the primary data were directly obtained from the chain actors such as inputs suppliers, producers, processors, wholesalers and retailers.

3.2.2 Data Collection

During the field work, the primary and secondary data has been collected. Researcher organized an introductory meeting with the CEO of the NVAC to introduce the research topic and objectives. The researcher has been introduced to the other key informants by the NVAC CEO. In addition, the key informants were informed by the CEO to provide the required support to the researcher and support the data collection. The NVAC rules and policy was strictly considered during the primary data collection.

3.2.2.1 Primary Data Collection

The primary data collection has been done through conducting the survey, interviews and focus group discussions.

I. Survey

Farmers' survey has been organized through semi-structured questionnaire and close questions. This survey has conducted in five districts of Nangarhar province including Jalalabad city. The NVAC land and olive farms are located in five districts of Nangarhar province including Jalalabad, Behsud, Batikot, Shinwar and Momandara districts. Farmers from the nearby areas are randomly selected by the NVAC farms managers and 44 farmers are surveyed while the target was 35.

II. Interview

Key informants and chain actors were interviewed to collect the required data regarding the value chain, policies in place and new business models. They include Chief Executive Officer of the NVAC, producers, processors, wholesalers and retailers. In addition, policy makers, experts and representatives of the private sector were interviewed as well. A check list for the interview were used. The target of the respondents was successfully achieved and totally 14 respondents were interviewed.

III. Focus Group Discussion:

A focus group discussion took place after the interview and farmers' survey. Different opinions were collected during the interview regarding the new business model and new value chain therefore, the multidisciplinary people collected together with a pre developed checklist. Total 15 representatives participated in the focus group discussion including representatives of private sector, CEO and the NVAC staff, the wholesalers, representatives from the Agricultural Development fund (ADF), policy and agricultural advisors for Nangarhar governor, the olive experts, professors from Nangarhar & Kabul universities and farmers.

Table 1: summary of the primary data collection

No.	Particulars	Survey		Interview		FGD	
		Planned	Achieved	Planned	Achieved	Planned	Achieved
1	Chain Actors	-	-	8.00	8.00	6.00	4.00
2	Policy Makers	-	-	2.00	2.00	2.00	1.00
3	Supporters	-	-	1.00	1.00	-	-
4	University processor as Expert	-	-	4.00	3.00	1.00	-
5	National expert	-	-	1.00	1.00	1.00	3.00
6	Private sector representative	-	-	-	-	-	2.00
7	Farmers	35.00	44.00	-	-	-	2.00
8	Bank	-	-	-	-	1.00	1.00
9	Government Representative	-	-	-	-	1.00	2.00
	Total	**35.00**	**44.00**	**16.00**	**15.00**	**12.00**	**15.00**

Source: Author, 2019

3.2.2.2 Secondary Data Collection

Secondary data were obtained by desk study through literature review.

Desk study:

This method was used to grasp the important information about the value chain, olive sector, integration of private sector and small scale farmers in the chain, stakeholders, chain actors, quality, value addition, value shares and for developing the new value chain. The acquired information has been used for the surveys, interviews and discussion with respondents. In addition, relevant and up to date journals, international papers, books, documents, literatures of the neighboring countries as well as using of different search engines such as Greeni and google scholars were used as sources for the desk study. Moreover, the information which obtained by the desk study were used for comparing the research findings in discussion chapter.

3.2.3 Data Analyses

The primary and secondary data which was collected during the field work and desk study was processed and analysed.

3.2.3.1 Qualitative Data Analyses

Below methods are used for the qualitative data analyses:

I. Grounded theory

In this method of the data analyses, transcripts of the interviews were made with the key informants and targeted groups, the transcribed data were organized into relevant topics, findings were categorized in relation to the research question(s). The interviewees were given scores in order to identify their statements. CANVAS, Stakeholder analyses, Chain map, problem tree, PESTEC and SWOT were used to present the qualitative information.

II. CANVAS business model

This model was used to give a brief overview about the NVAC business and to show key partners, key activities, key resources, revenue streams, costs structure, customer relationships, customer segments and channels.

III. Stakeholder analyses

This analyses tool was used to show the institutional framework of different chain players their functions, supporting roles and gaps in the chain.

IV. Value Chain map

This tool was used to shows the chain actors and their role in the chain, value they add to the product and shares they get in the chain. This map showed the relation of the chain actors as well.

V. Problem tree

This tool is prepared base on the findings in the field work and it is used to identify the main problem, causes and effects of the low production and low income from the olive production.

VI. PESTEC and SWOT

Through this tool the Political, Economic, Social, Technological, Environmental and Cultural factors in relation to the internal and external environment of the NVAC such as strengths, weaknesses, opportunities and threats were evaluated. This analyses aimed to identify their influence and effects on the NVAC olive value chain.

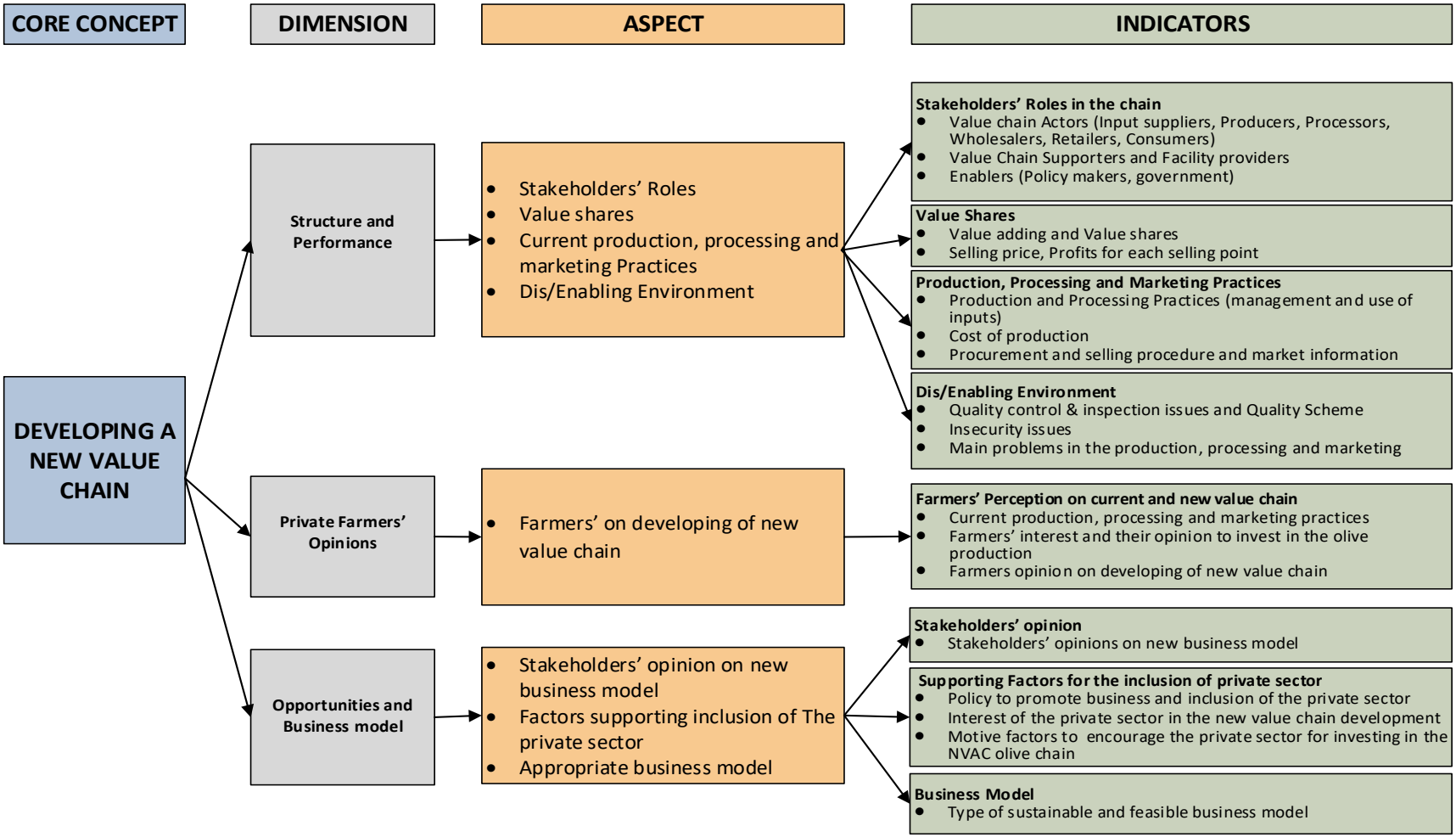
3.2.3.2 Quantitative Data Analyses

For the analyses of quantitative data, necessary analytical tools such as Tabulation, Percentage, correlations and graphs were used.

3.3 Conceptual Design

The conceptual framework in the research translates all the ideal concepts which were used for the data collection during literature review, survey, interview and focus group discussion. The core concept of the study was developing a new value chain and the key dimension were structure and performance, private farmers' perception, opportunities and business model. Moreover, dimensions were followed by some specific aspects which are illustrated clearly in Figure 2.

3.5 Operationalization of the Concept



*3.6 **Figure 2:** Operationalization of Concept*

3.7 Definition of key concept

Stakeholders
Who are involved or have a stake in a system as they have different levels of involvement, interest or influence in the chain (FAO, 2018).

Value chain
Value chain is the sequence of such activities that required to make a product or provide a service (Boudi, et al., 2016).

Value Addition
The difference in sales price and production costs at each stage of the value chain, processing, providing services to store it and by shipment or transporting it (Boudi, et al., 2016).

Value share
The amount of money that a company makes selling its products or services compared to the amount of money that others make (Boudi, et al., 2016).

Enabling Environment
A complex of policy, legal, institutional and regulatory conditions that govern business activities. It is a sub-set of the investment climate and includes the administration and enforcement mechanisms established to implement government policy as well as the institutional arrangements that influence the way key actors operate (e.g. government agencies, regulatory authorities, business associations etc (Group-BEWG, 2008).

Private Sector
It is part of the national economy which is not under direct control of state. It is owned by an individual or group which usually as means of enterprise for profit rather than being owned by the State.

Business model
It describes the rationale of how an organization or enterprise creates to deliver and capture value in economic, social, cultural and other contexts. It is an appropriate business model which has a plan for the successful operation of a business, identifying sources of revenue, the intended customer base, products, and details of financing.

Public Private Partnership
It is a long-term contractual agreement between public and private sectors particularly targeting key activities and services such as implementation, operation, planning, designing, financial issues and infrastructure. Both parties are agreed upon certain resources, risks and returns. This approach of utilizing public utilities by private sector under a certain terms and conditions is called PPP (MAIL, 2017).

3.8 Country Description

Afghanistan is agricultural country and its economy has always been dependent on agricutlure, almost 80% of Afghanistan's population lives in rural areas and their livelihoods depend on agriculture sector (Sarhadi, et al., 2014). In addition, it has 65 million hectare area where only about 8 million (12 %) is arable; the major parts of the country comprises mountains and deserts (WorldBank, 2014). In addition, Agriculture sector with a steady growth, chain actors are now prepared to organize the agricultural value chains into competitive and efficient value-creating systems (DAI, 2018). Agro-industry already accounts for more than 90 percent of manufacturing in Afghanistan and depends on domestic raw materials (WorldBank, 2014).

3.9 Study Area

The study area for this research was Nangarhar provinces of Afghanistan. Nangarhar province is located in the eastern region of the country. Its center is Jalalabad city, one of the main cities of Afghanistan. Bordering with Pakistan, it has 1.64 million population (CSO, 2019). This province has favorable climate for agriculture and it is famous for trade and transit. This is the only province in the country which produces olive in commercial level. Olive production takes place in 1800 hectare orchards. The olive fruit is processed in the olive processing plant located in the south of Jalalabad city. The olive products produced in this province and supplied to other provinces particularly to Kabul, the capital and most populous city of the country. The NVAC land and olive farms are located in five districts of the Nangarhar province including by Jalalabad, Behsud, Batikot, Shinwar and Momandara districts. The study area is shown in the Fig 3.

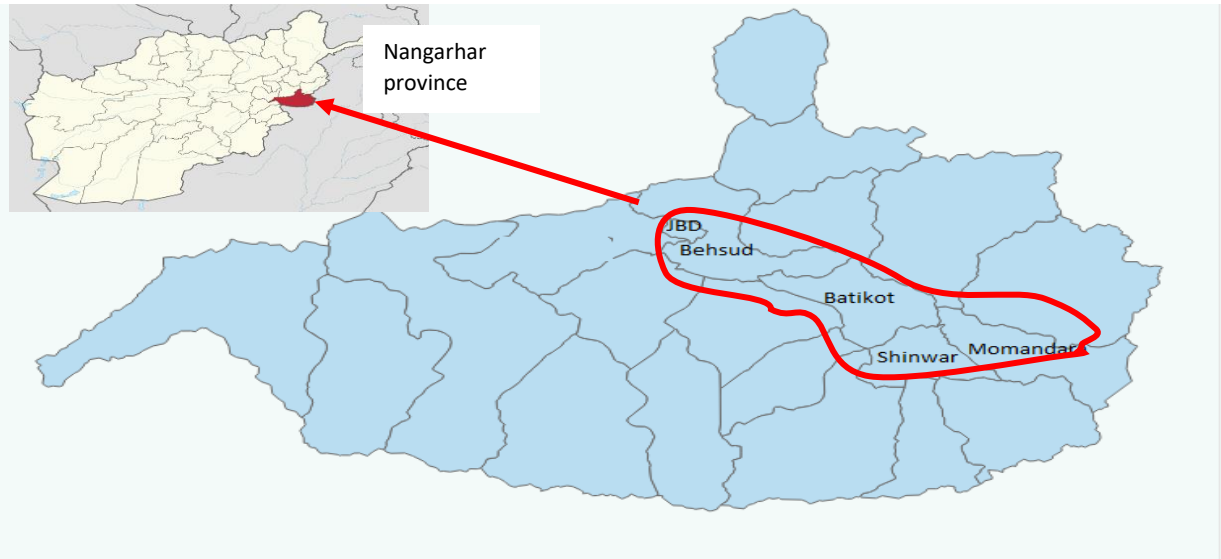


Figure 3: Study area; Jalalabad, Behsud, Batikot, shinwar and Momandara districts of Nangarhar Province, Afghanistan

Source: Afghanistan District Dashboard, the World Bank, 2019, https://www.worldbank.org/en/data/interactive/2019/08/01/afghanistan-district-level-visualization?cid=WBW_AL_whatsnew_EN_EXT&fbclid=IwAR01YjwSkNwUnRLTj7sg3f9soMMjVJBe-RPkIUd8O7zQxQ8VrWQZLsCTFS8

3.10 About the Company

In Afghanistan, commercial olives are produced mainly in Nangarhar province by Nangarhar Valley Agricultural Corporation (NVAC) in around 1800 hectares' olive orchards (Lucock, 2018). NVAC (Nangarhar Valley Agricultural Corporation) previously NVDA (Nangarhar Valley Development Authority) recently changed its legal status and became a state owned liability company instead to government organization (Afghanistan-MoJ, 2018).

NVAC has economic, social and environmental importance in the region. According to the statement in the NVAC business plan Lucock, (2018), the current available land of NVAC includes, 4,988 ha for cereal, vegetable and seasonal fruit production. These crops provide net incomes in the range of AFN 47,000-217,000 per hectare. In addition, the 4,988 ha could generate 1847 person years of permanent employment and 59,856 person days of casual labor. Moreover, it strongly contributes to the environment due to its large greenery coverages *(MAIL, 2018)*. Table 2 shows the NVAC total land cover and land use in the different farms.

Table 2: the NVAC farm land use in 2016

Land Use	Farm No. 1	Farm No. 2	Farm No. 3	Farm No. 4	Total
Olive orchard	395.00	571.60	271.00	568.10	1,805.70
Citrus orchard	34.50	12.00	548.00	1.40	595.90
Agricultural land	1,801.00	1,166.20	1,434.70	586.40	4,988.30
Date orchards	22.00	0.00	0.00	0.00	22.00
Nurseries	49.00	0.00	17.1.	0.00	66.10
Eucalyptus windbreaks	253.00	197.50	235.40	139.00	824.90
Roads	145.00	89.40	110.80	50.80	396.00
Irrigation/drain network	240.60	144.80	217.40	45.90	648.70
Establishment	157.60	67.30	143.50	44.10	412.50
Non-arable land	1,008.40	169.30	82.40	161.30	1,421.40
Total	4,106.10	2,418.10	3,060.30	1,597.00	11,181.50

Source: NVAC business plan (David Lucock-2018)

There is high instability in its total annual production. NVAC olives were planted by USSR in the 1960s. Main varieties are Gamlic, Hamdi, Azerbaijan, Evalic and Chamlali which were imported from Azerbaijan, Turkey and Egypt (Ikhlas, 1984). Olive fruits are being processed for oil extraction and pickle production in NVAC olive processing factory. However, the quality of the produce is low (key informant 06). The average oil ratio in the fruit for other countries such as Spain ranges between 15-25 % (Castillo-Ruiz, et al., 2015), while this ratio is only between 8 to 12% for the olive fruit produced by NVAC (Key informant 11) which is shown in Table 3.

Table 3: Comparison of the Olive yield based on hectare land in a mechanized irrigated orchards

Year	Country	Yield (MT/ha)	Oil (MT/ha)	Remarks
2010-2012	Spain	2.436	0.56	-
2010-2011	Italy	2.720	0.44	-
2010-2012	Greece	2.157	-	-
2013-2014	Afghanistan	1.92	0.22	-

Source: https://www.mdpi.com/2071-1050/8/8/825#citedby

The olive processing factory was established in 1983 with the capacity to process 8,000 MT olives in a year (MAIL, 2018). This factory has two sections, one is the oil extractions which was established through the support of Italian government in 1984 and the other is pickle production section which was established by the USSR in 1983 (MAIL, 2012). Now, its plant, equipment, and building have been turned out to be obsolete and outdated that partially works (MAIL, 2018). The olive products produced by NVAC are marketed domestically.

