WOMEN IN HIGH-VALUE AGRICULTURE: CHANGING GENDER ROLES IN LARGE CARDAMOM VALUE CHAIN IN EASTERN NEPAL

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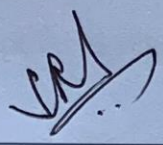

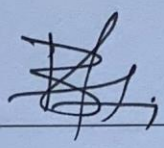

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ABSTRACT

The agriculture sector in Nepal is making a gradual shift from traditional and subsistence to commercial farming of High-value Agriculture (HVA) crops. Farmer's attraction to HVA crops is linked to recent developments in agricultural value chains, improved access to the market and enabling government policies. But the contemporary literature do not speak much on the nexus among HVA, gender and the market. The purpose of this study is to delve in-depth in this nexus. Specifically, this study focuses on the relationship between HVA and the resilient livelihood of farmers, division of roles and the capabilities linkages, HVA and the gender relations, and access to world markets for Nepali HVA products. This study attempts to probe these issues focusing on 'large cardamom' (*Amomum subulatum* Roxb.), a prime export-led HVA product of Nepal.

I used the Capabilities Approach and Value Chain Analysis framework as overarching study frameworks. I used the Capabilities Approach to analyse how farming HVA crops influences both the choice of roles and roles related to the freedoms of women. For this, I adapted capabilities indicators suggested by Robeyns (2003,

2017). I followed Quandt (2018), Meuwissen et al. (2019) to assess the livelihood resilience of farmers. I used the Value Chain Analysis framework to map and interpret gender division of roles across the value chain. For this, I adapted the indicators suggested by Haggblade et al. (2012) and Farnworth (2011). In addition, I followed Ahmed et al. (2018) to analyse the influence of HVA on gender relations, and Trienekens (2011) to analyse market access constraints. I developed the conceptual framework of this research from a thorough review of evidence, concepts and theories, and policies regarding this topic.

I applied qualitative-led embedded mix-method research design for data collection and analysis. I collected data from Rong of Ilam district and Birtamod of Jhapa district. For qualitative data, I conducted in-depth interviews (IDIs-56), interviews with stakeholders (23), focus group discussions (FGDs-4), case story documentation (10) and field observation. I prepared a separate checklist for each technique. For quantitative data, I conducted surveys in 512 households. I prepared separate questionnaires for male and female individuals from the same household. I did thematic analysis for the interpretation of qualitative data. I also used the Statistical Package for Social Science (SPSS) technique for descriptive analysis of quantitative data. I then integrated qualitative and quantitative analysis to derive findings.

My first findings reveal that large cardamom contributes to financial asset building of farmers at the start and then enhances other livelihood assets. These assets then reinforce each other to make a shift in the livelihood of farmers. Large cardamom provides comparative advantages to other HVA crops for several reasons. It is a perennial crop with long product life, there is easy availability of inputs, first level of value addition can be done locally, it can be traded at any time, and it offers a high price in comparison to alternative HVA crops. At the time of risks, farmers' spontaneous adaptive responses include mobilisation of financial resource, crop diversification, changing employment conditions, and switching to non-farm jobs.

My second findings demonstrate that the division of roles is less gendered at production and more gendered in post-production nodes in the large cardamom value chain. Though roles are less gendered in production nodes, women have lower participation in nursery, irrigation, transportation and harvesting, and higher participation in separation of pods, weeding, cleaning, fertilisation, and planting. In

post-production, drying, weighing, and labelling, loading, and unloading are solely done by men, whereas head-and-tail cutting, cleaning, and grading are the preserve of women. In such division of roles, women's capabilities are linked closely.

It was also seen that when women possess similar capabilities to men, the proportion of participation of women in such roles is high and vice versa. In specific, male-dominated roles are those that require physical strength, mobility, knowledge, and skills. Women dominate in roles that require less mobility, high patience, and flexibility in working hours. Women's capabilities and choice of roles are limited by household and care work with limitations for women in production. Due to differing access to role related resources, women's conversion of capabilities into functionings is constrained.

The third findings show that large cardamom has an influential role in changing gender relations. Large cardamom has increased women's access to financial resources which they can invest in family food, purchase of household assets, children's education, health and other areas of their choice. Engagement in large cardamom also provides them space to join groups and take public roles. This enhances their access to information, role related mobility, self-confidence in choice of roles, participation in household and financial decision-making, leadership in taking public roles, and allows them to develop capabilities of their choice.

Enhanced women's capabilities are reflected in changing gender relations. It was noted that men were sharing household and care work. There was increased wage opportunities for women and equality in wages for the same work. This had led to narrowing income gap between spouses. Likewise, there was increased recognition of women's roles as well as increased women's influence in farm, family, and financial decision-making. Women's leadership in public roles is trusted, meaning patriarchal social norms are being flexible.

My fourth findings reveal that there is a narrow scope to access large cardamom market beyond India. Information regarding the size of market in the countries of Middle East and industrialised countries for Nepali large cardamom is not clear. Reaching the world market is also difficult because of strict food quality standards, high tax and tariffs, complex procedure, and high dependence on Indian transportation infrastructures. In this context, India provides a reliable market for large cardamom as

Nepali traders are familiar with export requirements to India, an enabling environment for customs clearance, cultural ties among the traders and ease in communication. There is high scope for large cardamom in domestic market by substituting the existing users of green cardamom.

These findings lead to the following conclusions. First, the commercial farming of large cardamom and other HVA crops contribute to building resilient livelihoods of farmers. Second, the existence of less-gendered roles in production nodes of agricultural value chains is the result of women's possession of similar capabilities as men. Likewise, the existence of gendered roles in post-production nodes of agricultural value chains is the function of women's possession of differing capabilities to men. Third, the changing of gender relations correspond to women's enhanced capabilities from their engagement in large cardamom and other HVA crops. Such changes indicate the progress on women's economic empowerment. Fourth, leaving land-locked context, export market diversification is challenging because of complicated import procedures, high-tax and tariffs, poor infrastructures, and the Indian interest play influential role.