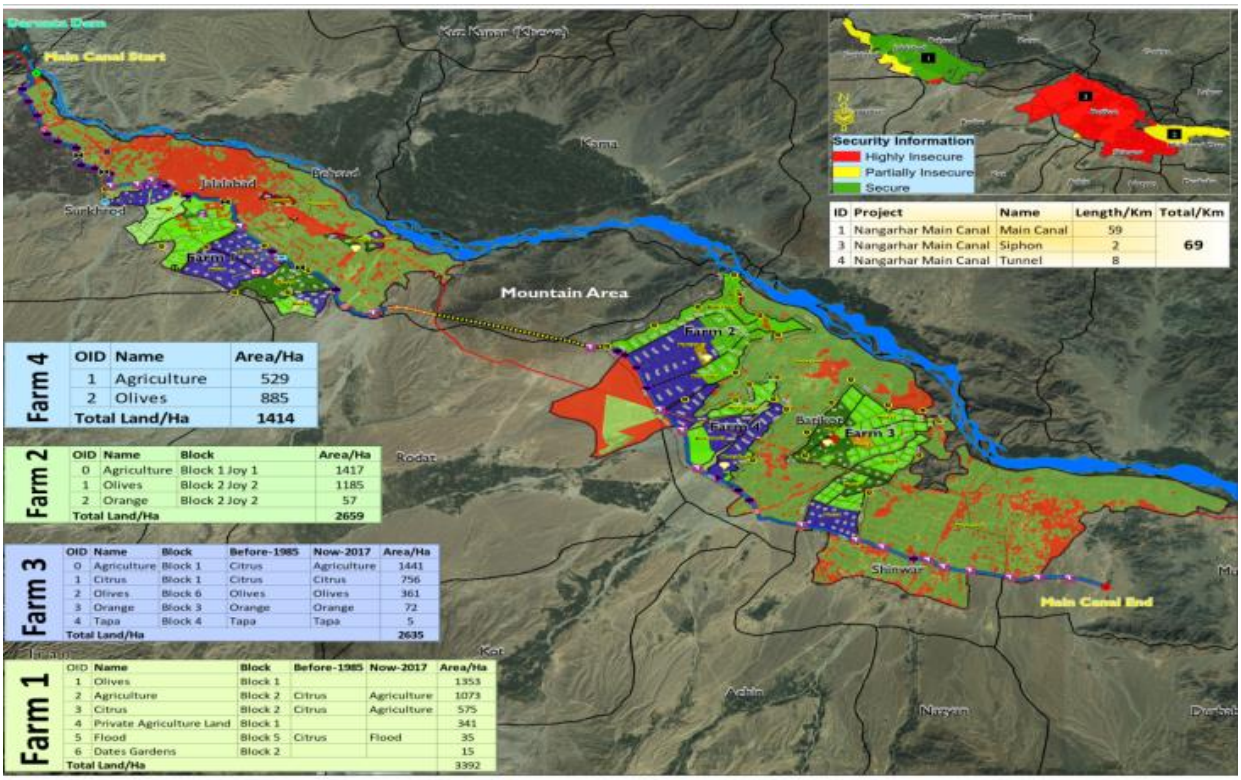


Figure 4: NVAC map which shows four agriculture state farms and main irrigation canal in 5 districts of Nangarhar province

Source: MAIL, 2013

Afghanistan imported 532 MT olive oil and 413 MT of pickles in 2018 (CSO, 2018). This shows the unmet demand for olive products in the country. However, the total production of olive products was 40 MT in the same year which made only 4.4 % of the total imports. In the past few years, the trend in the total contribution of the domestically produced olive relative to the total demand in the country is negligible (TridgeGlobalTradePlattform, 2018).

According to MAIL (2018), NVAC olive production has been facing several problems such as, low and substandard production, poor agronomic practices due to unskilled employees, low allocation of budget by the government, poor processing practices, obsolete machinery, weak marketing channels, and insecurity in the production area (MAIL, 2018).

CHAPTER 4 RESEARCH FINDINGS

The purpose of this chapter is to explain the NVAC current olive production practices, process and marketing, problems and causes for low quality and quantity of olive products. This chapter has results, discussion, conclusion and recommendations for the policy implication.

4.1 Structure and Performance of the NVAC

4.1.1 CANVAS model, NVAC:

The CANVAS model describes overview about the NVAC structure such as key partners, key activities, key resources, cost structure and revenue streams. NVAC is the business oriented company which provides business opportunities to the investors, farmers and entrepreneurs.

Table 4: CANVAS business model describes the NVAC business
Source: Survey, 2019

<table>
<tr>
<td rowspan="2"><u>Key Partners:</u>
• MAIL
• Donors
• NGOs
• DABS
• Banks
• Suppliers and other service providers</td>
<td><u>Key Activities:</u>
• Producing of olive and citrus
• Processing of olives for oil and pickles
• Producing of dairy
• Marketing of citrus, dairy and olive products
• Supply of irrigation water for 25,000 hectare public and private land
• Lease out of agricultural and commercial land to farmers and private sector</td>
<td rowspan="2"><u>Value Proposition</u> <u>(customer value proposition):</u>
• Producing important basic products (olive and citrus)
• Offering land and water to the private sector
• Supplying of irrigation water free of charges</td>
<td><u>Customer Relationships:</u>
• Informal relations with customers (local people)
• Formal (contractual) relationships with farmers (lessees)</td>
<td rowspan="2"><u>Customer Segments:</u>
• Local people
• Local Farmers</td>
</tr>
<tr>
<td><u>Key Resources:</u>
• 11,300 hectare Agricultural and Commercial land including four Agricultural Farms (Olive & Citrus)
• 869 staff (technical, administration, skilled & unskilled)
• 70 km Irrigation canal
• Equipment (Farm Machinery, transportation vehicles & Olive Factory)
• Livestock farm
• Capital (Annual budget and donors fund)</td>
<td><u>Channels:</u>
Announcements through:
• Official websites
• Newspapers
• Television
• Social media
Direct Contacts:
• Face to face visits
• Mobile phone calls
• Emails and letters</td>
</tr>
<tr>
<td colspan="3"><u>Cost Structure:</u>
• Salaries: AFN 86,021,630 (95.54%)
• Spare Parts: AFN 2,783,648 (3.1%)
• Electricity & Post: AFN 414,022 (0.46%)
• Fuel + Stationary: AFN 795,000 (0.9%)
Total: AFN 90,014,300</td>
<td colspan="3"><u>Revenue streams:</u>
• Government annual budget
• Donors' fund
• Land & property lease: AFN 33,288,573 (45.3%)
• Sell of olive products: AFN 32,070,300 (43.6%)
• Sell of citrus: AFN 763,500 (1%)
• Sell of milk and calves: AFN 3,440,120 (4.7%)
• Sell of saplings and trees: AFN 3,912,592 (5.3%)</td>
</tr>
</table>

4.1.2 Stakeholders analysis and their role in the value chain

Table 2 shows the institutional framework of different chain players was identified and analysed according to the chain functions and their supporting roles in the olive production, processing and marketing activities in Nangarhar province. The respondents were interviewed are classified as follows; inputs suppliers (private sector), producers and processors (NVAC), wholesalers (private sector), retailers (private sector), policy makers (NVAC/MAIL) and supporter (NGO and donors). Out of the 15 key informants interviewed; one producer, one processor, one buyer (wholesaler), two wholesalers, two retailers, two from the government as policy makers, one donor and three national experts were also interviewed. The roles and gaps of stakeholders are presented in Table 5.

Table 5: The NVAC main stakeholders, their roles and gaps in the olive value chain

Stakeholder Category	Roles (activities)	Gaps/Challenges
Supplier (private sector)	Supply of production inputs, farm inputs and processing inputs such as chemical fertilizer, agro-chemicals, tools, equipment and machinery	• Too lengthy process to procure the inputs due to the bureaucratic system. • Insufficient funds by the government for procurement the inputs and production materials
Producer (NVAC)	Produces the olive fruits in the NVAC farms	• Insufficient budget allocated by the government for the production purposes to manage 1,800-hectare olive farms. Therefore, NVAC manages only 300-400 hectare farms out of 1,800 hectares annually. The budget for 300-400 hectare is not provided by the government for each year and this caused to remain 1500 hectare farms unproductive for many years. • Improper production and picking practices by the farm workers which affect the quality of final products. • Insecurity in the production area and existing of insurgents' operations.
Processor (NVAC)	Processing of the olive produced in the NVAC farms	• Irregular supply of the fruits by producers • Low quality of the olive fruit which also causes the produced pickles to be of low quality the • Lack of packing and packaging materials due to the insufficient budget allocated by the government. • Poor packaging and labeling the bottles. • Unavailability of the proper and cool storages in the factory which the products remain under the harsh temperature.

Prime wholesaler/buyer (Private sector)	Buy the NVAC olive products as bulk based on the contract agreement with the NVAC. It sells on other wholesalers in the market	• Too lengthy procurement process to award the contracts for selling the products due to the bureaucratic system and more paper works in the government systems. • Higher prices by the NVAC and low quality of the products compared to the imported olive products. • No market promotion activities by the NVAC and other agencies.
Wholesaler (Private sector)	Buy the NVAC olive products as bulk from the prime wholesaler and sell the products on retailers in the market	• Dumping the pickles in the shops due to the oversupply, low quality and higher prices. • Availability of fake olive products by NVAC name and labels which created obstacles for selling of NVAC products. • No market survey for market demand.
Retailer (Private sector)	But the NAVC olive products from the wholesalers and sell the products on consumers in the market	• Low quality pickles with high prices of the NVAC olive products. • Doubts about originality of NVAC olive products in the market. • Purchasing of imported olive products rather than buying NVAC olive products due to its losing position in the market.
Consumer	They are the final consumers who buy the olive products such as oil and pickles buy from the retailers or wholesalers	• Low commitment of the donors to their promises. • Less interest of the donors to support the olive section of the NVAC due to the government ownership.
Supporter (NGO's and Donors)	Provide financial support, building the capacity of the NVAC staff, donate inputs, machinery and equipment, ADB is the main support of the NVAC now	• Inadequate supply of the electricity by DABS for irrigation the Farm no. 1 which intakes irrigation water through heavy water pumps • Inadequate supply of the electricity for running the olive factory. • Conflict on the water flow in the main canal between NVAC and DABS .
Service Providers	Provide service to the NVAC such as electricity and water for the main canal, DABS is the main service provider, Bank provides transactions and other financial services	• Unavailability of the special committee for the policy development • Low interest of the shareholders in making such decision and shareholder assembly meeting.
Policy maker	Setting rules, regulations and oversight. MAIL, MoF, MEW, MoE and MoIC are the shareholders of the NVAC and policy makers	• Obsolete transportation, NVAC mostly uses its own transportation which the trucks and vehicles are old and out of order. The private transportation is not commonly using due to the budget restrictions and limitations.

Source: Survey, 2019

4.1.3 Olive value chain map

The value chain map of the NVAC shows the functions, actors, flow, services providers, and enablers of the olive value chain. Moreover, this shows the values addition by the chain actors and value receive in the chain. Figure 5 shows that, NVAC receives the higher value share since adds more values to the products compare to the other chain actors. Furthermore, information in the chain goes only through bottom-up approach due to the poor relations of the chain actors and no market research activities.

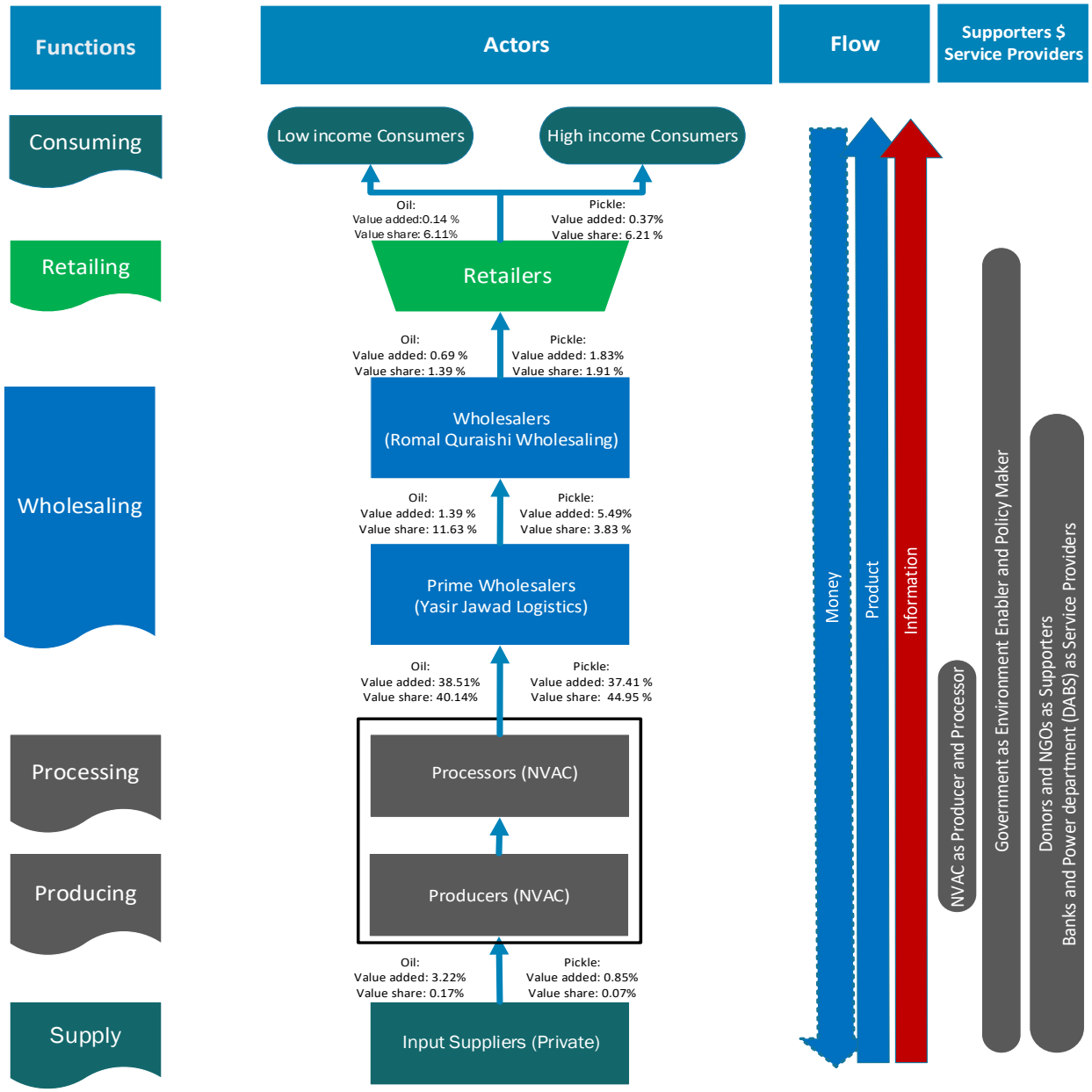


Figure 5: NVAC olive value chain map
Source: Survey, 2019

4.2 Value share of the NVAC olives among the chain actors

Table 6 shows the value addition and value shares among the chain actors of the NVAC olive value chain. In the current chain, the input supplier receives total 3.39% values share to supply inputs for 10 kg olive fruits which produce one-litre olive oil. While he receives total 0.89% value share for producing one-kg olive fruit for pickle.

In addition, NVAC receives total 78.65% value share in one-litre olive oil and 79.36% share in one-kg pickles. Moreover, the prime wholesaler receives 13.01% value share in olive oil and 9.32% in one-kg pickle. Furthermore, the wholesaler receives 2.08% value share in one-litre olive oil and 4.74% in one-kg pickle. However, the retailers get 6.25% value share in one-litre olive oil and 6.57 in one-kg pickle.

Table 6: Value addition and value share in the NVAC olives value chain among the chain actors

Particulars	Oil (1 liter)		Pickle (1 kg)	
	Channel 1	Percentage (%)	Channel 1	Percentage (%)
Net price received by Input supplier	24.42		2.44	
Expenses incurred by Input Supplier	23.20		2.32	
Net profit	1.25	3.39	0.12	0.89
NVAC purchase price	24.42		2.44	
Net price received by NVAC	566.30		216.91	
Expenses incurred by NVAC	277.26		94.05	
Net profit	289.04	78.65	122.86	79.36
Prime wholesaler purchase price	566.30		216.91	
Expenses incurred by prime wholesaler	10.00		15.00	
Net profit	83.70	13.01	10.48	9.32
Wholesaler's purchase price	660.00		242.39	
Expenses incurred by wholesaler	5.00		5.00	
Net profit	10.00	2.08	7.96	4.74
Retailers purchase price	675.00		255.35	
Expenses incurred by retailer	1.00		1.00	
Net profit	44.00	6.25	16.96	6.57
Net price received by consumer	720.00	100	273.31	100.00

Source: Survey, 2019

4.3 Current production practices and market channels for the NVAC olive products

4.3.1 Inputs Cost

Table 7 shows the cost of that input which supply by supplier excluding labours, machinery, miscellaneous and fixed cost. Input supplier sells inputs, equipment and tools on NVAC. He adds 4% value added tax (VAT), 1% transportation and 10% net profit to the products. The main inputs which he sells to the NVAC are chemical fertilizer, agro chemicals and fuel. He bought DAP on AFN 47.6[1]/kg, Urea on AFN 21.6 /kg, Insecticide on AFN 347/litre, Fungicides on AFN 390/kg, Lime on AFN 6/kg and Fuel on AFN 44.5/litre. He adds VAT, transportation and net profit to purchase price and sell on the NVAC. He sold DAP on AFN 52.60/kg, Urea on AFN 23.78 /kg, Insecticide on AFN 383.44.79/litre, Fungicides on AFN 430.95/kg, Lime on AFN 6.63/kg and Fuel on AFN 49.13/litre accordingly.