Finally, this study contributes to the existing knowledge, policies, provides practical suggestions, and opens avenue for future research. To strengthen farmers' adaptive capacity against climate and market uncertainties, spontaneous response is not enough. So, a planned adaptation in support from institutions is suggested. I reaffirm that government policy of commercialisation of HVA has positive contribution to reducing male outmigration and optimum utilisation of available land. In practice, policies in practice have yet to address the issues of small women farmers' issues linked to extension services. A separate market study for large cardamom market is suggested to resolve current ambiguity on market diversification. The capabilities approach provides suitable analytical framework to assess gender inequalities in the agricultural value chains. A future scope for the research can be exploring the role of women's collective capabilities in analysing gender inequality in the agriculture.

APPROVAL OF THE THESIS

Thesis of Sushant Acharya presented to the School of Arts Public Defence on July 30, 2023.

Title: Women in High-value Agriculture: Changing Gender Roles in Large Cardamom Value Chain in Eastern Nepal.

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DEDICATION

This thesis is dedicated to my mother and father who dreamed of me having the opportunity to do this degree, and to my research participants who provided their valuable time and information.

DECLARATION

I hereby declare that this thesis has not been submitted for candidature for any other degree.

I understand that my thesis will become part of the permanent collection of Kathmandu University Library. My signature below authorises the release of my thesis to any reader upon request.

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Sushant Acharya Date: July, 2023

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Sushant Acharya

July, 2023

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

ADS	Agriculture Development Strategy
AEC	Agro Enterprise Centre
AKC	Agriculture Knowledge Centre
ATM	Automatic Teller Machine
BCR	Benefit Cost Ratio
CA	Capability Approach
CBS	Central Bureau of Statistics
CC	Chalan Chalti
CCI	Chamber of Commerce and Industry
CDC	Cardamom Development Centre
CFUG	Community Forest User Group
DADO	District Agriculture Development Office
DFTQC	Department of Food Technology and Quality Control
DoA	Department of Agriculture
EbA	Ecosystem-based Adaptation
EHR	Eastern Himalayan Region
FAO	Food and Agriculture Organization
FAOSTATS	FAO Statistical Databases
FATE	Feminization Agricultural Transition and Rural Employment
FGD	Focus Group Discussion
FLCEN	Federation of Cardamom Entrepreneurs of Nepal
FNCCI	Federation of Nepalese Chamber of Commerce and Industries
GDI	Gender Development Index
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
GoN	Government of Nepal
GST	Goods and Services Tax
HH	Household
HS	Harmonized Standard
HVA	High-value Agriculture
HVC	High-value Crop
ICIMOD	International Centre for Integrated Mountain Development

IDI	In-depth Interview
IFPRI	International Food and Policy Research Institute
INGO	International Non-Government Organization
ITC	International Trade Centre
JJ	Jumbo Jet
JWAC	Jirmale Women Agriculture Cooperative
LC	Large Cardamom
LPG	Liquid Petroleum Gas
MAP	Medicinal and Aromatic Plant
MDG	Millennium Development Goal
MFI	Micro Financial Institutions
MoAC	Ministry of Agriculture and Cooperative
MoAD	Ministry of Agriculture and Development
MoAF	Ministry of Agriculture and Forestry
MoALD	Ministry of Agricultural and Livestock Development
MoC	Ministry of Commerce
MoCPA	Ministry of Cooperative and Poverty Alleviation
MoF	Ministry of Finance
MoICS	Ministry of Industry, Commerce and Supplies
MoLE	Ministry of Labour, Employment
MoLJPA	Ministry of Law, Justice, and Parliamentary Affairs
MT	Metric Ton
NARC	Nepal Agriculture Research Council
NBT	National Board of Trade
NGO	Non-Governmental Organization
NJS	Nari Jagaran Sangh
NPC	National Planning Commission
NPVSCDC	National Potato, Vegetables and Spices Crops Development Centre
NTCDB	National Tea and Coffee Development Board
NTIS	Nepal Trade Integration Strategy
PAN	Personal Account Number
PMAMP	Prime Minister Agriculture Modernization Project
RM	Rural Municipality
RRM	Rong Rural Municipality

SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Agreement
SBI	Spices Board of India
SD	Super Deluxe
SDG	Sustainable Development Goal
SHs	Stakeholders
SMS	Short Message System
SPS	Sanitary and Phytosanitary Standards
SPSS	Statistical Package for Social Science
TEPC	Trade and Export Promotion Centre
UAE	United Arab Emirates
UN	United Nations
UNCATD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USD	United States Dollar
USA	United States of America
USAID	The United States Agency for International Development
VADEP	Value Chain Development Programme
VAT	Value Added Tax
VC	Value Chain
VCA	Value Chain Analysis
VCD	Value Chain Development
VDC	Village Development Committee
WB	World Bank
WDO	Women Development Office
WEAI	Women Empowerment in Agriculture Index
WEAI4VC	Women Empowerment in Agriculture Index for Value Chains
WTO	World Trade Organization

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CHAPTER ONE

AGRICULTURAL CHANGE AND LINKAGES WITH LIVELIHOOD, GENDER AND MARKET

In this chapter, I set out the foundation for this thesis. I start by setting the scene and providing an overview of development thinking in the post-world war context and explain this in relation to the trajectory of agricultural development in Nepal. In the following sections, I explain the Nepalese agricultural practice from traditional and subsistence based to commercial farming of High-value Agriculture[1] (HVA), and then go on to analyse the linkages among HVA in relation to livelihoods, gender and market, and the contestations. Based on the knowledge gaps identified from the review of the literature, I have developed research objectives and research questions for this study. In the final section of this chapter, I provide an outline of the chapters included in this thesis.