The inputs supplier gets inputs and materials from the neighbouring countries. Due to inflation, he makes always losses in this business.

Table 7: Cost of the supply of inputs for one-hectare olive in the NVAC farms

Input	Quantity	Unit	Purchase Price (AFN/ unit)	Total Expenses Incurred AFN (VAT*+Transp**) /unit	Net profit @10%	Total Selling Price (AFN)	Total Selling Price (AFN)/ha
DAP	100.00	kg	47.60	2.38	5.00	52.60	5,259.80
Urea	200.00	kg	21.60	1.08	2.27	23.87	4,773.60
Insecticide	7.00	liter	347.00	17.35	36.44	383.44	2,684.05
Fungicide	3.00	kg	390.00	19.50	40.95	430.95	1,292.85
Lime	20.00	kg	6.00	0.30	0.63	6.63	132.60
Fuel	60.00	liter	44.50	1.78	4.63	49.13	2,947.68
Total				**42.39**	**89.91**	**946.61**	**17,090.58**
One hectare olive production capacity per kg							7,000.00
Total cost for 1 kg fruit						2.32	2.44

* Value Added Tax @4%
** Transportation @ 1%
Source: Survey, 2019

4.3.2 Procedure for the procurement of inputs

The quantity of the supply of inputs depends on the availability of budget. Supplier follows the procurement procedure according to the government law. The procurement goes to the bid for applications. Based on

[1] 1 AFN is equal with Euro 0.027

the law, the lower price with acceptable quality considers as winder. The bid evaluated two times by the multi-disciplinary committee assigned by the governor.

4.3.3 Olive Production Practices

Currently, NVAC is involved in the production and processing the olive. Olive produced in 1,800-hectare olive orchards of the NVAC. Due to the budget constraints, NVAC manages only 200-300 olive orchards annually to get some yield. NVAC does not have a regular and specific operational budget particularly for the production and processing purposes which this fact is shown in Figure 6. The produced fruits processed in the NVAC olive processing factory which was established by the USSR and Italian government in 1983. The factory processes only olive to produce pickle and oil. The products such as oil and pickles are sold to a prime wholesaler who buys as bulk according to the government rules and regulations.

Figure 6 shows NVAC annual olive production. NVAC produced only 580.00 kg, 1401.00 kg, 0.00 kg, 323081.00 kg, 19314.00 kg, 0.00 kg and 635288.00 kg in 2011, 2012, 2013, 2014, 2015, 2016 and 2017 respectively. The mentioned data indicates that, NVAC produced only few hundred kg fruits in 2011 and 2014 while it did not produce the olive in 2013 and 2017 at all, all 1,800-hectare olive remained unproductive in this period. Figure 2 (a) shows the produced oil in the NVAC in above years. NVAC produced 36833-liter oil in 2014, 1388-liter in 2015 and 56050 liters in 2017 while no oil production was reported in 2011, 2012, 2013 and 2016. Moreover, figure 2 (b) shows the pickle data which produced by the NVAC was, 1267.50 kg, 3750.00 kg, 0.00 kg, 6946.50 kg, 5146.50 kg, 0.00 kg and 36330.00 in 2011, 2012, 2013, 2014, 2015, 2016, 2017 and 2018 respectively.

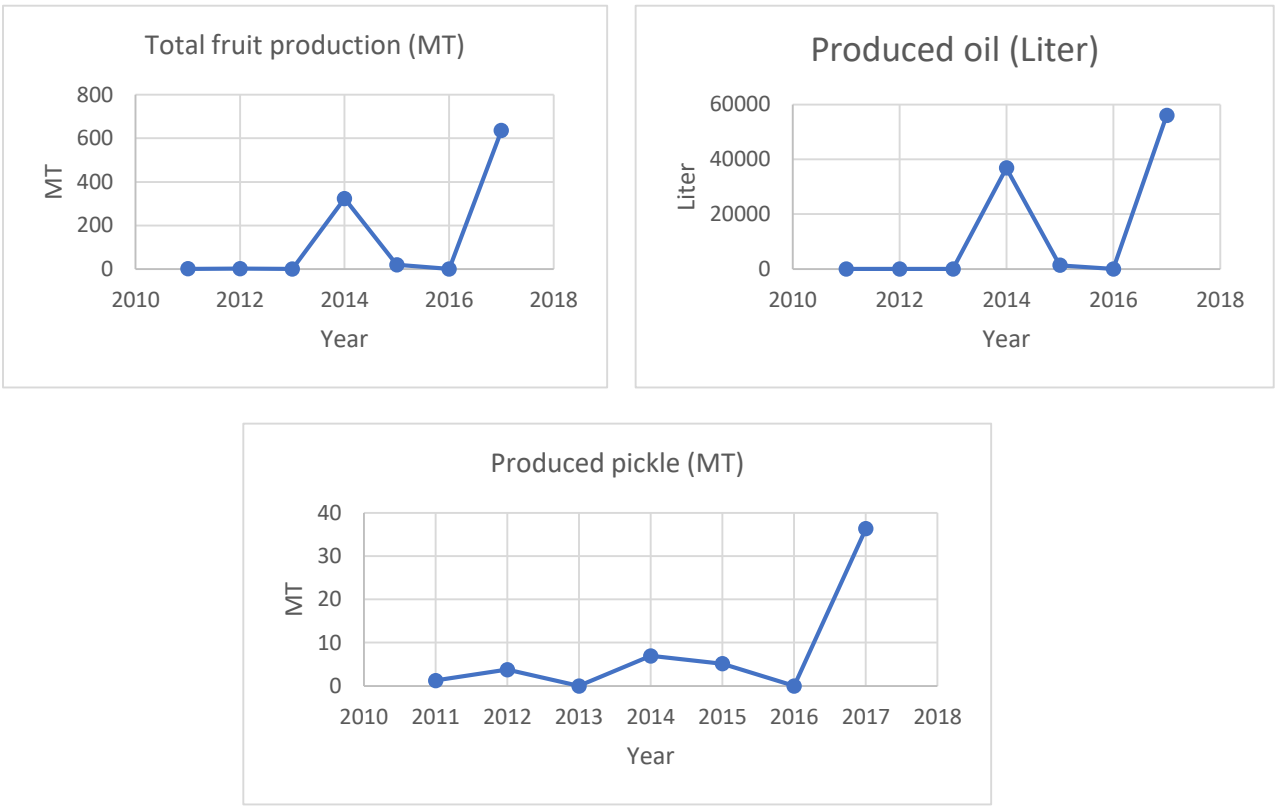


Figure 6: Olive production (a) oil production (b), and pickle production by NVAC
Source: Survey, 2019

4.3.4 Production Cost of the olive fruits

Table 6 shows the production cost in one-hectare olive orchards in the NVAC. The data in this table obtain from the interviewees (producers) during the field work.

NVAC uses 100 kg DAP, 200 kg urea, 7 litre insecticides, 3 kg fungicides, 20 kg lime, 60-liter diesel for one-hectare olive orchard which it bought from the input supplier with AFN 52.6/kg, AFN 23.87/kg, AFN 383.44/litre, AFN 430.95/kg, AFN 6.63/kg, AFN 49.13t/litre respectively. NVAC uses its own labour tractors to transport the harvested fruits from farms to the factory. Two trips are required to transport 7,000 kg fruits and it require 20.33 litters per trip.

NVAC performs all agricultural practices manually and uses labours except the application of agro chemicals and ploughing the land which perform by the tractor. Annually, 24 days for irrigation, 8.6 days for fertilizer application, 3 days for chemical application, 40 days for pruning of trees and 140 days required for harvesting of one-hectare fruits. Skilled and unskilled labours are permanent workers which recruited according to the government law. Each one receives AFN 5,500 to AFN 6,000 per month based on grades.

One set of the farm tools/equipment such as ladder, pruning share, pruning saw and shovel works for 5 hectare olives where one set purchase price calculated AFN 5,000 and one-hectare farm require AFN 1000 and AFN 300 for its maintenance.

In addition, AFN 15,000 is calculated for leasing of one-hectare land while about 15% miscellaneous costs AFN 13,693.59 calculated which will be incurred for some contingency purposes such as unpredictable pest and disease, increase in the transportation costs, mobile and internet costs and etc.

One-hectare olive farm has average 200 trees and one tree capacity is 35 kg fruit per year. One-hectare land produces 7,000 kg fruits. With this calculation, one-hectare olive farm needs AFN 104,984.16 to produce 7,000 kg fruits which one kg fruits cost comes AFN 15.00.

Table 8: Cost of production for one-hectare olive in the NVAC farms

Expenses	Quantity	Unit	Unit Cost (AFN)	Total Cost (AFN)
1. Inputs Costs				
DAP	100.00	kg	52.60	5,259.80
Urea	200.00	kg	23.87	4,773.60
Insecticide	7.00	liter	383.44	2,684.05
Fungicide	3.00	kg	430.95	1,292.85
Lime	20.00	kg	6.63	132.60
Fuel	60.00	liter	49.13	2,947.68
Transportation of fruits to the factory	2.00	truck	2,000.00	4,000.00
Inputs sub-total costs				**210,90.58**
2. Labor cost				
Irrigation	24.00	Man-day	250.00	6000.00
Fertilizer Application	8.60	Man-day	250.00	2150.00
Chemical Application	3.00	Man-day	250.00	750.00
Pruning	40.00	Man-day	250.00	10000.00
Harvesting	140.00	Man-day	250.00	35000.00
Labours sub-total costs				**53900.00**
II. Fixed Costs				
Tools such as ladder, pruning shares, Saw and crates	0.20	set	5000.00	1000.00
Equipment maintenance	0.20	set	1500.00	300.00
Land lease (fixed costs)	1.00	ha	15000.00	15000.00
Fixed sub-total costs				**16,300.00**
Total Costs				**91,290.58**
III. Miscellaneous Costs @15%				13,693.59
Total cost (AFN)				**104,984.16**
One-hectare fruit production capacity (kg)				7000.00
One kg fruit production cost				15.00

Source: Survey, 2019

4.3.5 Production practices to produce the olive

For producing of the olive in the NVAC farms, agro chemicals such as insecticides and fungicides use against pest and diseases which applied through automatic machines in spring and May. Pruning of the trees performs before spring every year by skilled labour. Lime solution apply on the trees' trunk against the insects in spring season.

Water channels for irrigation prepared by tractor, removal of the water sprouts by labours are other practices in the olive farms.

Fruits harvest starts for pickle in September while November and December for oil production. Manual fruit picking is common method by labours, one person can collect 40-45 kg fruit per day. Ladders are mainly used for fruit picking and wooden boxes, plastic crates and buckets are used to shift the olive fruits from the orchards to the factory. The harvested fruits transfer on daily basis from the orchards to the factory each afternoon. Moreover, the harvest season is limited for 90 days including for pickle and oil extraction. Although, NVAC has 600 skilled and unskilled staff to manage olive farms, citrus farms and perform other operations. While, 3 labours are required to manage one-hectare olive farm. In this instance, only 200 labours are performing the agricultural practices in the olive farms to partially manage 200-300 hectare farms in a year.

Pruning large shares and pruning saw are the common tools that are using for the pruning purposes in the NVAC farms while irrigation taking place by shovels.

The tree production capacity depends on the agricultural practices, if NVAC performs proper agricultural practices in the olives, the trees will produce much fruits. The tree capacity is 25-35kg, currently about 180-200 trees are surviving in one-hectare land since the initial plantation was 286 trees.

4.3.6 Processing cost for one-liter olive oil

According to the information provided by the NVAC staff, one-liter oil processing cost is AFN 278.48 for production of One-liter, 10 kg fruits are required. One kg fruit cost is AFN 15.10 which total cost is AFN 151, electricity charges AFN 6.12, bottles and cap charges AFN 80, labour charges AFN 5 and 15% miscellaneous costs AFN 36.32.

Olive oil has been packed and supplied in three different sizes of the bottles such as, 250 ml, 500 ml and 750 ml to the market.

Table 9: Processing cost to extract one-liter oil

Expenses	Quantity	Unit	Unit Cost (AFN)	Total Cost (AFN)
Olive fruit	10.00	kg	15.10	151.04
Electricity charges	0.50	KW	12.75	6.12
Bottles with cap	2.00	bottle	40.00	80.00
Labours	0.02	Man-day	250.00	5.00
				242.16
Miscellaneous Costs @15%				36.32
Total cost (AFN)				**278.48**

Source: Survey, 2019

4.3.7 Processing practices for extraction of olive oil

Upon receiving fruits, the factory technicians start the grinding process to obtain the extra virgin olive oil. The process starts by unloading the trucks/tractors and putting the fruits on belt for removing the extra materials such as leaves and broken branches by labours. Then, fruits wash automatically and leaves or other materials are separating through the fan. Fruits go to the grinder, then to decanter to separate water with oil and cake. The produced oil keeps in 6 barrels with 5 MT capacity each for filtration purpose. Due to the lack of heating and cooling facilities in the factory, the oil stays in barrels for 2-3 months till the weather changes in spring and oil became ready for filtration. The bottle filling and labelling starts after filtration.

4.3.8 Processing cost of one-kg olive pickle

Cost of one kg pickle processing include by, AFN 15.10 for one kg fruits, AFN 0.48 electricity charges, AFN 50 bottles with cap, AFN 12.5 labour charges, AFN 0.75 salt, AFN 0.9 caustic soda, AFN 0.5 sugar, AFN 1.65 steam production and AFN 13 miscellaneous cost. In this calculation, total processing cost for one kg pickle is AFN 94.

Table 10: Processing cost produce one-kg pickles

Expenses	Quantity	Unit	Unit Cost (AFN)	Total Cost (AFN)
Olive fruit	1.00	kg	15.10	15.10
Electricity charges	0.04	KW	12.75	0.48
Bottles with cap	2.00	bottle	25.00	50.00
Labours	0.05	Man-day	250.00	12.50
Salt	0.02	kg	50.00	0.75
Caustic soda	0.02	kg	60.00	0.90
Sugar	0.01	kg	50.00	0.50
Steam production	0.03	litre	55.00	1.65
				81.89
Miscellaneous Costs @15%				12.28
Total cost (AFN)				94.17

Source: Survey, 2019

4.3.9 Processing practices to produce olive pickle

Inputs for the processing of pickles comprise raw olive fruits, caustic soda, salt and sugar. After fruits arrive to the factory, processing starts by pre cooling the fruits and washing with fresh water, sorting, grading and removing the small and injured fruits as well as the extra materials such as leaves and small woods/branches. In order to extract acid from the fruits, fruits stay in 10 metric tons' capacity wooden jars for 35-40 days in caustic soda solution. After the fermentation phase, fruits/pickle wash with fresh water and go to the filling belt and add salt solution accordingly. Once the bottles have been filled with fruit and salt solution, bottles go to the steam boilers to keep the fruits in 120 ^{0}C for 30 minutes.

4.3.10 Marketing the Olives' Products

NVAC sells the olives products according to the government rules and regulations. It follows the procedure such as, tendering the products, bidding, evaluation, contract awards then supply the products. NVAC did not export the olive products to international markets due to the low production and absence of the quality certificates and no availability of the international markets.

4.3.11 Market Channels

NVAC sells the olive products to the prime wholesaler based on the contract agreement. The prime wholesaler receives the product as bulk and sells the it through below channels.

Channel 1:

Wholesaler direct sells the products to consumers which he bought from the prime wholesaler.

Channel 2:

Prime wholesaler sells the products to wholesalers in local and national markets. They sell the products to retailers. The retailers sell the product to consumers.

Channel 3:

The prime wholesaler sells the products to retailers (retailing shops and supermarkets) in the local market. The retailers sell the products in their retailing shops in local market.

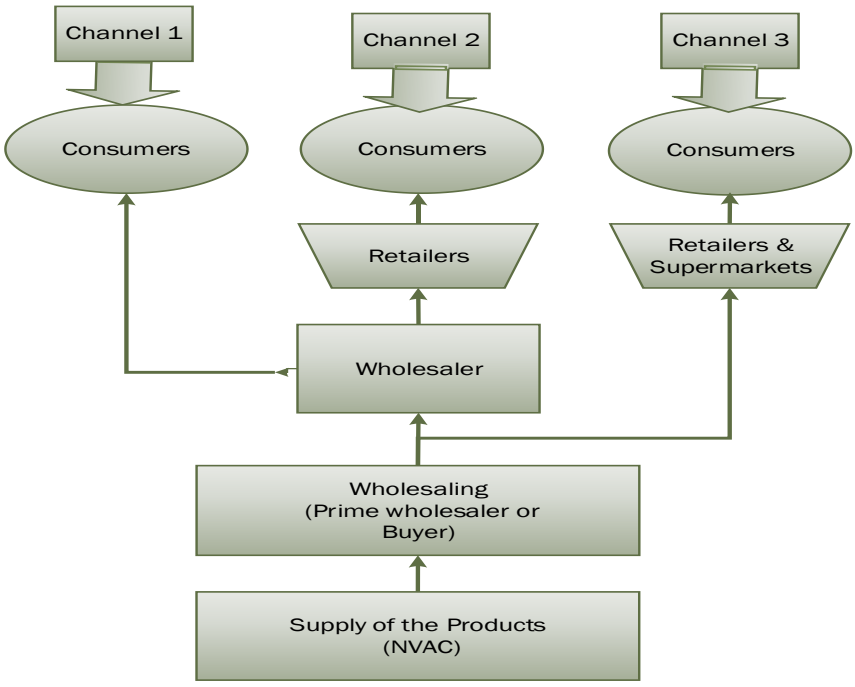


Figure 7: Marketing channels of the NVAC olive products
Source: Survey, 2019

4.3.12 Market and Selling prices to the prime wholesaler

NVAC sells the olive oil and pickles on Prime wholesaler/buyer as bulk based on the government procedure and government procurement law. He sells the products on wholesalers, retailers and consumers in the local and national markets.