1.1 The Trajectory of Agricultural Development in Nepal

Before World War II, the western world had already peaked in the industrial revolution, infrastructure development, and services. But Nepali society during that time was still primitive and closed as Nepal was ruled by the autocratic Ranas for over a hundred years (1846-1951). Although the Ranas were primarily interested only in lengthening their control over political and economic power, they however, did make some noteworthy contributions to agriculture and the economic sector. Examples include the construction of irrigation canals, the initiation of commercial production and the export of agricultural products, such as tea and large cardamom. The Company Act 1936 was enacted then, which contributed to the establishment of paper, soap,

[1] HVA in the context of this research denote crops of higher economic importance farmed commercially with primary objective of sell in the market. Detail of division of crops categories under HVA is explained in Chapter Two.

plywood, and textile industries. An emphasis was given to cottage industries during that time. To facilitate Nepal-India trade, the Ranas invited the business community from India. It was also around that time that the youth migration to join the military in the British East India Company started (Khatri, 2018).

With the abolishment of the Rana regime in 1951, multi-party democracy was established, and Nepal was opened to the outside world. This also meant that Nepal opened the door to foreign aid and influence. Soon Nepal started to sign bilateral agreements with different nations and organisations and began to receive financial, material, and technical assistance. As a planned initiative for development, the Planning Board was established in 1955, and the country's first five-year periodic plan (1956-61) was prepared in 1956. But a lack of adequate data required for planning meant that the plan was unable to provide a clear pathway (Dahal, 1997).

Though more than 95 per cent of people were dependent on agriculture in the 1950s, many of them did not have enough food to eat. Misery and landlessness were common. The lack of transport and market facilities constrained the redistribution of surplus food to deficit regions. Population pressure was in the mid-hills (i.e., more than two-thirds) but the region itself was suffering from natural disasters and a decline in productivity. This resulted in out-migration to India (Dahal, 1997). The situation of the country, in the words of then Minister for Food, Agriculture, Canal and Forest Bhupal Man Singh Karki in his address to the first agricultural conference in 1958 at Kathmandu, was:

> *".... growing population pressure, ecological imbalance, the declining productive capacity of soil and increasing pressure in land are the root causes of problems resulting in the gradual decline of agricultural outputs and collapse of farming systems. The consequence of this is the large-scale migration from Nepal to neighboring countries" (Dahal, 1997).*

As the few landlords were holding large chunks of land, the Land Reform Act 1957, and Birta Abolition Act 1959 played a central role in redistributing land to the landless people (Regmi, 1961). Soon after this in 1961, the King dissolved the elected government and ruled the country for 30 years in a party-less 'Panchayat' system. In this regime, Nepal adopted a mixed economy. Agriculture was prioritised to increase production and productivity, to increase foreign trade, and to build a fair and just

society. In this spirit, the fifth five-year plan (1975-80) emphasised cash crops with an aim to improve the livelihoods of the people. However, the agricultural growth was so poor that it was not enough to feed the population. Neither did it help to increase per capita income of the people (Khadka, 1991).

From the late 1980s, the country's development priority became to increase the productivity of all sectors, to generate employment, and to meet the basic needs of the people. At that time, the basic need of the people was to have adequate food to eat, suitable clothing for the seasons, sufficient fuelwood for cooking, access to clean drinking water, healthcare, sanitation, primary and skill-based education, and development of minimum rural transport facilities. However, the country lacked enough resources for the investment necessary to meet the basic needs of people. The country's development budget (about two-thirds of total development budget) was dependent on foreign assistance. At the same time, private sector involvement in the development process was encouraged. But as in the previous periodic plans, the budget allocated for development activities remained underspent. It was claimed that this was because the government lacked capable human resources and lacked capable institutions to deliver (Gaihre & Dhakal, 2022).

In 1990, democracy was restored after a popular people's movement. But the period from 1990 to 2015 witnessed major political upheavals affecting people's lives. In these 25 years, the country suffered from a decade-long Maoist armed conflict where thousands of Nepalese were killed, displaced, disappeared and much infrastructure was damaged. After the conflict ended in 2006, Nepal became a republic country in 2008 and finally had a new Constitution promulgated in 2015. In the paragraphs below, I highlight the notable changes in agriculture sector development.

After the restoration of democracy in 1990, the first elected government took the approach of a market-oriented, open, and liberalised economy, and privatised dozens of government owned industries (including agriculture) established in the Panchayat era. The then government claimed that it believed in a bottom-up planning process and that participation of people in the development process and decentralisation were vital instruments for development. To serve this purpose, government began to allocate resources at local level government units called Village Development Committees (VDCs) and Municipalities since mid-1990s, and brought the Local Self Governance Act and Local Self Governance Regulation in the late 1990s. The eighth

(1992-97), ninth (1997-2002) and tenth (2002-2007) periodic development plans considered international/ national non-government organizations (NGOs/INGOs) and private sector as major stakeholders of development (National Planning Commission [NPC], 1992; NPC, 1997; NPC, 2002).

In this period, the country developed and implemented a 20-year Agriculture Perspective Plan (APP) from 1995 to 2015. The plan's top priorities were agricultural intensification, diversification, and export promotion. This plan took an approach of market-based development in agriculture where subsidies were controlled, and the price was determined by market forces. Although the focus was on integrated agricultural development, the supply of chemical fertiliser, improved seeds, technical and extension services was not regular and effective (NPC, 1995).

From 2000 to 2015, Nepal's development priorities were aligned to attaining the global development goals - the Millennium Development Goals (MDGs). MDG's Goal 1- the eradication of extreme poverty, and Goal 3- promoting gender equality and empowering women were closely connected to agriculture. Nepal met the target on MDG Goal 1 and made satisfactory progress on Goal 3 (NPC, 2016). Following the MDGs, Nepal is implementing the Sustainable Development Goals (SDGs) since 2015. The SDG Goal 1 – reducing poverty, Goal 2 – zero hunger which look challenging in the context of climate change and weak adaptive capacity of farmers (Khanal et al, 2021). The SDG Goal 5 – gender equality is linked closely to the agricultural development and the government claims that its plan, policy and programmes are aligned to meet these goals. But the missing part is a systemic transformation of gender roles and relations in agriculture through the provision of economic and political rights and entitlements to productive resources (Devkota et al, 2022).

In 2015, the government initiated a 10-year long project, the Prime Minister Agriculture Modernisation Project (PMAMP) in 2015. The then government took this as a game-changer project in agriculture. This project aims to commercialise, modernise, and mechanise agriculture. It emphasises market-based High-value Agriculture (HVA) crops. This was linked to livelihood improvement through poverty alleviation (Kafle et al, 2022). It is believed this can be achieved through broad-based, employment oriented, inclusive, and equitable economic growth. The 13th three-year plan (2013-16) set the long-term vision- to upgrade Nepal from a least developed country to a developing country by 2022. This plan focused on the collective

participation of people in agriculture through cooperatives, the development of market mechanisms, and market infrastructures (NPC, 2013).

In 2015, Nepal promulgated a new Constitution. It provisioned three tiers of government with defined rights - federal government, provincial government and local government. The government's overall plan, policies, acts, and regulations were amended in the spirit of the new constitution. The 15th five-year plan (2019-24), set a long-term vision of 'Prosperous Nepal, Happy Nepali' (NPC, 2019). To develop the agriculture sector, an Agriculture Development Strategy (ADS) was prepared in 2015 setting its development path for the next 20 years (2015-2035). This strategy envisions the agriculture sector as self-reliant, sustainable, competitive, and inclusive (Ministry of Agricultural Development [MoAD], 2015). However, integration of ADS in federal, provincial and local level government and redesign programmes to achieve ADS aims are challenging (Khanal et al., 2020). I explain the policy and institutional arrangements made after the new constitution was promulgated in detail in Chapter Two, section 2.3.

The trajectory of agricultural development discussed above provided me with crucial insights into how agriculture was prioritised and linked to the country's development goals under different political regimes of Nepal. I understood that from the Rana period to the present federal governance system, agriculture has had a very significant role in the country's development. However, I have also observed that this sector has been suffering from problems of low production and productivity, food insecurity, trade deficit, and, as a direct consequence, out-migration of young people (particularly men) for securing livelihoods. At the same time, the development of product value chains and the growth in domestic and international markets has been shifting Nepali agriculture from farming traditional crops to HVA. The government's policies are also moving towards more modern, commercial, and competitive agriculture.

As a student of Development Studies, I have developed a keen interest in understanding how the focus on HVA is associated with the resilient livelihoods of farmers and what other value chain actors are involved in this. This interest arises from witnessing the growing uncertainties in HVA production due to environmental factors, particularly due to climate change and increased incidence of disease and pests. Similarly, I also often see the farmers' concerns regarding the unfair market prices. In addition, having grown up in rural Nepal with primary engagement in agriculture, I can

claim from my own experience that traditional agriculture is gendered. But as HVA is becoming more and more prevalent, I am interested to know how the roles are divided in HVA, and if such division of roles influences gender relations. The focus of HVA so far been on raising income of and generating employment for farmers. However, I am also interested to know how it is connected to women as it requires additional input, technology, market information, as well as skills, resources, mobility, and others than traditional agriculture.

Thus, with my interest in both social and economic indicators of development, I want to use the Human Development Approach as my analytical tool. Till the 1980s, economic indicators, for example, income, employment, and gross domestic products, were dominant factors in defining development. But in the late 1980s, philosophers such as Mahbub ul Huq, Amartya Sen, Martha Nussbaum, and others started to argue that using only the economic indicators could not meet the true objective of development- i.e., improving the wellbeing of the people. This was an alternative thinking in development, and a shift in development paradigm from how the economy is doing to how people are doing. My understanding of development is also aligned with them in that development should also meet people's wellbeing. This could be achieved by enhancing their capabilities and enlarging their freedoms (Haq, 1995; Nussbaum, 2000; Sen & Grown, 1987).

1.2 Situating HVA with Livelihood, Gender and Market

As discussed in the previous section of this Chapter, the agriculture sector plays a key role in the Nepali economy. The sector contributes to one-fourth of the country's Gross Domestic Product (GDP) and engages two-thirds of the population (Ministry of Finance [MoF], 2020). However, it looks paradoxical that even after seven decades of planned agricultural development, Nepali agriculture faces similar issues of slow growth, underutilisation of potential land, the domination of small farmers, subsistence mode of farming, and low scale of economy of production. Further, cereal and pulse crops dominate 80 per cent by area, both of which have a very low yield, 3.1 and 1.15 respectively. However, commercial farming of HVA in recent decades is growing at faster rate with high yield, above 10 (MoALD, 2020). I present a detailed overview of HVA growth in Nepal in Chapter Two, section 2.1.

Despite agriculture being a major sector for the country's economic growth, Nepal's current trade deficit is nearly 90 per cent (MoF, 2020). Rapid urbanisation, huge out migration, and leaving fertile lands fallow for non-farm jobs have played main roles in slowing the pace of agricultural growth in Nepal (Devkota et al., 2020; Khanal, 2018; Ojha et al., 2017; Paudel et al., 2020; Rimal et al., 2018). The trend of leaving land fallow is so severe that agriculture is no longer meeting the food products' needs and cash needs of farmers (KC & Race, 2020; Rai et al., 2019). In the meantime, the performance of HVA crops shows promise indicating a shift in Nepali agriculture towards commercial farming of market orientated HVA crops (Kumar et al., 2020). Among HVA, products such as spice crops, tea and coffee tend to contribute to earning vital foreign currency. For example, taking the reference of a few export-led HVA crops, large cardamom, ginger, tea and garlic comprise only 1.5 per cent of the total cultivable land, i.e., 30,913 thousand hectare (ha) (MoALD, 2020). But their yield in United States Dollar (USD)[2] was 43.21 million, 29.02 million, and 6.90 million in 2017/18 (Ministry of Industry, Commerce and Supplies [MoICS], 2019b).

From generating income and employment to farmers, HVA is seen to be contributing to food and cash, thus, supporting livelihoods (Dahal et al., 2009; Gautam, 2011). Earning enough is vital to meeting household needs, to buy deficit food, and manage expenses incurred in health, education, clothing, and social events. The income from HVA expands the choice of food products and increases the per capita consumption of food products (Thapa et al., 2018). As farmers meet basic needs from HVA, the rate of out-migration is low from the area doing commercial HVA (Kafle et al., 2021). Even if the members from commercial HVA farmers send remittance, farmers consider that remittance as co-insurance against the risks of agricultural shift from subsistence to HVA (Maharjan et al., 2013; Rana, 2019; Thapa et al., 2019).