Prime Wholesaling prices

Table 11 shows the wholesaling purchase and selling prices of the NVAC olive products which are bought and sold by the prime wholesaler. The prime wholesaler buys one litre olive oil with AFN 608.4 (250ml x 4 bottle) AFN 524 (500ml x 2 bottle), while he sells on other wholesaler with AFN 760 and AFN 560 respectively. In addition, he also buys one kg pickles AFN 229.62 (314 gr bottles) and AFN 204.20 (500 gr x bottles) which he sells with AFN 254.78 and AFN 230 respectively.

Table 11: Wholesaling prices that a prime wholesaler sells it on other wholesalers in local and national markets

No.	Item	Quantity	Purchase Price (AFN)	Sell price (AFN)	Net Profit (AFN)	Percentage (%)
1	Oil	250 ml	608.40	760.00	151.60	18.05
2	Oil	500 ml	524.20	560.00	35.80	5.97
Average price per liter oil			566.30	660.00	93.70	
4	Pickle	314 gr	229.62	254.78	25.16	8.78
5	Pickle	500 gr	204.20	230.00	25.80	9.92
Average price per kg pickle			216.91	242.39	25.48	

Source: Survey, 2019

Wholesaling prices

Table 12 shows the wholesaling purchase and selling prices of the NVAC olive products which the wholesaler buys from the prime wholesaler and sell on retailers and consumers. The wholesaler buys one litre olive oil with AFN 760 (250ml x 4 bottle) AFN 560 (500ml x 2 bottle), while he sells on retailers and consumers with AFN 780 and AFN 570 respectively. Moreover, he buys one kg pickles AFN 254 (314 gr bottles) and AFN 230 (500 gr x bottles) and sells with AFN 270.70 and AFN 240 respectively.

Table 12: Wholesaling prices that a wholesaler sells the products on retailers in the local and national markets

No.	Item	Quantity	Purchase Price (AFN)	Sell price (AFN)	Net Profit (AFN)	Percentage (%)
1	Oil	250 ml	760.00	780.00	20.00	2.38
2	Oil	500 ml	560.00	570.00	10.00	1.67
Average price per liter oil			660.00	675.00	15.00	
4	Pickle	314 gr	254.78	270.70	15.92	5.56
5	Pickle	500 gr	230.00	240.00	10.00	3.85
Average price per kg pickle			242.39	255.35	12.96	

Source: Survey, 2019

Retailing price

Table 10 shows the purchase and selling prices of the NVAC olive products which the retailers buy from the wholesaler and sell on consumers. The retailers buy one litre olive oil with AFN 780 (250ml x 4 bottle) AFN 570 (500ml x 2 bottle), while he sells on consumers with AFN 840 and AFN 600 respectively. They also buy one kg pickles AFN 270 (314 gr bottles) and AFN 240 (500 gr x bottles) and sell with AFN 286.62 and AFN 260 respectively.

Table 13: Retailing prices that retailers sell the products on consumers in the local markets

No.	Item	Quantity	Purchase Price (AFN)	Sell price (AFN)	Net Profit (AFN)	Percentage (%)
1	Oil	250 ml	780.00	840.00	60.00	7.14
2	Oil	500 ml	570.00	600.00	30.00	5.00
Average price per liter oil			675.00	720.00	45.00	
3	Pickle	314 gr	270.70	286.62	15.92	5.56
4	Pickle	500 gr	240.00	260.00	20.00	7.69
Average price per kg pickle			255.35	273.31	44.13	

Source: Survey, 2019

Supermarket Retailing price

Table 14 shows purchase and selling prices of the NVAC olive products by the supermarket. The supermarket buys one litre olive oil with AFN 780 (250ml x 4 bottle) AFN 570 (500ml x 2 bottle), while he sells on consumers with AFN 840 and AFN 620 respectively. They also buy one kg pickles AFN 270 (314 gr bottles) and AFN 240 (500 gr x bottles) and sell with AFN 318.47 (AFN 100/314gr) and AFN 280 respectively. All of these profit percentages are commercially non-viable. This indicates that production costs are too high (because of low production). The system of cost plus pricing results in a high-priced product.

Table 14: Retailing prices that supermarkets sell the NVAC olive products on consumers

No.	Item	Quantity	Purchase Price (AFN)	Sell price (AFN)	Net Profit (AFN)	Percentage (%)
1	Oil	250 ml	780.00	840.00	60.00	7.14
2	Oil	500 ml	570.00	620.00	50.00	8.06
Average price per liter oil			675.00	730.00	55.00	
3	Pickle	314 gr	270.70	318.47	47.77	15.00
4	Pickle	500 gr	240.00	280.00	40.00	14.29
Average price per kg pickle			255.35	299.24	107.83	

Source: Survey, 2019

4.4 Constraints which are hindering the current NVAC olive value chain

4.4.1 Major problems in the chain

Table 15 shows the stakeholders opinion about the problems and issues that hindering the NVAC olive value chain development. No market promotion activities and low quality products compare to the imported olive products in the market, government rules and regulations and unavailability or limited budget mentioned by 15.63% respondents respectively. Moreover, 12.50% of the respondents mentioned the high prices of the NVAC products compare to the imported olive products in the market. 9.38% of the respondents mentioned insecurity in the production area. In addition, 9.80% of the respondents mentioned obsolete and old machinery in the farm and olive processing factory. Moreover, low skilled employees and low production was mentioned by 6.26% respondents.

Table 15: Major problems mentioned by key respondents regarding hindering the current NVAC olive value chain*

No	Problems	Policy maker	NVAC	Logistic/ wholesaler	Retailer	Experts	Percentage (%)
1	No market promotion activities	0.00	0.00	2.00	2.00	1.00	15.63
2	Low quality	0.00	0.00	2.00	2.00	1.00	15.63
3	Government rules and regulations	2.00	2.00	0.00	0.00	1.00	15.63
4	No budget or limited budget	2.00	2.00	0.00	0.00	1.00	15.63
5	Higher prices	0.00	0.00	2.00	2.00	0.00	12.50
6	Insecurity	0.00	0.00	0.00	0.00	3.00	9.38
7	No machineries	1.00	1.00	0.00	0.00	0.00	6.25
8	Obsolete and old machinery	0.00	0.00	0.00	0.00	1.00	3.13
9	Low skilled employees	0.00	0.00	0.00	0.00	1.00	3.13
10	Low Production	0.00	0.00	0.00	0.00	1.00	3.13
	Total						**100.00**

*Multiple answers
Source: Survey, 2019

4.4.2 Problem Tree to Identify the causes and effects on the NVAC olive value chain

Based on the research findings and field work, the main problem of the NVAC is **Low Quality and Quantity of Olive products** which affected the Income for re-investment in the NVAC.

Direct causes for the main problem are low quality and quantity of the olive fruits, improper processing practices and inadequate marketing functions. Direct causes are the result of Pest and disease due to limited agricultural practices which they caused by limited farm inputs and unused olive farms land. Causes for limited agricultural practices are low budget and no investment capital by the government, poor management and technical skills of the employees and no involvement of the private sector due to the unfavourable government policies for inclusion the private sector to invest in production and processing. In addition, sub causes for improper processing practices include, limited capacity of machinery which work 30% of the initial capacity due to improper maintenance of machinery and infrastructure, old machinery, lack of electricity, improper supply of the fruits by producer due to low budget and no investment capital by the government. Furthermore, no cool storage due to low budget and no investment capital by the government, poor relations with chain actors due to no market promotion activities, no market research which are due to the poor marketing skills of the NVAC employees, high prices of the products due to the higher production costs which are due to the poor management and technical skills of the NVAC staff, and Bureaucratic management system are causes of the inadequate marketing functions. Main and sub causes together resulted low quality and quantity of the olive products which affected the low income for re-investment in the NVAC.

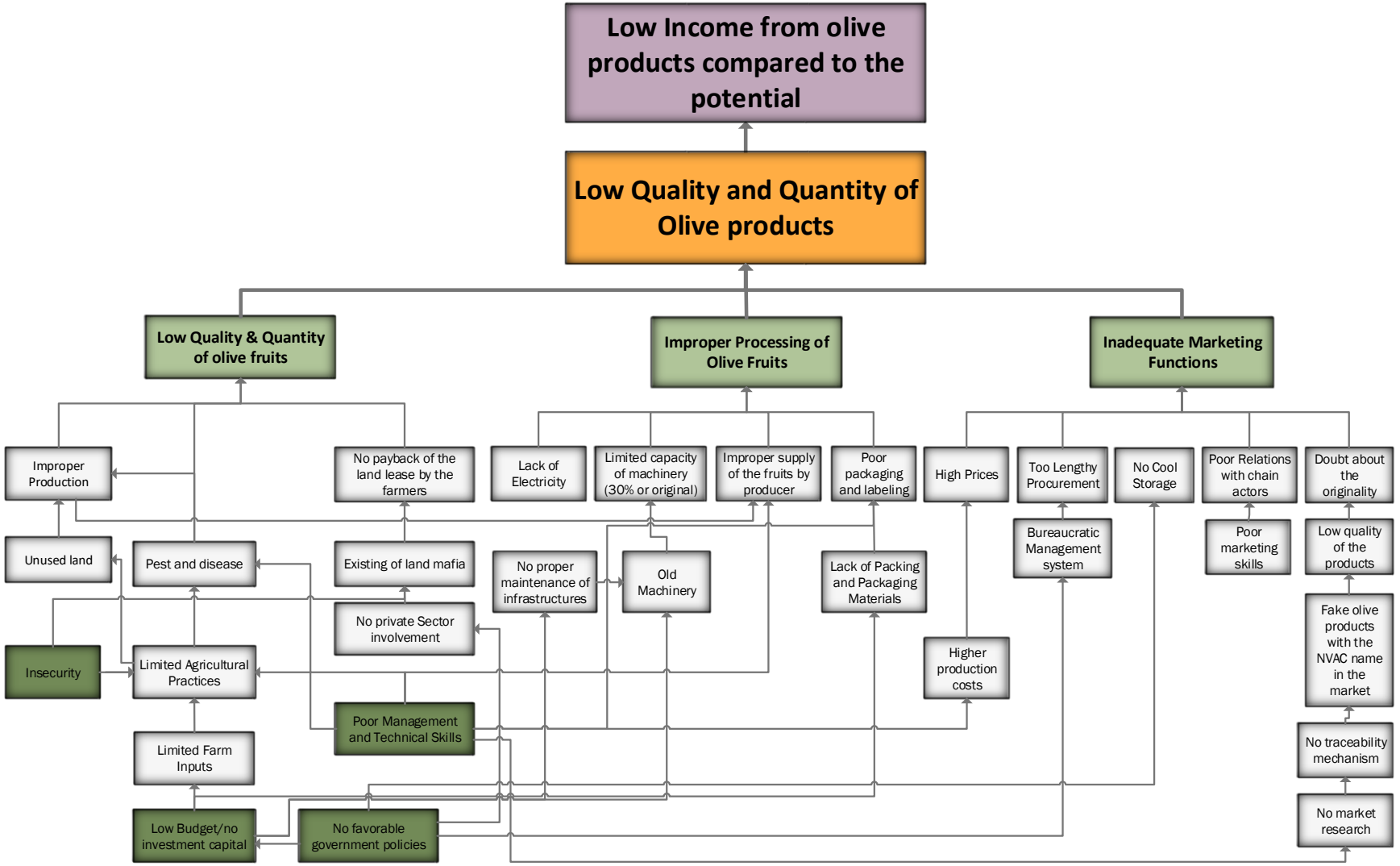


Figure 8: Problem tree of the NVAC olive value chain
Source: Survey, 2019

4.5 Opportunities and Business model

Table 16 shows the stakeholders opinion about the inclusion of private sector in the NVAC olive value chain. The data shows that, most of the respondents (37.5 percent) stated existing of the olive processing factory as good opportunity for the inclusion of private sector. Availability of the skilled and unskilled human capital, and availability of the private sector interest was mentioned by 25% respondents respectively. 12.5% of the respondents mentioned the existing of olive farms are the main opportunities for the inclusion of private sector in the NVAC olive value chain and developing of new business model.

Table 16: Opportunities exist for NVAC new value chain development opined by key informants*

No.	Opportunities	Policy maker	NVAC	Logistic/ wholesaler	Retailer	Experts	Percent age (%)
1	Existing of the olive processing factory	0.00	2.00	0.00	0.00	1.00	37.50
2	Availability of the skilled and unskilled human resource	1.00	1.00	0.00	0.00	0.00	25.00
3	Availability of the Private Sector interest	1.00	0.00	0.00	0.00	1.00	25.00
4	Existing of the olive farms	0.00	1.00	0.00	0.00	0.00	12.50
	Total						100.00

*Multiple answers
Source: Survey, 2019

4.5.1 PESTEC and SWOT analysis on NVAC olive value chain

Table 17: PESTEC and SWOT analyses for the NVAC olive value chain

PESTEC	SWOT			
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Political	• Having the government status • Establishment of Board of directors for decisions making • Changes in legal status of NVDA to NVAC	• Many changes in the leadership • Hierarchical structures and top-down decision • Bureaucratic management system	• Commitment for the rehabilitation of infrustructures such as irrigation canals, electricity and buildings	• Less support from the government • Insecurity and insurgents' threat • Interfere of the government organizations and politicians in the NVAC affairs
Economic	• Existing of well-designed infrastructures and existing of the olive farms • Existing of the agricultural and commercial land • Existing of irrigation canal	• Lack of funds for production purposes • Low return from the products and land lease	• Availability of donors' support • Availability of private sector interest for investment • Availability of market demand for domestic production	• Existing of Land mafia • Misuse of NVAC land by the tenants • No payback of the land lease by the tenants
Social	• More job opportunities for local people • Support from the local societies	• No support to the NVAC • Lack of marketing skills • Overaged and untrained employees • Overstaffed	• Good labours market and human capital	• Illegal cutting down of the olive mature trees • Interfere in the NVAC affairs by local people
Technological	• Existing of technical and administration staff • Availability of the new technology to reduce the production costs	• Less productive farms • Production of low quality fruits • Lack of technical skills • Old and obsolete machinery • Lack of sufficient electricity for olive processing trees	• Import of new technology from abroad	• Make people jobless
Environmental	• Availability of the irrigation water • Existing of trees and greenery • Production of the fodders for livestock	• Frequent shortage of water for olive and citrus farms in summer	• Existing of good climate for olive production	• Availability of pest and disease attack on olive Frequent drought • Hails and heavy winds in summer • Floods due to seasonal heavy rains which damage the canals
Cultural	• Existing of three major tribes in the project area	• No supportive tribes • Community proportion in leasing of land which don't let the	• Traditions in conflict resolution	• Interfere in the NVAC affairs • Creating problems to NVAC field staff

Source: Survey, 2019

4.5.2 Private farmers' perception about developing of new value chain

Socio economic characteristics of the farmers

Table 18 shows the socio economic information of the farmers containing age, level of education and the level of a monthly income of the farmers. Data shown that, 19.51%, 31.71%, 19.51% and 29.27% of farmers had age 20-30, 31-40, 41-50 and >50 years respectively who showed their interest to lease in the NVAC land. Although, 41.46% farmers with primary and high school, 9.76% with bachelor and master, 4.88% with institute and diploma level and 43.90% farmers with no education were interested to lease in the NVAC land. Moreover, majority of farmers (65.85 percent) had AFN <20,000 monthly incomes, 24.39% had between AFN 20,001 to 40,000, 2.44% had between AFN 40,001 to 60,000 and 7.32% farmers had monthly income AFN >60,000 and were interested to lease in the NVAC land. Table 18 indicates that the age group of 31-40 is the most interested category of farmers who want to lease in the NVAC land, moreover, in terms of educational level farmers, the results indicate that those without education are the most interested group and finally in terms of monthly income those who in less than AFN 20,000 are the most interested group as well.

Table 18: Socio economic characteristics of the interested and not interested farmers in the NVAC olives

Parameter	Category	Interest in Land Lease		No Interest in Land Lease		Total
		Number	Percentage (%)	Number	Percentage (%)	
Age	20-30	8.00	19.51	1.00	33.33	9.00
	31-40	13.00	31.71	1.00	33.33	14.00
	41-50	8.00	19.51	0.00	0.00	8.00
	>50	12.00	29.27	1.00	33.33	13.00
Total		**41.00**	**100.00**	**3.00**	**100.00**	**44.00**
Level of education	Primary and high school	17.00	41.46	0.00	0.00	17.00
	Bachelor and Master	4.00	9.76	1.00	33.33	5.00
	Institute and Diploma	2.00	4.88	0.00	0.00	2.00
	No education	18.00	43.90	2.00	66.67	20.00
Total		**41.00**	**100.00**	**3.00**	**100.00**	**44.00**
Monthly income	<20000	27.00	65.85	3.00	100.00	30.00
	20001-40000	10.00	24.39	0.00	0.00	10.00
	40001-60000	1.00	2.44	0.00	0.00	1.00
	>60000	3.00	7.32	0.00	0.00	3.00
Total		**41.00**	**100.00**	**3.00**	**100.00**	**44.00**

Source: Survey, 2019

Table 19 shows that there is no correlation between level of interest in lease of the NVAC land and the age, level of education and monthly income of the farmers.

Table 19: Correlations between level of interest and socio economic characteristics for the farmers

		Interest in land lease
Age	Pearson Correlation	-0.057
	Sig. (2-tailed)	0.714
	N	44
Level of education	Pearson Correlation	0.142
	Sig. (2-tailed)	0.359
	N	44
Monthly income	Pearson Correlation	-0.154
	Sig. (2-tailed)	0.319
	N	44

*. Correlation is significant at the 0.05 level (2-tailed).

Source: survey, 2019

Table 20 shows that there is no correlation between prior experience in the NVAC land lease and age, and level of education.