Evidence from other countries in the Global South shows a similar situation. For example, farmers' attraction to HVA in Bangladesh, India, Sudan, China, and Thailand was due to the high productivity, income, and employment generation (Miyata et al., 2009; Thapa et al., 2018; Thongyou, 2014). In the case of African developing countries, farmers' preference towards HVA is to fulfil the basic needs of investment

[2] 1 USD is equivalent to NPR 112 in the year 2017.

in health and education, to purchase valued assets, for savings, and to buy shares in companies (Diao et al., 2012; Simons, 2003).

Situating HVA with gender, studies citing specific cases across countries of the Global South claim that HVA contributes to women's socioeconomic condition. This implies that the division of roles and respective returns differ in HVA from subsistence agriculture. These studies revealed that division of roles based on gender is less distinguished in HVA than in traditional agriculture, and HVA also contributes in shaping the form of labour from unpaid to paid labour. In Nepal, the share of women in paid employment in agriculture had reached 44.8 per cent in 2015 (NPC, 2016). In addition, HVA increases women's role in family and farm decision-making (KC & Upreti, 2017; Rana, 2019; Upreti et al., 2018). Several studies have claimed that men's out-migration from agriculture provides opportunities for women in paid jobs (Devkota et al., 2020; FAO, 2019; KC & Race, 2020; Maharjan et al., 2012; Pokharel, 2019). These findings also match with studies on the cut flowers value chain in Guatemala (Dürr, 2018), as well as with studies on women and HVA in Uganda (Alam, 2012), and others.

It is further claimed that HVA provides women space for collective and coordinated action for production, marketing, transportation, and logistics. This also reduces their costs (Shiferaw et al., 2016). This helps to create an environment to emerge in public space, strengthening and promoting women's collective and individual agency (Deere & Doss, 2006; Farnworth et al., 2019; Upreti et al., 2018). In addition, women share responsibility for farm and family, building trust, increasing mobility and increasing access to assets to improve their financial condition (KIT, Agri-Pro Focus & IIRR, 2012; Meinzen-Dick et al., 2019). As women contribute financially to the family, family recognises them, and their voice is heard in public (Duflo, 2012).

Situating HVA with market, HVA expansion is rooted on high market demand and high price both at domestic and international markets. Among Nepali HVA crops on the international market, ginger, lentils, large cardamom, and tea are ranked top. According to FAO Statistical Databases (FAOSTATS, 2020), collective export of ginger, lentils, large cardamom and tea by volume and value in the year 2000 was 13,062 Metric Ton (MT) and USD 7.133 million respectively. The volume and value of export of these products increased on average 7.5 per cent and 33.5 per cent per annum respectively in 2019 (FAOSTATS, 2020).

The significance of export led HVA to Nepal is high also in generating employment. A World Bank report states that in every USD 1 million of new exports, Nepal can create an additional 38 jobs. If Nepal utilises its' full potential, agricultural export sector can generate 200,000 additional jobs (World Bank [WB], 2020). Further, an enabling environment is created from the development of regional and global value chains where Nepali farmers can integrate and benefit from those chains (Bamber et al., 2013; Pietrobelli & Rabellotti, 2011).

1.3 Contestations

Existing literature not only provides a positive outlook of HVA regarding livelihoods, gender, and market but also contestations on many grounds. In this section, I have given a critical view of these contestations. Starting with livelihood, Haggblade et al. (2012) claim that HVA provides an alternative livelihood opportunity as subsistence agriculture suffers more from seasonal fluctuations in the agricultural calendars, part-time work, and long seasonal non-farm activities. In the same vein, the United Nations report states HVA is the main source of employment generation for the people in the countries of Global South (United Nations Conference on Trade and Development [UNCATD], 2008).

In contrast, many studies counterclaim that the livelihood of HVA farmers is at risk because of uncertain environmental and economic conditions. Farmers who rely on HVA for their livelihood are facing the negative effects of climate change (Acharya et al., 2021; Joshi & Joshi, 2019; Karki et al., 2020; Khanal et al., 2018). Other environmental factors that affect HVA production comprise degradation of soil quality, crop disappearance, water scarcity, increased incidence of insects, pests and diseases, declining productivity, and quality of agricultural produce (Deshar, 2013; Shrestha & Nepal, 2016; Wester et al., 2019).

HVA is also questioned on the resilience of the farming system. HVA farming is vulnerable to the new agro-ecological conditions whereas traditional crops are suited to such places as they are providing food for generations (Adhikari et al., 2021; Adhikari et al., 2019; Gauchan et al. 2020; Wester et al., 2019). Millions of people in Hindu Kush Himalayas consider traditional crops their main food source (Wester et al. (2019), and these crops are resilient to farmers' food security (Adhikari et al., 2021). In addition, traditional crops have high social acceptance. They also possess high

nutritional value, safeguard biodiversity, and are energy efficient (Gauchan et al., 2020).

Some researchers have questioned the adaptation measures that HVA farmers' take as risks from an environmental perspective. The intensive use of soil and water or change of crop varieties or crops mix are not environmentally-friendly practices. Similarly, excessive use of insecticides, pesticides, and fertiliser can threaten the resilience capacity of the farming system. In the long term, they impact the resilient livelihoods of the farmers (Amin et al., 2020; Shrestha & Nepal, 2016).