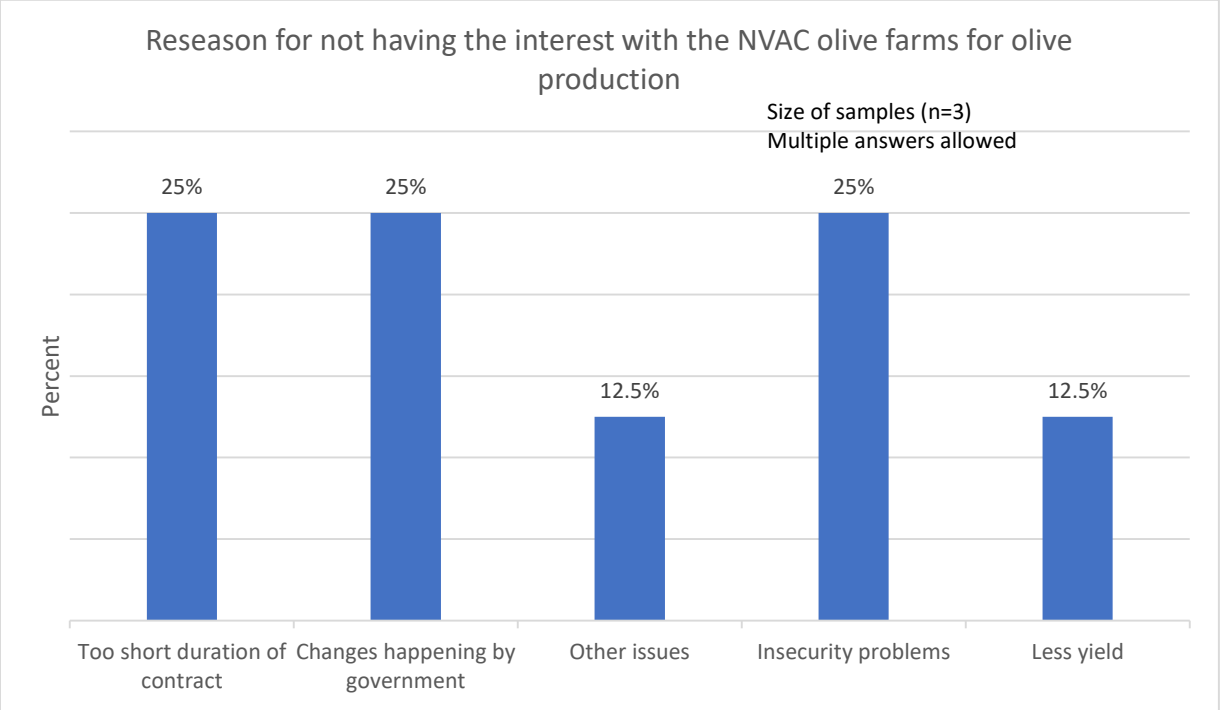
Table 20: Correlations between prior experience in the NVAC land lease and age, and level of education

			Prior experience in NVAC land lease
Spearman's rho	Age	Correlation Coefficient	.090
		Sig. (2-tailed)	.562
		N	44
	Level of education	Correlation Coefficient	-.058
		Sig. (2-tailed)	.706
		N	44

Source: Survey, 2019

Reasons for not having interest in leasing in the NVAC olive farms for olive production

Figure 9 shows the reasons for those who are not interested for not leasing in the NVAC farms. Too short duration of the NVAC land lease contract, unpredicted changes which are happening in the contract by the government, and insecurity in the production area were the reasons indicated in 25%, 25% and 25% of the answers respectively. While, less yield and other issues such as some difficulties in the technical operations, harvesting and marketing were mentioned in 12.5% and 12.5% answers.



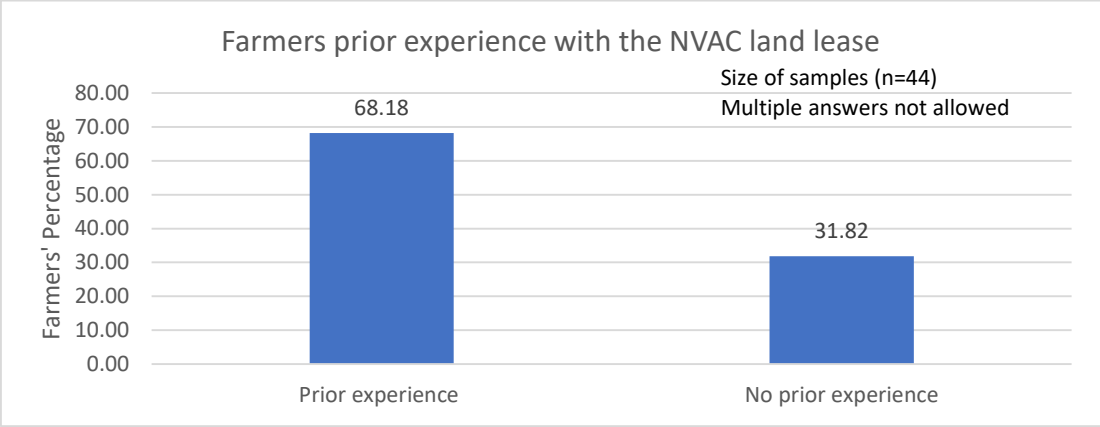
* Other issues such as technical operations, harvesting and marketing

Figure 9: Reasons for not having interest in leasing in the NVAC olive farms by farmers
Source: Survey, 2019

Prior experience with the NVAC land lease

Figure 10 shows the data regarding prior experience of respondents with the NVAC land lease in the past. Majority of the farmers (68.18%) had prior experience with the NVAC land lease. However, they had leased contracts with the NAVC for cereals and vegetables production rather than olive production. 31.82% of the farmers stated that, they did not have any lease contracts with the NVAC in the past.

Figure 10:



Shows prior experience of the farmers with NVAC land lease
Source: Survey, 2019

Purpose of the lease in of NVAC farms

Figure 11 depicts the purpose of leasing in the NVAC land by the respondents. Majority of the answers (73%) were about the production of olives and cereals together. 15% of the answers were about lease in the NVAC land only for cereals and vegetable production. While 12% of the answers were on lease in the olive farms only for olive production.

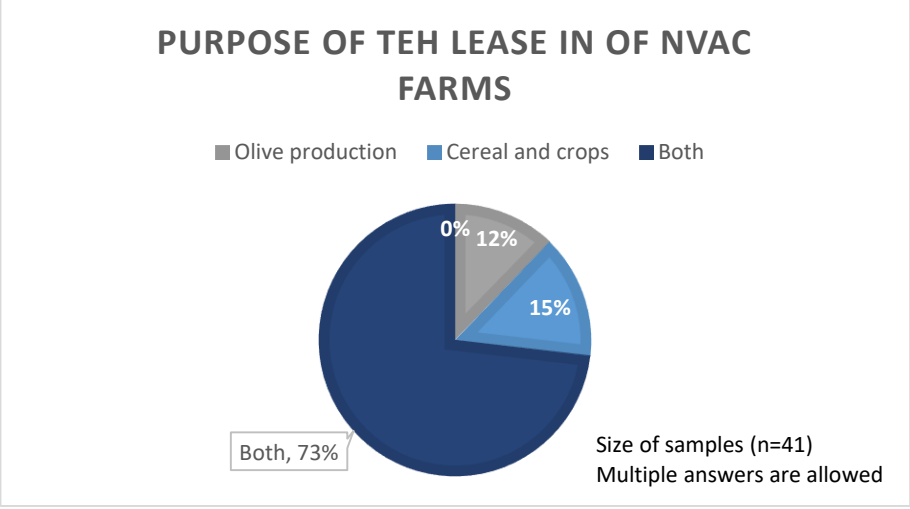


Figure 11: Purpose of the Lease in of the NVAC Olive farms by farmers
Source: Survey, 2019

Purpose of the Olive production in the NVAC land

Data related to purpose of olive production in the NVAC land is shown in Figure 12. It was revealed that, majority of the farmers (94%.) wanted to sell the olive fruits which were produced in the farms on the NVAC olive processing factory while, only 3% of the farmers wanted to make commercial pickles in their homes, however, 3% of the farmers wanted to establish the processing facilities for their own products.

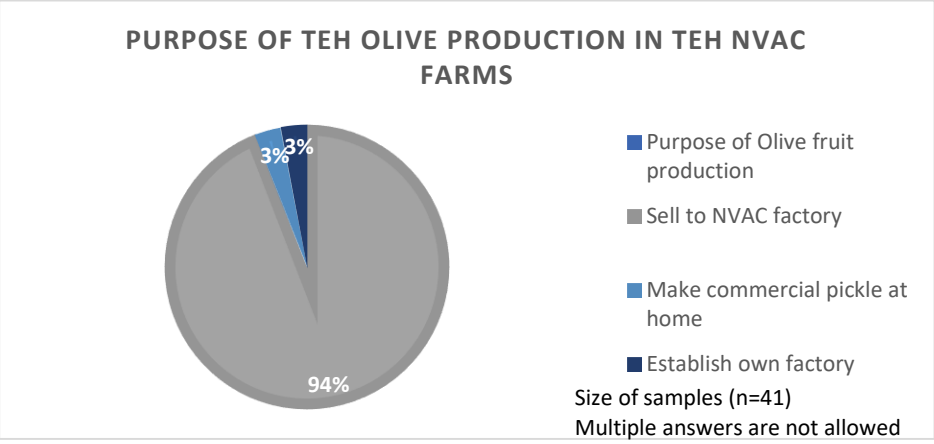


Figure 12: Leasing purpose of NVAC Olive farms
Source: Survey, 2019

Duration of the farms' contract

Figure 13 describes farmers' preference in terms of NVAC land leasing contract duration. 16.66 percent of the farmers preferred to lease the farmlands for the duration of 5 to 10 years, while 27.77 percent of the farmers were willing to lease the farmlands from 11 to 15, from 16 to 20 and more than 20 years respectively.

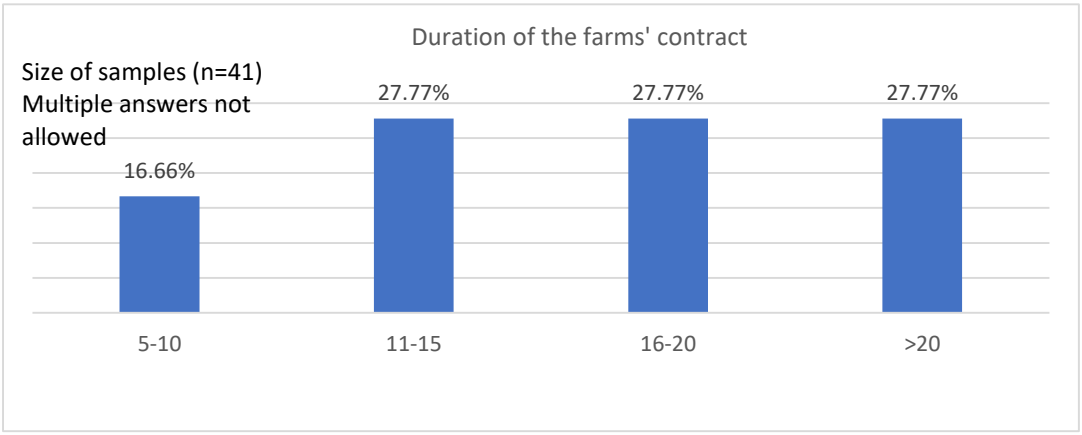


Figure 13: Preferred NVAC farmland leasing contract duration
Source: Survey, 2019

Table 18 revealed that there is correlation between contract duration of the NVAC land lease and the age of the farmers. However, it also shows that there are no correlations between contract duration of the

NVAC land lease and the monthly income and level of education of the farmers. Moreover, it can be seen that relationship between the age of the farmers and the contract duration is moderate and negatively correlated.

Table 18: Correlations between contract duration and sociodemographic characteristics of farmers

			Contract duration
Spearman's rho	Age	Correlation Coefficient	-.413*
		Sig. (2-tailed)	0.012
		N	36
	Level of education	Correlation Coefficient	-0.282
		Sig. (2-tailed)	0.096
		N	36
	Monthly income	Correlation Coefficient	0.266
		Sig. (2-tailed)	0.116
		N	36

*. Correlation is significant at the 0.05 level (2-tailed).

Source: survey, 2019

Sizes of the NVAC farmlands to be leased by farmers

Figure 14 indicates the farmers' preferences of leasing different sizes of NVAC's farmlands. Based on the survey data, 51.4 percent which is the majority of the farmers were willing to lease more than 20 hectare of the farmland. 13.51% percent of the farmers wanted to lease 5 to 10 hectare while 13.51% percent of the farmers were willing to lease 11 to 15 hectare and the remaining 21.62 percent of the farmers wanted to lease 16 to 20 hectare of the farmlands.

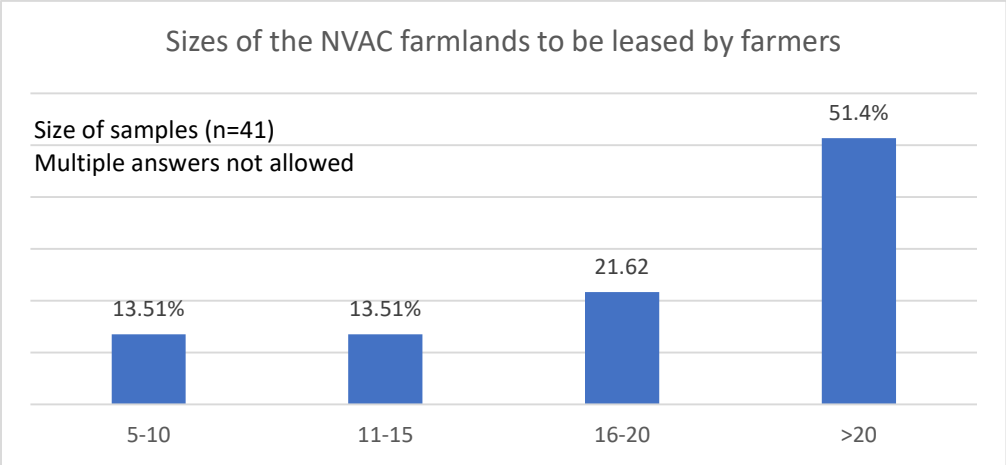


Figure 14: Sizes of the NVAC farmlands to be leased by the farmers
Source: Survey, 2019

Table 21 indicates that there is no correlation between age of farmers and size of the farm. However, it can be seen that there is correlation between the farm size of the NVAC land and the level of education and

monthly income of the farmers. Moreover, the table also indicates that the relationship between farm size of the NVAC land and the monthly income of the farmers are strongly correlated.

Table 21: Correlations between the size of farm and sociodemographic characteristics of farmers

			Size of farm
Spearman's rho	Age	Correlation Coefficient	-0.285
		Sig. (2-tailed)	0.088
		N	37
	Level of education	Correlation Coefficient	-0.322
		Sig. (2-tailed)	0.052
		N	37
	Monthly income	Correlation Coefficient	.465**
		Sig. (2-tailed)	0.004
		N	37

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Source: survey, 2019

Financial capabilities of the farmers

Figure 15 shows the financial capabilities of the farmers who want to lease the NVAC land for olive production. The survey data shows that; majority 67.58% of the farmers have financial capability while 32.43% of the farmers are not financially capable to lease the NVAC farmland and they were looking either to get loan from the bank or find the business partner.

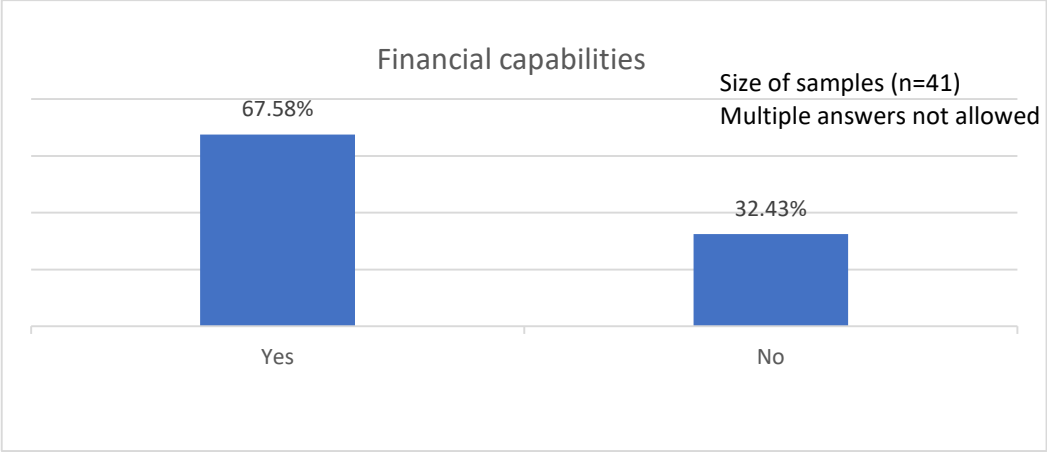


Figure 15: Financial Capabilities of the Farmers to lease the NVAC olive farmlands
Source: Survey, 2019

Expansion of the olive business

Figure 16 explains farmers' opinions on further expansion of olive production in NVAC farmland. Majority of farmers (62.86 percent) wanted to increase the olive production area by increasing the land size in order

to plant more olive trees. 37.14 percent of the farmers were willing to replant the olive trees in the missing places where the trees were dried in the past years.

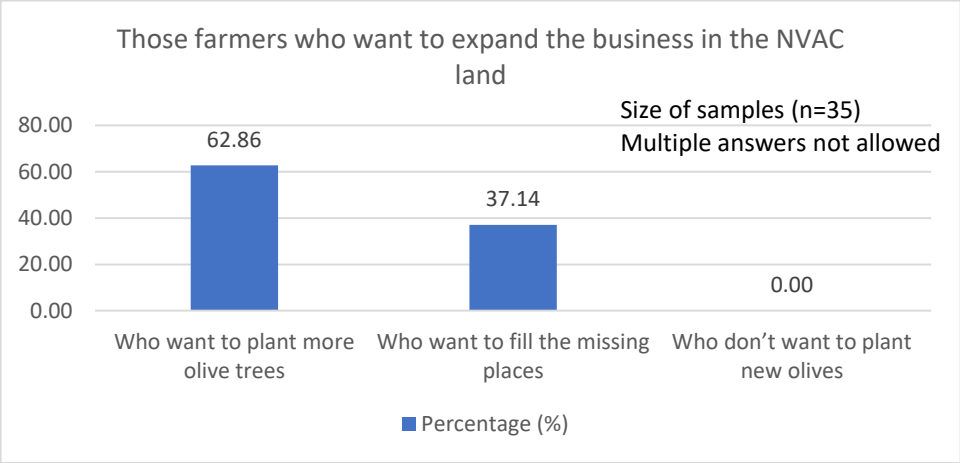


Figure 16: Business expansion to increase fruit production in the NVAC olive farmlands
Source: Survey, 2019

Table 22 shows that there is no correlation between expansion of the olive production and age, level of education and monthly income of the farmers.

Table 22: Correlations between the expansion of the olive production and sociodemographic characteristics of farmers

			Expansion of the olive production
Spearman's rho	Age	Correlation Coefficient	-0.085
		Sig. (2-tailed)	0.644
		N	32
	Level of education	Correlation Coefficient	-0.070
		Sig. (2-tailed)	0.702
		N	32
	Monthly income	Correlation Coefficient	-0.028
		Sig. (2-tailed)	0.877
		N	32

*. Correlation is significant at the 0.05 level (2-tailed).

Source: survey, 2019

Types of supports from the NVAC

Figure 17 shows farmers' expectation to receive support from the NVAC administration in the future. The data shows that, majority of the farmers which makes 51.42 percent expected receiving technical support from the NVAC administration, 17.14% farmers want marketing, 2.86% farmers expecting capacity building, while 28.57 percent of the farmers want all mentioned supports from the NVAC.

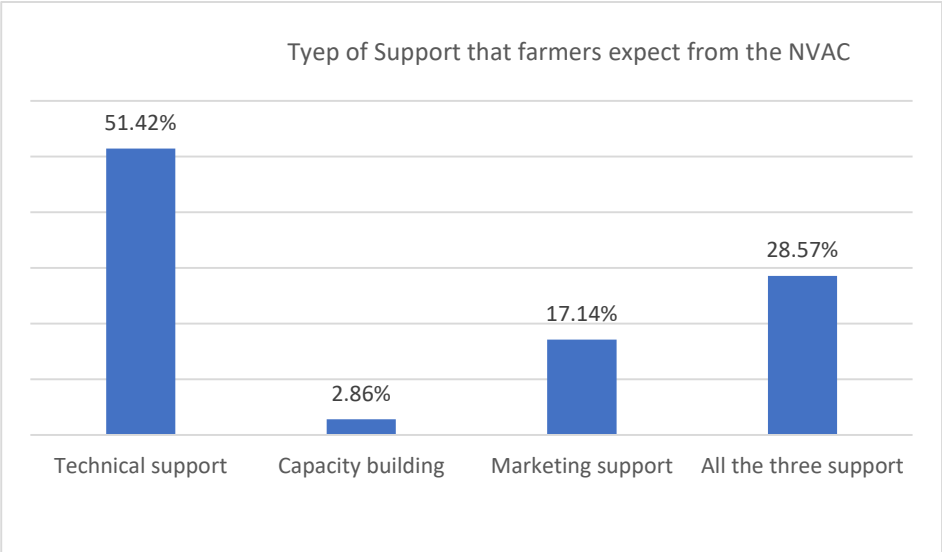


Figure 17: Types of the support that farmers expected from the NVAC
Source: Survey, 2019

Table 23 shows that there is no correlation between support from the NVAC and the age, level of education and monthly income of the farmers.

Table 23: Correlations between support from the NVAC and sociodemographic characteristics of farmers

			Support from NVAC
Spearman's rho	Age	Correlation Coefficient	-0.098
		Sig. (2-tailed)	0.577
		N	35
	Level of education	Correlation Coefficient	-0.070
		Sig. (2-tailed)	0.690
		N	35
	Monthly income	Correlation Coefficient	-0.018
		Sig. (2-tailed)	0.916
		N	35

*. Correlation is significant at the 0.05 level (2-tailed).

Source: survey, 2019

4.6 Stakeholders' opinion on new business model

Table 24 shows the stakeholders' opinion about the new business model and value chain development. The most frequent answers (31.82%) were the involvement of private sector in the NVAC olive value chain is important. 22.73% of the answers were about marketing to be carried out by the private sector. While 18.18% of the answers were regarding the marketing support the government. Moreover, 13.64% of the answers were regarding the involvement of big companies instead of small scale farmers in the production, and Public Private Partnership (PPP) business model respectively.

Table 24: Stakeholders opinions regarding the new value chain *

No.	Opinions	Policy maker	NVAC	Logistic/ wholesaler	Retailer	Experts	Percentage (%)
1	Involvement of the private sector in the chain	2.00	1.00	0.00	0.00	4.00	31.82
2	Marketing support by the Private sector	0.00	0.00	2.00	1.00	2.00	22.73
3	Marketing Support by the NVAC/government	2.00	0.00	0.00	0.00	2.00	18.18
4	Big companies vs small farmers	1.00	1.00	0.00	0.00	1.00	13.64
5	Public Private Partnership (PPP) Business model	2.00	1.00	0.00	0.00	0.00	13.64
	Total						100.00

Source: Survey, 2019
*Multiple answers

4.7 Focus Group Discussion (FGD) on the new business model

Table 25 shows the focus group participants' opinion about the new business model and value chain development which was held after the interview with key informants and farmers' opinion survey. The participants were representatives from the private sector, the NVAC staff, wholesalers, Agricultural Development fund (ADF), governor's advisors in the policy and agriculture and experts in the olive sector.

The most frequent answers (30.43%) were regarding the involvement of the private sector in the NVAC olive value chain. 21.74% answered about the duration to be extended from 1-5 years t0 20-30 years of the land lease contract with farmers. While 17.39 percent answers were on the public private partnership as new business model and contribution of the small scale farmers with the big private companies in the olive production respectively. Furthermore, 13.04 percent of the answers were on the role of small scale farmers in the security mitigation in the production area. However, few participants had doubt about the future role of the NVAC in the chain.

Agricultural Development Fund (ADF) provides financial credits to the groups of farmers such as farmers' cooperatives and farmers' associations based on the Islamic Sharia law. While the loans will be pay back in 6 months to 5 years' installments.

Table 25: Focus Group Participants' opinions regarding the new value chain *

No.	Opinions	Frequency n= (23)	Percentage (%)
1	Involvement of the private sector in the olive value chain	7.00	30.43
2	Duration of the NVAC olive farmlands contract with private sector	5.00	21.74
3	Public Private Partnership as new business model	4.00	17.39
4	Small farmers contribution with the private sector in the production	4.00	17.39
5	Farmers' role in the security situation	3.00	13.04
Total		23.00	100.00

Source: survey, 2019
*Multiple answers

In addition, all the focus group participants agreed on some supporting factors by the government to encourage the private sector to participate in the NVAC olive production, these are:

- Better security situations by the government in the production area to secure their investment
- Discount in the land lease by the government/NVAC especially in the first few years
- Provision of sufficient irrigation water during the year period and irrigation facilities
- Technical assistance to the private sector in the production and processing
- Crop insurance and subsidies by the government in the case of natural disasters
- Strong marketing support and linkage with the national market through active participation in the exhibitions

CHAPTER 5 DISCUSSION

5.1 Current structure of the olive value chain and its performance

The CANVAS model for the NVAC depicts that government organizations and donors are the NVAC partners. This shows that the NVAC is not yet as self-regulating and self-determining company. As government owned company, decision making approach is characterized as bottom-up and lengthy process (Dillon, et al., 2010).

NVAC carry out various activities including olive production and processing. NVAC's key resource is agricultural land with adequate water. Irrigated land is very important factor for investment and income generating activities in Afghanistan as this is stated by the WorldBank (2014). It is a great opportunity for the investment in agriculture sector. While, the main deficiencies in the resources are, human capital and farm machinery which this is also stated by MAIL (2018). The key resources part in the CANVAS model of NVAC shows that there are only 869 low productive staff for managing of 11,300 ha land. Similarly, old and obsolete machinery hampers the production and processing process TLO (2019).

5.2 Value share among the chain actors

The cost structure shows that most of the cost goes to the staff salaries as this confirmed by MAIL (2017). In the meantime, olive products are the second highest stream of the revenue, for instance, the NVAC receives 78% of the value share in the chain. Although, olive production and processing is one of the largest stream of the revenue, there is almost no budget for production purposes and trees remain unproductive as this was confirmed by MAIL (2018). Moreover, human capital is comparatively less than required and this resulted in the NVAC leasing out big portion of the land as mentioned by (key informant 03).

It was found that the NVAC holds the chain power as lead actor. It may be because of more involvement of the NVAC in the chain and solely producer of the olive oil and pickles in the country. Moreover, it was found that the NVAC olive value chain has many important stakeholders. However, the stakeholders face challenges making difficulties carrying out the respective roles. The most important cross cutting issues are lengthy procedures in procurement of products and services in the chain, such procedures lead to high transaction costs and delay in operations which this is confirmed by the key informant 02. The other two issues were low quality of the produce accompanied with high prices of products.

5.3 Production practices and market channels of the olives

Total production cost was found AFN 105,724.52 for one-hectare olive while the inputs cost was AFN 21,437.37 and labour cost was AFN 53,900.00. It was found that the major cost of production was the cost incurred for labours. It may be due to the existence of traditional and manual practices which this is confirmed by the key informant 01.

Research finding shows that the olive products are sold through three market channels. The longest channel is the channel 2 where a prime wholesaler buys the olive products from the NVAC and sell to wholesalers, retailers and consumers, while the shortest is the channel 3, where consumers buy the olive products direct from the wholesaler as this confirmed by key informant 09.

5.4 Constraints which hindering the current NVAC olive value chain

The findings indicated on Figure 8 shows that the main problem stated by the interviewees was the low quality and low quantity of the olive products in the NVAC olive chain which was due to the low quantity and quality of the olive fruits, improper processing practices and inadequate marketing skills of the NAVC staff.

Poor marketing skills of the NVAC employees, no market promotion activities and marketing research for the olive products, poor relationship with the chain actors, low quality of the olive products, irregular supply of the fruit and the outdated machinery, limited or lack of the budget, improper and limited agricultural practices, pest and diseases, and limited farm equipment, insecurity, existing of land mafia are mentioned the main causes for the main problem as these confirmed by Boudi, et al. (2016) that the major bottlenecks to improve productivity and value addition activities in the developing countries include poor agricultural practice and institutional environment, natural issues, structural, technology, and economic environment (Boudi, et al. 2016).

Considering Table 15, high price of olive products is one of the problems hindering the current chain. This problem seems to be faced by the wholesalers and retailers. However, NVAC did not see that as problem it means that there no good relations among the chain actors and lack of the market research by the NVAC. Also market promotion activities are another problem in the chain and this is because of poor coordination in the chain. NVAC as lead firm has the responsibility to carry out market research and market promotion activities as well as coordination of information within the chain. It shows that, there is no good relations among the chain actors. In the chain, a low quality is seen as problem that is mentioned by the wholesalers, retailers and experts. That also supports the fact that, NVAC is not carrying our market research activities in the chain.

It was found that insecurity is the other major problem. The land covered by olive orchards in Nangarhar province is located in relatively unsecured areas. The presence of insurgency in the areas limits the agricultural activities in the fields which was mainly stated by the survey results and confirmed by the focus group participants and MAIL (2018).

It was found from the analyses of the production of olive products that there is high instability in the production of olive fruits in the farms which has also affected the olive oil and pickle production. The instability is due to poor management control, no budget and lack of inputs for the production purposes in some years, MAIL also found that the olive production is dependent on budget allocation by the government MAIL (2018).

5.5 Opportunities for developing of new olive value chain

Considering Table 16 and Table 17, the availability of donors' support, the private sector's interest, skilled and unskilled human capital, and existence of the olive farms with favourable climate in Nangarhar Province are important opportunities for the olive value chain which this is confirmed by the key informant 01 and 14.

5.6 Key Stakeholders' opinion about new business model

In order to develop the competitive and sustainable olive chain in the Nangarhar province of Afghanistan, experts indicated that there should be involvement of the private sector in the chain especially as chain actors in production, processing and marketing. Also, the involvement should include chain supporters such as banks or financial institutes and NGOs. Moreover, there should be support for marketing of olive products as mentioned by key informant 06, 07, 08, 10 and 11 which confirm the survey results and focus group discussion.

In addition, public private partnership which is a long-term contractual agreement between public and private sectors was recommended as new business model by key informant 01, 14 and FGD participants. The PPP particularly targeting key activities and services. Both parties are agreed upon certain recourses, risks, and returns. This finding agrees with the recommendation of MAIL (2017) about NVAC olive chain.

5.7 Farmers' opinion on new value chain development

Analyses shown that majority of the surveyed farmers were interested to lease in the NVAC land. While, table 19 result shows that there is no correlation between level of interest in leasing in the NVAC land and the age, level of education and monthly income of the farmers. This may imply that age, education level and monthly income of the farmers don't have influence on the interest for leasing in the NVAC land ($p=0.714$). it implies that the age, level of education and level of monthly income are not barriers to lease in the NVAC land for olive production.

Result shows in Table 17 that there is no correlation between prior experience in the NVAC land lease and age, and level of education. Age and level of education don't have influence on the prior experience of the NVAC land lease for the olive production. This is an opportunity for the NVAC to convince the farmers and a private sector to participate in land lease sensitisation campaign.

The reasons giving by the key informants and the survey results all indicate that insecurity is a key issue that demotivate the private sector to participate in the land lease and produce in the production of olives. There are several other reasons that were mentioned by both the key informants and the survey results, such as too short duration of the contracts which also demotivate farmers in lease in of land since olive is a long term investment which requires long term lease.

As indicated in Figure 10 that majority of the farmers had prior experience in the NVAC land lease is an indication that it is quiet easier for NVAC to attract farmers to participate in the land lease. While, Table 20 shows that there is no correlation between prior experience in the NVAC land lease, this also confirms the above findings that age and level of education not influence the farmers' decision to lease in the NVAC land.

With regards to the purpose of lease of the NVAC land by the farmers, Figure 11 indicates that, majority of the farmers very interested in leasing the land for mix cropping system such as olive and cereal production and this implies that farmers willing to utilize efficiently the NVAC land as this is confirm by Kemal-ur-Rahim (2003) that a combination of the horticultural and perennial crops will make a horticulture-based farming system economically diverse, nutritionally balanced, and environmentally sustainable. The result also shows that at least there are some farmers who are interested to lease in the land purposively for olive production.

It was found that farmers are willing to produce olive fruits and stated that they want to sell their olive fruits to NVAC olive processing factory. This implies that there is no market availability for olives' fresh fruit

and on the other hands, there is no any other olive processing factory in the country. Therefore, the NVAC olive processing factory is the only factory which process the olives. That explains that why many farmers were willing to lease in the NVAC land for olive production.

The survey results in Figure 13 revealed that many of the farmers indicated that the contract duration should be more than 5 years to enable them to have maximum use of the land resources. As this was also emphasized by the focus group discussion, however, these statements of the farmers were in contradiction to the key informant 01 who indicated that the state government decree of leasing land is 5 years' maximum which is not in conformity with the article 64 of the Land Management Law of the state government.

The findings indicate that there is a conflict between the farmers' interest and the current administration due to the presidential decree which mandates that the NVAC land should be lease in just for 1-5 years' duration which is not favorable for perennial crops production such as olive.

Table 18 also revealed that there is correlation between contract duration of the NVAC land lease and the age of the farmers. It implies that, the expectation of different age groups varies in terms of wishes in contract duration. Moreover, the duration of land lease contract has no correlation with the monthly income and level of education of the farmers.

Data shows that the majority of the farmers want to lease the NVAC land of more than 5 ha and this may imply that size of the farm is important factor for large production. Farmers may know that, small piece of land increases the unit cost and won't have much return compare to the bigger size farm. Furthermore, buyers/processors want to reduce the transaction costs and reduce the waste of time, they are looking for big suppliers, therefore, the producers can unite in the groups and other forms to sell their products on buyers (Schmitz, 2005).

Table 21 indicates that there is no correlation between age of farmers and size of the farm. It means that NVAC, lease out land to farmers, there is no need to take into consideration the age group because age does not influence how much land is required for production. The findings also indicate that there is however a correlation between the farm size required for production and the level of education as well as the monthly income of the farmers.

Moreover, due to the lack of production budget by the government, the NVAC needs to encourage the private sector to invest in the olive production as mentioned by TLO (2019), that without significant investment in the olive production, any singular investment will face with problems and this observation was confirmed by key informants 01, 04 and 05.

The findings indicate that majority of farmers who were willing to expand the olive production business by increasing the production area. Since there is no correlation between age and level of education it means that many farmers can participate in expansion of the business.

The research found that farmers have expectations that NVAC should provide in the order such as technical support, marketing and capacity building. However, some farmers expect NVAC to provide all the three supports. Moreover, the research did not find correlation between age, level of education and monthly income of the farmers and the kind of support they expect the NVAC to provide. These findings are in line with that of Schmitz (2005), that such supports as mentioned above are necessary to keep the good relationships between producers and processors (Schmitz, 2005). Furthermore, the support is essential to

help producers improve upon product quality and production. In addition, Tahir and Anwar (2016) stated that more efforts are required since very little efforts have been made for product development, supply chain, consumer preferences, demand and marketing prospects for local and regional markets in Afghanistan (Tahir and Anwar, 2016).