Moving on to the agriculture and gender relationship, many studies claim that Nepali agriculture is feminised (Adhikari & Hobley, 2015; Paudel et al., 2016; Rana et al., 2018; Spangler & Christie, 2020; Tamang et al., 2014). This is claimed as a common phenomenon in the countries of the Global South (Bigler et al., 2017; Gartaula et al., 2010; Khader, 2019; Lastarria-Cornhiel, 2006; Song et al., 2009). The shifts in agricultural practice and production are cited as contributors to this phenomenon (Adhikari & Hobley, 2015; Paudel et al., 2016; Tamang et al., 2014). The growth in market demand and men's out-migration played a catalytic role (Upreti et al., 2018). As an outcome of this, women have an added household and community roles, work burden and time poverty (Chant 2008; Chant 2014; KC & Race, 2020; Tamang et al., 2014; Upreti et al., 2018). Thus, this phenomenon impacts differently to women depending upon the intersection of caste/ethnicity, gender, and class, age, marital status (KC & Race, 2020).

In the debate on feminisation of agriculture in Nepal, some studies claim feminisation is rooted in men leaving agriculture (Gartaula et al., 2010; Tamang et al., 2014; Upreti et al., 2018). However, this claim can be contested in the case of HVA as this requires more labour round the year, offers higher wages, and keeps more young men in agriculture. Youth migration from rural to urban mostly occurs when non-farm employment provides higher wages than agricultural outputs (Fei & Ranis, 1964).

It is claimed that the choice of crops and choice of roles are shaped by gender. This can be observed easily in the agricultural equipment in Nepal which are different for men and women. For some roles in agriculture for example ploughing, social norms restrict women from using such equipment (Devkota et al., 2020). Such norms limit women's choice of roles. These lead women to a subordinate position and means they

fall behind men in the choice of roles that provide better economic opportunities (Erenstein & Rahut, 2014; Meinzen-Dick et al., 2019). Likewise, there is gender-based preference in the choice of crops. While choosing crops, men go with HVA crops, and women go with traditional and HVA crops as they must manage both food and cash for the family (Bieri, 2014).

In terms of farm productivity, it is claimed that the productivity of a women-managed farm is low (Greenberg 2013). This lower productivity is linked to women's poor access to finance, their self-confidence in taking risks, and the sociocultural constraints they face (KC et al., 2016; Upreti et al., 2018). This is compounded by a triple-work burden (productive, reproductive, and community work) and limited knowledge of market dynamics (FAO, 2019). In addition, limited access to public transportation, limited credit and non-farm employment opportunities lead to poor performance of women-managed farms (Cabezas et al., 2008; FAO, 2013; Meinzen-Dick et al., 2019; Nakazibwe & Pelupessy, 2014). Women face constraints in terms of technology, credit and market information (Ajani & Igbokwe, 2014; Greenberg, et al. 2019; Raney et al., 2011; Song et al., 2009) limit women's potential contribution in HVA (Hill & Vigneri, 2011). Furthermore, women have weaker networks (Croppenstedt et al., 2013). This means they have less access to information and business services.

All the above factors contribute to the different capabilities of men and women. Women's unequal capabilities to men mean that they perform roles in lower nodes of value chain (KC, 2019; KC et al., 2016; Song et al., 2009; United Nations, Women [UN Women], 2019). The social norms which treat men differently to women contribute to produce unequal gender relations. This unequal gender relation manifests itself in the production of differential capabilities of men and women. In addition, social norms inhibit women from enhancing their capabilities and choosing the roles they want. For example, taking the specific role of sellers or buyers, and intermediaries. Similarly, male-centric extension services like information about inputs, business, technical and other services inhibit women's capabilities in agriculture (Farnworth, 2011).

In HVA export, market diversification is an issue. There is a constant increase in export volume and value of HVA products from Nepal. However, the only export

market is India. Nepal trade portal[3] export data for 2020 shows the country exported 99.4 per cent (in volume) of ginger, 95.5 per cent of tea, and 99.3 per cent of large cardamom to India (MoICS, 2019a).

With an aim to diversify its market, the government of Nepal adopted liberal economic policies in 1992 and became a member of World Trade Organization (WTO) in 2004. Nepal is the founding member of the South Asia Free Trade Area (SAFTA) in 2006. This facilitates export trade. The country revised its trade policies in 2009 and 2015, and developed a National Trade Integration Strategy (NTIS) in 2010, later revised in 2016. The current Agriculture Development Strategy (ADS) (2015-2035), and the 15th plan (2019-2024) of Nepal emphasised agricultural commercialisation and market diversification. But there have been no significant changes, particularly in export market diversification. In the current market-focused production of HVA, any change in the market dynamics impacts the entire value chain of the product. This in turn impacts the livelihood of associated value chain actors.

1.4 Research Gaps

I have discussed the contestations of farming HVA in Nepal relating to livelihood, gender, and market diversification as well as in the broader Global South, above. In this section, I am going to discuss some of the gaps I have found in the literature. These knowledge gaps provide the foundation for this study.

Starting with the relationship among HVA and resilient livelihood, contestations around whether HVA supports building resilient livelihoods of farmers in the context of a growing market and environmental uncertainties are increasing. Farmers' livelihoods can be said to be resilient when they can adapt to the situation of social, environmental, and economic uncertainties through their own planned action. However, there remains a lack of understanding of what response measures farmers have been adopting and whether these measures are resilient in eastern Nepal.

Further, it is often claimed that roles in agriculture, in general, are mostly gendered but it is not apparent if this is the case for HVA farming. Unlike farming traditional crops, HVA demands a different set of skills, technology, and resources. And even if the roles are gendered in HVA, information about the type of roles and the extent of gendered roles are missing. Studies carried out at an interface of gender and

[3] https://nepaltradeportal.gov.np

HVA have focused on specific value chain nodes. They do not provide a comprehensive analysis of gender division of roles in the entire value chain, as this study has attempted to do.

It is also important to point out that studies on the choice of roles have placed an emphasis on the capabilities of men and women. Certainly, women can extend their choice of roles when they possess wider capabilities. In traditional agriculture, the choice of roles is gendered, and women are already accustomed to having these roles. But less is known about how the choice of roles are defined in HVA. In addition, unlike traditional agriculture, HVA requires capabilities of skills (soft and hard), mobility, physical strength, access to assets, technology, and others. Such capabilities of women are linked not only to the choice of roles but also to the efficiency in performing roles. Some studies highlight this as a major area of further exploration (Bieri, 2014; Dűrr, 2018; FAO, 2013; Hill & Vigneri, 2011).