5.8 Focus Group Discussion on new value chain development

Focus group discussion findings show that, involvement of the private sector in the NVAC olive value chain is important. Particularly, the discussion valued the public private partnership as new business model. The main reasons recommended by the participants for inclusion of private sector were that it has more sustainability compare to the other business models. Partnership with government increases the efficiency in the production and processing as stated by Kyei and Chan (2015), that governments across the world are increasingly adopting PPP policy to bridge the huge infrastructural gaps. The discussion also emphasizes on the participation of the local people in production and to tackle the security challenges in the pace of olive production as stated by MAIL (2018). Therefore, public private partnership contracts would include local participation.

Moreover, the government can provide support to the private sector such as giving subsidy in the land lease and marketing support in the first few years as confirmed by Consultation and Research Institute (2018). They stated that access to international and domestic markets can be supported by strategies and the contribution of international donors and private sector. It promotes sector development through direct financing and project implementation.

REFLECTION

Reflection as Researcher

In order to fulfill the requirement for the master degree here in VHL, students are required to carry out a research and field work under the supervision of assigned supervisor. Therefore, I was required to carry out my research and conduct a data collection in my country (Afghanistan) for the period of six weeks.

My research works started with developing my research plan and approval by supervisor and assessor. I had several consultation meetings with my supervisor to receive his feedback on various section of my plan particularly on research topic, objectives, research questions, methodology, interview checklists and questionnaire. Before I left for my country for data collection, I had a pre-test of my interview checklist and survey questionnaire via telephone in order to know whether my interview checklists and survey questions answer my research questions and are prepared according to the research objectives or not.

Though my supervisor was on summer holidays, I had found him very cooperative and easily accessible. I had contacted him several times with WhatsApp, mobile phone and emails which I got on time reply and feedback which helped me to properly finish my field work.

My role as researcher with good institutional memory and prior experience as director general of the organization, it enabled me to choose a topic for this research. Thereafter, applying the research concepts learnt from lecturers, coaches as well as my classmates enabled me to develop my concepts on the topic, dimensions and indicators as well as its operationalization. In addition, my experience from the Mini Research and Mini Theses actually gave me an insight to the requirements to desk study and primary data collection.

Conducting the Research

On the third day of arrival in my country, I met the NVAC CEO and related to him the purpose of my research and my field work. The targeted respondents from the NVAC were informed by the CEO as well as the chain actors to facilitate my field work. I started my field work with the introductory meeting with the CEO following by an interviewing him as policy maker. Based on my request to the CEO, he instructed his staff to cooperate as interviewees and some of them were made to help me in data collection. Also the other stakeholders were informed and thereafter invited them to a single venue for an interview. This made my field work quiet easy.

After I finished my interviews and farmers' opinion survey, I started the data organization. This helped me to set the Focus Group Discussion topic and main points to be discussed during the Focus Group Discussion. The NVAC CEO facilitated FGD in the NVAC compound. He also provided snacks and drinks for the participants.

Due to the strong cooperation of my supervisor and the targeted respondents in my country, I was able to reach every respondent and collect the required data according to the planned schedule. Moreover, I had a good opportunity to complete the farmers' opinion survey in a short period that, NVAC had a bidding on the land lease to the farmers. A couple hundreds farmers were already present in the NVAC compound for several days. I took the advantages of that to interview the farmers. I was able to survey many farmers in the NVAC compound without having to visit them individually in remote districts.

Report of my theses research

Putting together the report has been a huge task, however with the constructive feedback and criticism of my supervisor which I always incorporated have been of enormous relevance to me.

CHAPTER 6 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

1. NVAC is government owned company and not yet as self-regulating and self-determining company. As government owned company, decision making approach is characterized as bottom-up and lengthy process. Donors are the main partner of the NVAC.

2. Lease of land and sell of the olive products are the main streams of revenue. While, the cost structure shows that most of the cost goes to the staff salaries and production.

3. The olive value chain has many important stakeholders but face several challenges which hinder their functions in the chain.

4. NVAC holds the chain power as lead actor and the sole producer of the olive oil and pickles in the country.

5. NVAC carry out various activities including olive production and processing. Its key resources are agricultural land with adequate water. However, NVAC's main deficiencies in the resources are, budget, human capital and farm machinery, instability in the production due to improper and limited agricultural practices and poor management.

6. Most of the production practices are performed manually. Irrigation, ploughing, pruning, pest and disease control and fruit harvesting are the main production practices.

7. The olive products are sold through three market channels. The longest channel is the channel 2 where a prime wholesaler buys the olive products from the NVAC and sell to wholesalers, retailers and consumers, while the shortest is the channel 3, where consumers buy the olive products direct from the wholesaler.

8. The main problem was the low quality and low quantity of the olive products in the olive value chain which was due to low quantity and quality of the olive fruits, improper processing practices and inadequate marketing skills of the NAVC staff. Apart from that, there are some cross cutting issues such as lengthy procedures in procurement of products and services and high prices of the products, poor relations in the chain due to poor coordination by the lead actors, insecurity in the production area limiting the agriculture activities, leading to instability in the production.

9. Availability of donors' support, the private sector's interest, skilled and unskilled human resources, existence of the olive farms and favourable climate in Nangarhar Province are important opportunities for the olive value chain.

10. The proposed value chain for the NVAC now involves the private sector in all levels of the chain particularly in production, processing and marketing under the Public Private Partnership business model.

11. Majority of the surveyed farmers were interested to lease in the NVAC olive farms for olive and cereal production together. However, there was no correlation between interest the of famers and age, education, monthly income and prior experience for the NVAC land lease.

12. Majority of the farmers were willing to sell the produced olive fruits to NVAC olive processing factory rather than to process or establish their own processing factory.

13. Most of the surveyed farmers were willing that the lease contract duration should be more than 5 years and the farm size be more than 5 hectares.

14. Majority of the farmers had financial capabilities to participate in the olive production and willing to expand the olive production business by increasing the production area. In addition, majority of the farmers were expecting to receive the marketing, capacity building and technical support from the NVAC.

15. Insecurity, too short duration of the land lease contract, and unpredicted changes in the land lease contract by the government are the main reasons which discouraged the private sector and farmers from participating in the NVAC land lease for olive production. It is suggested that local farmers can better manage to tackle the security challenges in the olive production area and can have active participation in the production.

6.2 Recommendations

The following recommendations are made to the Ministry of Agriculture and NVAC for implementation to address the development of new value chain for the sustainable production of the NVAC olives.

Organization the new value chain

1. NVAC set out and invite expressions of interest from private sector for investment in production, processing and marketing.
2. NVAC conducts regular market research and promotion to create better relationships with the chain actors, find out the bottlenecks in the chain
3. Shortening the market channel to help reduce the consumer prices. See Figure 18.

New business model

Public Private Partnership (PPP) is recommended as long-term contractual agreement between the NVAC and a private sector particularly in production of the olives, processing and marketing of the final products in domestic markets. NVAC and private sector agree upon certain resources, risks and returns.
Under this contract, the NVAC and private sector design performance standards. The NVAC provides land, irrigation water, and the processing factory to the private sector to invest. NVAC contributes certain amount in terms of loan, credit, in-kind support and grant. On the other hand, the private sector is responsible for delivering entire services such as, operation, management, renovation, improvement and maintenance.
Why Public Private Partnership (PPP): This model will tackle the problems which include low production, low quality, lack of budget, lack of machinery and insecurity in the production area. Moreover, such partnership will make proper use of resources to increase production, processing, improve the quality of final products, manage the insecurity, create employment for local people, and increase revenue.

Land lease contract

1. Increase the land lease contract duration which was one of the reasons for farmers not interested to participate in the olive production
2. Viable contract with NVAC clearly showing areas of responsibility of the parties and showing the ability of the investors to invest
3. Right of lease renewal which will help with private sector to have the opportunity for long term investment in the business

Support from the government

1. Provide technical support to the private sector which will be the capacity building and import of new technology. This will help to reduce the production cost and increase the quality of olive products.
2. Provide marketing support to the private sector to encourage participation in the production and processing.
3. Provide subsidies to the private sector as encouragement such as VAT exemptions, tax relief, discount in the electricity charges, and in kind contribution such as office buildings and provide

security, contract security, crop insurance and subsidy, membership with the IOOC, increase Tariff to discourage the importation of olive products from abroad.

4. Establish attractive terms and conditions for the entry of private sector.

Further researches should be carried out to understand the modalities of the PPP implementation in the NVAC.

NVAC new olive value chain map

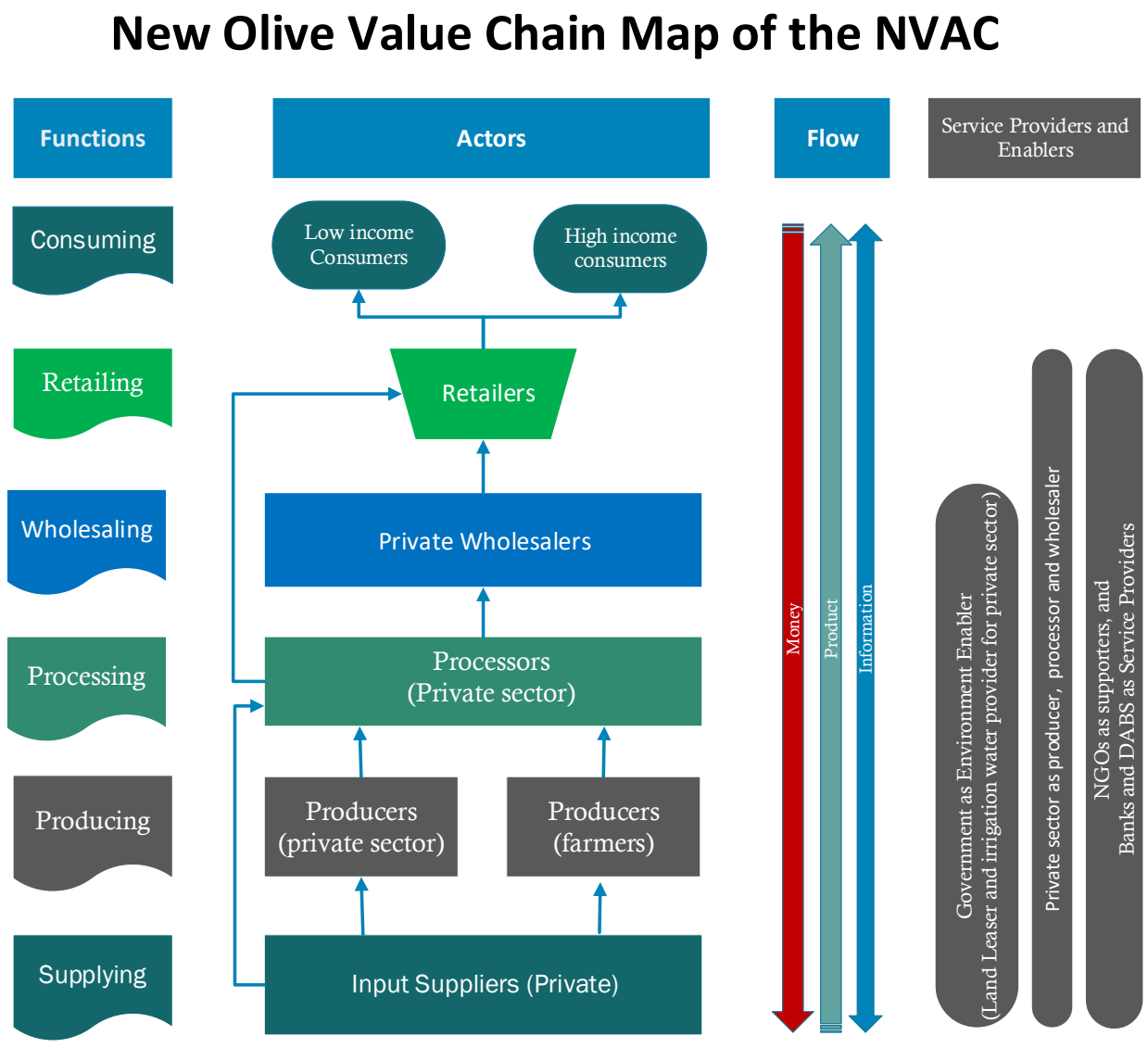


Figure 18: Proposed new chain for the NVAC olive value chain

New Value Chain Sustainability

Economic

The NVAC new olive value chain will increase the production capacity by 5-6 folds and will reach to the full potential. Due to the lack of budget and human resources, NVAC manages only 200-300-hectare olive farms and not capable for managing all 1,800 hectares' olive farms. Consequently, this will increase the economic generation opportunities. Furthermore, this supports the growth of market through value addition to the products and increase of the quality and quantity due to the market research, good relations with the chain actors, market promotion activities and price control.
The new value chain helps to equally distribute the value share among the chain actors as this is indicated in Table 6 that NVAC gets 79% of the total value while other chain actors receive only 21% of the value shares.

Environment

New value chain will reduce harmful activities to the planet through proper production, post-harvest activities and proper use of resources such as land, water and inputs. This will be achieved by hiring of skilled and experienced staff and import of advance technology. Moreover, new value chain increase number of olive trees in the contracted land as indicated in Figure 16, that farmers would like to increase the business and plant more trees in the contracted land.

Social

New value chain creates more job opportunities particularly to the residents of the area. More people will be involved in the production, processing and marketing and other relevant activities of the chain such as transportation, supply of inputs and other services. Staff will be paid with good salary compare to the current one. Consumers will get healthy and quality products with reasonable prices. Moreover, more women will have opportunity to be involved in the chain activities particularly in processing and marketing the products. furthermore, farmers will play a vital role in the stability to mitigate the insecurity in the area.

Institutional

Establishment of attractive terms and conditions for the entry of private sector helps with sustainable value chain. Recent changes in the legal status of the NVDA to the NVAC which help to involve the private sector in production, processing and marketing. Increase Tariff on import of agricultural products particularly for those items which produces inside the country. VAT exemptions, tax relief, discount in the electricity charges will be other attractive bonuses to the private sector.

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Appendices

Appendix 1; Interview Checklist

CHECKLIST FOR NVAC CHIEF EXECUTIVE OFFICER

1. Introduction and background of the interviewee
2. Overall brief on NVAC particularly on olive section
3. What are the NVAC strengths/capacity in relation to the olive section?
4. Who are the stakeholders and supporters in the NVAC olive value chain in a regional/country level?
5. Who are the supporters of the NVAC?
6. What are the profits you gained from the olive production?
7. Do you have enough budget for the production and processing of olives?
8. Do you have any quality schemes/license for the NVAC olive production and marketing?
9. Do you have any quality control over on NVAC olive products for quality assurance?
10. What are the main issues and problems in the NVAC current olive value chain?
11. Does the private sector involve in the olive production, processing and marketing?
12. Do you have any specific future plan for the quality improvement of the olive section?
13. Do you involve the women in production, processing and marketing the olives?
14. Do you have any policy or strategy in place for the improvement of the olive section?
15. What opportunities you see for the future improvement and development of NVAC olive section
16. What main challenges that you are facing with in order to improve and develop the NVAC olive section
17. What do you think on the inclusion of private sector in the olive section?
18. What are the problems of the private sector with NVAC in the past?
19. What is your opinion on the participation of private farmers in the production olives?
20. What will be the factors to include private farmers in the olive production?
21. What will be the appropriate business plan for NVAC olive section?
22. Any other comments

CHECKLIST FOR THE CHAIN ACTORS

1. INPUT SUPPLIERS-PRIVATE

1. What is your background and past experience of procurement with NVAC?
2. Do you sell/supply the inputs to NVAC?
3. What types of the inputs/equipment you supply to the NVAC?
4. What values you are adding to the inputs and getting the shares from it?
5. What are the other services providing to the NVAC staff, e.g. training on application of inputs?
6. What procedures you follow to sell/contract the inputs/equipment to the NVAC?
7. What time you supply the inputs to the NVAC (seasonal or needed base)?
8. What are the main challenges and problems with supply of inputs to the NVAC?
9. What recommendations you are giving for the improvement of the NVAC procurement system in future?

2. PRODUCERS-NVAC STAFF

1. What is the source of buying the olive saplings (own production or get from the market/nurseries)?
2. What type of the inputs (fertilizer/nutrients, chemicals) you provided to the olive trees?
3. What type of agricultural practices are required for the olive trees' management?
4. What Agricultural practices are you performing for the olive trees?
5. How much labour is required for management of one ha olive orchards?
6. How much labour is currently available for the NVAC olives management?
7. How do you perform the agricultural practices (by labours or machines)?
8. Which costs are incurred in the production of the olive fruits?
9. What values are you adding to the products before to supply to the factory?
10. What is the value share you received in the chain?
11. What is the annual production/capacity per tree or per ha land with (KG)?
12. How many trees are in one-hectare land (initial plantation and currently existing)?
13. What methods are you using for the fruits harvesting (machine or labor)?
14. How many KG fruits one labour can collect/harvest in one day?
15. Season of fruit harvest for oil and pickles (start and end/months)?
16. Methods of the fruits' transfer to the factory (boxes, bags)?
17. What time you transfer the fruits from the farms to the factory (daily, after each day, weekly)?
18. What is your opinion about leasing out the olive farms to the private farmers?
19. What are the main challenges and opportunities for growing the olive trees, management and harvesting?

3. PROCESSORS-NVAC STAFF

1. What was the initial and current annual capacity of the factory per metric ton?
2. What type of the products you process in the factory?
3. From which source you are getting the fruits?
4. Where do you sell the olive products that produced in the factory?
5. Do you have any quality standards/schemes that used for the olive products?
6. What value you add to the olive products and what is your share?
7. What is the cost of processing the olive products and price of selling?
8. What type of the containers you are using for the packing of the products (Glass bottles, Plastic bottles, metal canes)?
9. What is the oil ratio/percentage that extract from the olive fruits?
10. What is the time-gap between the receiving and processing of fruits from the farms?
11. What is the quality of your products that produce in the factory (olive oil category)?
12. Do you have enough operational budget/investment capital and human resources for the factory operations?
13. What are the main challenges and opportunities of the processing of olives in the factory?
14. What will be the appropriate business model for the successful processing of the olive products?