Another noteworthy issue is that of social norms. These play an important role in shaping gender relations not only in the HVA value chain but also in women's personal, family, and public life. In the division of roles in traditional agriculture, social norms are influential. But there is no specific evidence on the influence of social norms in HVA in Nepal. In addition, it is often said that social norms inhibit women to enhance their capabilities and from taking the specific role of sellers or buyers, and intermediaries. It is not clear from studies how social norms restrict women's capabilities to access information about inputs, business, technical and other services, thereby limiting women's capabilities in agriculture. Thus, this is an important area of knowledge gap in the context of HVA in eastern Nepal, where gender norms are comparatively less strict, and women's literacy rate is also high compared to other parts of the country.

Another knowledge gap is around market diversification of Nepali HVA products. Nepal's agricultural policies, from the Rana regime, Panchayat regime to the current federal republic, have emphasised export-market diversification. But this provokes some questions. Why, despite having over 100 years of export, is the country unable to diversify its large cardamom and tea market beyond India? How has this pattern of dependency on the Indian market impacted the growth of HVA in Nepal? What challenges do Nepali traders face in order to diversify beyond India?

As can be seen from the above discussion, several knowledge gaps exist regarding the risks in HVA-based farmers' livelihood, gender inequalities in the HVA product value chain, and the constraints in export market diversification. With the aim of addressing these knowledge gaps, I have developed research objectives and research questions of this study. These are discussed in the following section.

1.5 Research Objectives

General Objective:

The objectives of this research are based on the identified gaps in section 1.4. As this research aims to reveal the implication of high-value agriculture in farmers' livelihoods, in the gender division of roles, and in access to and diversification of the export market, the general objective of this research has been framed as below:

To understand and analyse the effects of high-value agriculture in the livelihood of farmers, in shaping gendered division of roles, and in the diversification of export markets.

It is challenging to analyse the entire HVA sub-sector in one piece of research like this. That is why I have chosen to focus on a single HVA crop, large cardamom (LC). Using the above-stated general objective as the basis, I prepared four specific objectives, as stated below:

Specific Objectives:

1. To analyse the value chain development of large cardamom and its contribution to the livelihood of farmers
2. To map the gender division of roles in the entire value chain of pre- and post-production of large cardamom, and to explore its linkages with the capabilities of women involved in the process
3. To explore the influence of large cardamom farming on shaping gender relations among cardamom farmers
4. To assess the constraints in market diversification of Nepali large cardamom

I have further narrowed down the specific research objectives into four research questions and seven research sub-questions.

Research Questions:

1. What is the context of value chain development of large cardamom in eastern Nepal and how is this contributing to the livelihood of farmers?
    1.1 What is the state of value chain development of large cardamom in the study sites?
    1.2 How is large cardamom contributing to building resilient livelihoods of farmers?
2. How are roles divided among men and women in the large cardamom value chain and how do women's capabilities influence this?
    2.1 What is the participation of women in production and post-production roles in the large cardamom value chain?
    2.2 How do women's capabilities link with the division of roles in the large cardamom value chain?
    2.3 Which factors influence the division of roles and women's capabilities in the large cardamom value chain?
3. How is large cardamom changing gender relations in the value chain?
4. What are the opportunities and constraints in large cardamom market diversification?
    4.1 What are the opportunities for large cardamom market diversification, domestically and globally?
    4.2 What are the constraints in export market diversification of large cardamom?

1.6 Limitations of the Study

I made a concerted effort to keep conceptual and methodological rigour in research design, collection of rich qualitative and quantitative data, thorough analysis of data to derive sound findings conclusions. However, this study is not without limitations. In this section, I explain those limitations as this will be helpful in terms of understanding the scope of the study.

My first limitation is regarding the cut off point for primary data collection. The findings of this study are based on fieldwork carried-out among 2017 to 2020 at

different intervals. This means they do not represent changes that have happened since. Since the start of 2020, COVID-19 has impacted the production, trading, and labour arrangements. Yet I am unable to capture the in-depth effect of COVID-19 for this study. However, I did take one short fieldtrip during COVID-19 and have some learnings around the value chain disruptions of large cardamom. Likewise, I was unable to capture the perspective of international consumers of large cardamom. This limitation also generates scope for future research.

My second limitation is regarding the generality of the findings. This research represents HVA production and trading in the context of eastern Nepal taking a single crop large cardamom. Socio-cultural context, farming context and market context of eastern Nepal is different to the rest of the country. Thus, the findings may not apply to other parts of Nepal.

My third limitation is also linked to the generalisation of the findings. For this study, I chose HVA which accounts for only 20 per cent of the overall agriculture sector in Nepal. Since, 80 per cent farmers are in subsistence agriculture, the findings of this research only reveal the significance of HVA, and not of traditional farming, to livelihoods, gender roles, and market.

My final limitation is regarding the influence of structural changes on the study findings. When I started this study, the country was going through some major structural changes. These include for example, promulgating a new Constitution, adopting the federal governance structure, and the election of new local governments. In these processes, there were mass movements, and debates related to issues such as gender, caste, and regional identity, indirectly connected to the area of study. I may not have been able to capture all those issues and their influences in this study.

1.7 Thesis Overview

This thesis comprises eight chapters. In **Chapter One**, I establish the foundation for this thesis. I start by setting the context and providing an overview of the development thinking in the post-world war context and how this relates to the trajectory of agricultural development in Nepal. In the following sections, I explain Nepalese agricultural practice from traditional and subsistence based, to commercial farming of HVA. I then go on to analyse the linkages between HVA in relation to

livelihoods, gender and market, and the contestations. Based on the knowledge gaps identified from the review of the literature, I have developed research objectives and research questions for this study. In the final section of this chapter, I provide an outline of the chapters included in this thesis.