4. MARKETERS-NVAC STAFF

1. Who are involved in the processing and marketing the NVAC olive products?
2. What type of the NVAC olive products that sold in the market?
3. Who are the main customers to buy the olive product from NVAC (wholesalers, retailers or consumers)?
4. Where NVAC sell its olive products (local markets, national markets or international markets)?
5. Does NVAC export the NVAC olive products?
6. What procedures NVAC follow to sell the and supply the products to the market (open bid, contract, direct supply)?
7. What value NVAC adding to the olive products?
8. How much profit/value shares NVAC gets from the olive products?
9. What quality and quantity of the olive products NVAC sells in the market?
10. Any quality assurance certificates NVAC do have?
11. Any mechanism for the price and quality control existing for the NVAC olive products in the market?
12. What are the policies in place to allow the wholesalers to sell the NVAC olive products with their own brand/names?
13. Who are the main competitors in the market?
14. What are the market and costumers' expectations for the NVAC olive products?
15. What are the future plans/quality improvement and marketing promotion for the NVAC olive product?
16. What will be the appropriate business model for the sustainable and feasible production, processing and marketing the olives?
17. What are the challenges and opportunities for the olives production improvement and meeting the market requirements?

5. WHOLESALER-PRIVATE

1. What type of the olive products you receive from the NVAC?
2. Any other olive products you sell to the retailers/consumers?
3. What is the source of products you get from (from NVAC wholesaler or direct from the factory)?
4. Where do you sell the NVAC olive product (local, domestic, regional or international markets)?
5. What quantity of the products that you get from the NVAC (bulk quantity)?
6. What is the price that you get the product from the NVAC?
7. What is the price that you sell the products to the retailers/ consumers?
8. What value you are adding to the products before selling to the retailers/consumers?
9. What is the benefit and value share you get from the chain?
10. What is the legal procedures/regulations that you follow to get the NVAC products (open bid, contract, direct supply)?
11. What is the mode of supply by NVAC to the market (how often? Regular or needed based)?
12. What are the customer expectations from the NVAC olive products in the domestic market (demand and willingness)?
13. What are the quality control mechanism in the market that perform by the NVAC or other party?
14. What are the consumer opinion about the quality of NVAC olive products and imported olive products?
15. How do you compare the NVAC olive products with the imported olive products (quality and prices)?
16. What are the main challenges/opportunities you are thinking about the NVAC olive products in the market?
17. Any idea for the improvement of NVAC product and marketing development in the future?

6. RETAILERS-PRIVATE

1. What type of the product you sell in the shops?
2. What is the source of the NVAC olive products you get from (wholesaler, direct from NVAC shops)?
3. What is the price you buy the NVAC olive products from the wholesalers?
4. What is the retailing price that you sell the NVAC olive products to the consumers?
5. What values you are adding to the products before you sell it to the consumers?
6. What are the benefits and value shares you get in the chain?
7. What are the main consumers of the NVAC olive products that buy from you (restaurants, individuals)?
8. What are the current market and consumer expectation for the NVAC olive products (increasing or decreasing)?
9. What is the mode of delivery that the wholesalers supply the products for you (how often? regular supply or needed base)?
10. How you compare the NVAC olive products with the imported olive products (demand, quality and prices)?
11. Is there any quality control mechanism in place by the NVAC and other party (inspection by quality control department)?
12. What are the main challenges/opportunities in the retailing of the NVAC olive products?
13. What is your overall opinion and feedback on the NVAC olive products and your thoughts for its further improvement?

7. CHECKLIST FOR POLICY MAKERS

1. Background of the interviewee
2. Any policy in place for the development of olive sector on the country level?
3. Any specific policy in place for the improvement of the NVAC olive production/marketing?
4. Any policy in place for the inclusion of private sector to invest in NVAC?
5. How much of the policies have been implemented and what was the effect?
6. How much the policies and bi-laws implementations effected the NVAC olive section/increased the production, quality, quantity, profit or facilitated any activity?
7. What are the main issues that hindering implementation the policies for NVAC?
8. What will be most appropriate business model for the NVAC olive section?
9. What is your opinion on the inclusion of private farmers in the NVAC olive production?
10. What are the future plans for improvement of the NVAC particularly the olive section?

8. CHECKLIST FOR SUPPORTERS

1. Background of the interviewee
2. What supports do you provide to overall NVAC improvement?
3. Specific support you provided to NVAC olive production/marketing (financial, institutional or human)?
4. Did your support make some effects/changes for the improvement of NVAC olive section (quantity, quality and revenues or profit)?
5. Do you have any future plan for supporting of NVAC olive section?
6. What are the main challenges regarding your support the NVAC olive section?
7. Any other thoughts about NVAC olive section?

9. CHECKLIST FOR EXPERTS

1. Background of the interviewee
2. Knowledge about NVAC particularly on the olive section
3. How do you perceive the NVAC olive production system?
4. How do you see the effectiveness of the policies, laws and bi-law implementation for the improvement of NVAC olive section?
5. What are the main problems in the current olive value chain of the NVAC?
6. What are the main challenges to the NVAC olive section?
7. What are the opportunities for improvement of the NVAC olive section?
8. What will be the appropriate business model for the NVAC olive component?
9. How do you see inclusion of the private sector in the NVAC olive production?
10. What are your recommendations for the further improvement of the NVAC olive section?

Appendix 2; Farmers' Opinion Survey

Master Program of Agricultural Production Chain Management(APCM)-Horticulture
Research on "Value Chain Analysis of Afghanistan olive industry for sustainable olive production- A case of Nangarhar province"

Survey Questionnaire

This survey is to determine the farmers' opinion and their willingness for leasing the NVAC olive's farms for producing the commercial olives. Your information would help contribute to the developing of NVAC olive value chain while keeping to the anonymity of your response. **Thank You.**

Please tick (√) the appropriate box

General information:

1. Age: (20-30) ☐ (31-40) ☐ (41-50) ☐ (>51) ☐

2. Level of Education: Primary or High School ☐ Bachelor or Master Degree ☐ Vocational ☐
PhD/Doctoral Degree ☐ don't have Education ☐

3. Level of monthly income (AFN): (<20,000) ☐ (20,001-40,000) ☐ (40,001-60,000) ☐ >60,000 ☐

4. Prior experience with NVAC land leasing: Yes ☐ No ☐

5. If yes, for what purpose you have leased the NVCA land in the past? Fruit production/orchards ☐
Nursery/forest ☐ Crops/cereals ☐ Livestock ☐ Non-Agricultural business ☐

Farmers' Opinion:

6. Are you interested to lease NVAC olive farms? Yes ☐ No ☐

7. If yes, for what purpose you would like to lease it? (*Multiple answers apply*),
Olive production ☐ Cereals and Crops ☐ both ☐

8. if Yes, for what purpose you want to produce the olives in these orchards? I want to:
Sell it on NVAC factory ☐ Make commercial pickles at your home ☐ Established your own factory ☐

9. Where do you want to sell your final product? I want to sell it in: (*Multiple answers apply*)
Local markets ☐ Regional markets ☐ Export it ☐ All ☐

10. In the local market case, how you want to sell it: I want to sell it through: (*Multiple answers apply*)
Your wholesale shop ☐ As bulk on wholesalers ☐ Open your retailing shops ☐ All ☐

11. If no, please describe the reasons, (*Multiple answers apply*),

The contract duration is too short ☐ Many changes happening in the contract by the government ☐ Others ☐
The area is under the influence of insurgents ☐ Olives don't produce enough yield ☐ The processing is an issue ☐

12. How long the contract should last with NVAC? 5-10 years ☐ 11-15 year ☐ 16-20 ☐ >20 years ☐

13. How many hectares' land would you like to lease in? 5-10 ☐ 11-15 ☐ 16-20 ☐ >20 ☐

14. Do you have financial capabilities to properly manage the olive orchards? Yes ☐ No ☐

15. If no, how you want to provide the inputs for olive production?

Do you want to get a loan from the bank? ☐ Do you want to find a shareholder? ☐

16. Would you like to expand the olive farms in the NVAC land? (*Multiple answers apply*):

Do you want to plant more orchards? ☐ Do you want to fill the missing trees? ☐ No ☐

17. Do you need any support from NVAC, if yes, please specify:

Technical/extension ☐ Capacity building ☐ Marketing ☐

18. Do you have any opinion regarding the mentioned matter?

Thank you so much for your participation in this survey.

Appendix 3; Focus Group Discussion

Points for Focus Group Discussion

1. Pros and Cons of the large private companies and small farmers to participate in production, processing and marketing of the NVAC olives?
2. Who can work better in the olive production? Potential and interested farmers or large private companies?
3. Who can manage better the security and local situations in the production area?
    a. Farmers from the nearby areas
    b. Farmers from any part of the country or
    c. Large private companies
4. Who should process the fruits that produced in the farms?
    a. The private sector
    b. The NVAC
    c. The same private company should produce and process the olives or
    d. Different companies should produce and process
5. Who should perform the marketing? Private sector or NVAC?
6. How many years should be the contract duration with the private sector?
7. What are the major factors to encourage the private sector to participate/invest in the production, processing and marketing of the NVAC olive section?

Appendix 4; List of the Key Informants and Chain Actors for Interview

List of the Key Informants and Chain Actors for Interview

Codes	Name of Interviewee	Occupation/Responsibility	Organization/Company	Qualification	Experience	Contact Number/email add
01	Parwez Ali	Chief Executive Officer (CEO) (Policy maker)	Nangarhar Valley Agricultural Corporation (NVAC)	MBA in General Management PhD in Operation management	Has +10 years' experience in management and operations (Investment Promotion and Marketing Director, MoMP Managing Director, Agroindustry Lecturer, Kabul University Jalalabad Water supply and sewerage Director, AUWSS)	parwiz50@gmail.com +93 70 830 0990
02	Sabor Ahmad	Inputs Supplier/Head of the Logistic Company (Chain Actor)	Amir Saeed Logistic Company		15 years' experience of procurement with government departments including NVAC	+93 789 999 158
03	Said Agha Miakhel	Agricultural Farms' Director (Producer, chain actor)	Nangarhar Valley Agricultural Corporation (NVAC)	Bachelor in Agriculture	15 years' experience with national and international NGOs and government organizations Agricultural extension, production, management and operations	saidaghamiakhil80@gmail.com +93 781 313 780
04	Attiqullah	Olive Processing Factory Manager (Processor, chain actor)	Nangarhar Valley Agricultural Corporation (NVAC)	M.Sc. Agriculture	30 years' experience in Olive production and Processing	+93 780 880 867
05	Qudratullah Dawlatzai	Admin and Finance Manager and Marketing Manager (Marketer, chain actor)	Nangarhar Valley Agricultural Corporation (NVAC)	Bachelor in Agriculture	13 years' experience with national and international NGOs and government organizations Agricultural extension, production, management and finance	ateldawlatzai014@gmail.com +93 777 618 266
06	Samiullah	Deputy Head/Buyer of the NVAC products (chain actor)	Yasir Jawad Logistic Company		15 years' experience of procurement with government departments including NVAC	+93 786 004 638

07	Ismail	Head of Wholesaling/ wholesaler of the NVAC products (chain actor)	Romal Quraishi Wholesaling			+93 770 028 000
08	Abdul Satar,	Head of General Store/ Retailer of the NVAC products (chain actor)	Kunar General Store , Jalalabad			+93 700 601 852
09	Najib Shirzad	Manager (Retailer, chain actor)	Hijaz Super Market			+93 777 602 673
10	Shir Alam Amlawal	1. Lecturer and Writer 2. Ex. Director (Expert, University Professor)	1. Rokhan University, Ariana University and Al-Taqwa University 2. Industries and Commerce, Nangarhar Province	M.Sc. in Political Science	6 years' work experience with Industrial and Commerce Dept. writer of 13 books such as Text Books, Research Books and Political Books Lecturer in Rokhan University, Ariana University and Al-Taqwa University	amlawal2013@yahoo.com +93 788 536 373
11	Mohammad Qasim Yousufi	• Deputy Head • Factory Ex. Manager (Private sector rep. & national expert)	• Nangarhar Chamber of Industries and Mines, NGR • NVAC olive processing factory	M.Sc. in Chemical Technology	35 years' experience in management, operations, processing and leading the company. NVAC Olive processing factory manager in 1985-2007 He has own oil production mill in Nangarhar province	qasim_yousufi@yahoo.com +93 780 140 140 +93 799 210 600
12	Sayed Maqsood Hashimi	Project Director (Supporter)	NVDA/ADB project (Nangarhar Valley Development Authority (NVDA)) Project funding by ADB	Master of Business Administration with Major in General Management	15 years' experience as Project Manager with National Institutional Building Project (NIBP) funded by UNDP, worked in operations with several UN organizations such as UNHCR, UNAMA, UNWFP & UNICEF from 2002 to 2009. As Project Director of Financing the Retirement Process with World Bank, as Capacity Building Manager with Agriculture and MRRD projects	maqsood.hashimi@mail.gov.af +93 786 498 384

					and 5 years' experience in this position	
13	Abdul Ahmad Loqmani	Manager (Policy Maker)	On Farm Water Management (OFWM) and Irrigation Associations (AIs), PARBSP-ADB-MAIL, Funding by ADB	Bachelor in Engineering (Civil Engineer)	Overall 30 years' experience, as deputy general director of NVAC 2002-2007, acting general director of NVAC in 2007-2009, and 8 years' experience with this position	ahmad.loqmani@mail.gov.af +93 799344698
	Mirwais Khogiani, with	Agriculture Coordinator (Policy Maker)	IFAD-SNAP2 project-MAIL	M.Sc in Agriculture	Overall 15 years' experience, as Plant Protection Advisor with MAIL in 2005-2010, as Research Change Management Specialist with MAIL in 2012-2017, and 2 years' experience with this position	mirwais.khogiani@mail.gov.af +93 700 247 466 +93 799 269 683
	Ahmad Shah Safi	Policy and Legal Coordinator (Policy Maker)	Policy Analysis and Legal Advisory Department (PALAD), MAIL	M.Sc in Public Law /Master in Public Policy and administration	7 years' experience with this position in MAIL	ahmad.safi786@gmail.com +93 788 254 576
14	Saidajan Attiq Abdiani	Associate professor and Dean of the Agriculture Faculty (Expert)	Nangarhar University	M.Sc. Agriculture	30 years' experience in the field of Teaching, Research and Extension	saidajanattiq.abdiani@gmail.com +93 (0) 700 601 824 +93 (0) 782 000 551
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Appendix 5; List of the Focus Group Discussion Participants

Focus Group Discussion Participants

No.	Name	Designation	Organization/ Company	Email Address	Contact Number
1	Said Agha	Agricultural Farms' Director	Nangarhar Valley Agricultural Corporation (NVAC)	saidaghamiakhil80@gmail.com	+93 781 313 780
2	Attiqullah	Olive Processing Factory Manager	Nangarhar Valley Agricultural Corporation (NVAC)		+93 780 880 867
3	Qudratullah Dawlatzai	Admin and Finance Manager and Marketing Manager	Nangarhar Valley Agricultural Corporation (NVAC)	ateldawlatzai014@gmail.com	+93 777 618 266
4	Samiullah	Deputy Head/Buyer of the NVAC products	Yasir Jawad Logistic Company		+93 786 004 638
5	Parwez Ali	Chief Executive Officer (CEO)	Nangarhar Valley Agricultural Corporation (NVAC)	parwiz50@gmail.com	+93 70 830 0990
6	Rahmat Gul Serat	Regional Coordinator as Expert	National Horticultural and Livestock Project (NHLP), MAIL	rahmat.serat@yahoo.com	+93 789 140 140
7	Munsif Noorani	Provincial Agricultural Expert	Governor Office, Laghman	munsif_noorani@yahoo.com	+93 772 018 026
8	Hakimuddin Omerkhel	Contract Advisor as Expert	Nangarhar Valley Agricultural Corporation (NVAC)	hakimuddinmoarkhil@gmail.com	+93 700 601 617
9	Abdul Basir Farooqi	YFASC officer	Private Sector Department of NGR	saidwasiqsadat@gmail.com	+93 782 113 285
10	Mohammad Qasim Yousufi	Deputy Head Ex. Manager of the olive processing factory	Nangarhar Chamber of Industries and Mines Director of Khalis Cooking oil company	qasim_yousufi@yahoo.com	+93 780 140 140 +93 799 210 600
11	Mohammad Samim	R.C Expert as government representative	Provincial Governor Office, Nangarhar	samimkarimzai@gmail.com	+93 777 668 046
12	Haji Said Hassan	Deputy Head and Progressive Farmer	Nangarhar Bees Association (NBA)		+93 774 591 438
13	Haji Tanadar	Private Farmer			+93 700 607 868
14	Mohammad Amin Sharifi	Branch Manager	Agricultural Development Fund (ADF)	Mohammadamin_sharif@adf-af.org	+93 783 532 684
15	Akbar Hussain Mirza	Agricultural Advisor and Entrepreneur as gov. rep.	Provincial Governor Office, Nangarhar	mirzawmm@gmail.com	+93 700 002 071

Appendix 6; Photos of the filed work

Interview with the NVAC CEO (key informant

Interview with input supplier (key informant 02)

Interview with the farms' director of the NVAC as producer (key informant 03)

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Interview with olive processing factory manage (key informant 04)

Interview with Admin and Finance Manager and Marketing Manager (key informant 05)

Interview with wholesaler (key informant 06)

Interview with retailer (key informant 08)

Interview with Expert (key informant 10)

Interview with Expert (key informant 14)

Farmers opinion survey

Focus Group Discussion on new value chain and business model

Picture of the NVAC olive processing factory, the pickle production plan

Picture shows unloading the olive fruits which shifted from the farms to the factory

Picture shows bottle filling process of pickles-manual practices

Picture shows the olive oil extraction process