In **Chapter Two**, I start with an empirical review of literature on this study's subject. I then provide a detailed account of the concepts and theoretical frameworks that apply to studying gender inequality in agriculture. This chapter reviews several concepts including gender inequality in agriculture and the feminisation of agriculture, gender sensitive agricultural value chains, women's empowerment, agency, power differentials and resources. The theoretical review explains how the capabilities approach and value chain framework apply to the research context. The policy review analyses existing policies on agriculture, gender and market and identifies policy gaps.

In **Chapter Three**, I explain the research methodology in detail. I started this chapter by setting out my philosophical position and the research design. This chapter offers an in-depth explanation of the qualitative and quantitative data collection and interpretation, along with aspects of quality assurance and ethical considerations.

In **Chapter Four**, as part of the study findings, I introduce the context of large cardamom. This includes a detailed account of value chain development, along with its contribution to the livelihoods of farmers as well as in terms of production, value addition and trading nodes. This chapter briefly assesses the social, economic, and environmental risks in large cardamom farming and the adaptation strategies adopted by the farmers to ensure the resilience of their livelihood.

In **Chapter Five**, I map the division of roles among men and women in production and post-production nodes of the value chain. Then, I analyse the relationship between capabilities and the division of roles. The following capabilities are included in this analysis: knowledge and skills, access to productive resources, access to information, physical strength, role related mobility and finally health and physical injuries. The chapter ends with an interpretation of the factors that influence women's capabilities, such as men out-migration, working conditions, social norms, and women's groups.

Building on Chapter Five, in **Chapter Six**, I investigate how large cardamom and other HVA products contribute to changing gender relations in the study site. Changes in gender relations are assessed in the division of roles, wage rates and workload, and contribution to family finances. More subjectively, I consider women's role in decision-making, in public roles, in intra-household relations, and how satisfied they feel with their own lives. This chapter also examines the role of different organisations in bringing changes to gender relations.

In **Chapter Seven**, I examine the scope of the domestic market of large cardamom and the context for export-market diversification. This chapter then analyses the market access constraints of Nepali large cardamom both in the Indian market and the world market. In this chapter, I further detail how large cardamom export constraints have created dilemmas for large cardamom traders and other stakeholders. The export constraints considered for analysis include competitive capacity, export compliances and procedures, market infrastructure and institutional context.

In **Chapter Eight**, I highlight the major findings regarding the original research questions and discuss each finding separately. Following this, I drew conclusions for each research question. This chapter ends up with the policy implications of my conclusions to agricultural policy, planning and practice.

CHAPTER TWO

LITERATURE REVIEW

In **Chapter Two**, I start with an empirical review of literature on the study subject. Then I provide a detailed account of the concepts and theoretical frameworks that apply to studying gender inequality in agriculture. This chapter also reviews several concepts including gender inequality in agriculture and the feminisation of agriculture, gender sensitive agricultural value chains, women's empowerment, agency, power differentials and resources. The theoretical review explains how the capabilities approach and value chain framework apply to the research context. The policy review analyses existing policies on agriculture, gender and market and identifies policy gaps.

2.1 Empirical Review

2.1.1 Brief overview of Nepali agriculture

In Chapter One, I provided the trajectory for agricultural development in Nepal, capturing how this had evolved under different political regimes. I discussed how agriculture was perceived in relation to the development goal of their time, and how development goals had shifted from securing food at the beginning to enhancing livelihoods, poverty alleviation, reducing social and geographic disparities, to empowering women. I also reflected on how shifts in development priority are reflected in plans and policies over time, as well as changes in the role of the government, non-government and private sector. Building on Chapter One, this chapter provides a critical overview of present-day HVA in relation to livelihoods, gender, and market before moving to contestations and research gaps in later sections.

As with other countries in the Global South, the agriculture sector plays a key role in the Nepalese economy. However, the sector's contribution to the country's Gross Domestic Product (GDP) and employment have been falling over the years. In 2001/02, agriculture sector's contribution to GDP was 37 per cent, accounting for 80 per cent of jobs. By 2018, this had dropped to 26 per cent and 64 per cent respectively (Ministry of Finance [MoF], 2020). Likewise, the average annual growth in the agriculture sector is only 3 per cent, just above the population growth rate (Ministry of

Agricultural and Livestock Development [MoALD], 2020). Several factors are contributing to this decline, including that only 28 per cent land is available for cultivation (where only 21 per cent is cultivated); the domination of marginal and small farmers (farmers having land less than 1 ha; subsistence mode of farming (around 80 per cent); and low scale of economy of production (MoALD, 2020).

Another feature of Nepalese agriculture is the practice of an integrated type of farming, i.e., within a small piece of land, farmers cultivate cereals, pulses and livestock for their own consumption and crops of economic importance to earn cash. Nepalese agriculture statistics show that cereal crops are dominant in overall production, 71 per cent by area, followed by cash crops and HVA crops at 22 per cent, and pulse crops at 7 per cent. In terms of yield (measured as per ha production in MTs), cereal crops and pulse crops have low yield, 3.1 and 1.15 respectively, while cash crops and HVA crops have high yield, above 10 (MoALD, 2020). Table 2.1 demonstrates the production status of major crop categories - cereal crops, cash crops, pulses and HVA crops for the year 2018/19.

Table 2.1: Production of major agricultural crops of Nepal (2018/2019)

Crop type[4]	Cultivated area in HA	% of cultivated area	Production in MT	Yield
Cereal crops	3,450,163	71	10,685,550	3.10
Cash crops	533,787	11	6,962,344	13.04
Pulses	331,740	7	381,987	1.15
HVA crops[5]	521,532	11	6,018,117	11.54
Total	4,837,222	100	24,047,998	4.97

Source: Statistical information of Nepalese agriculture for the year 2018/19 (MoALD, 2020)

Despite being an agriculture-based economy, Nepal imports huge amounts of food products to feed its people. This means there is a significant imbalance between agricultural exports and imports. Nepal's agricultural export of food and livestock

[4] MoALD (2020) provides statistical information of crops cultivated in Nepal grouping them in four distinct categories: Cereal crops- paddy, maize, wheat, millet, buckwheat and barely; cash crops- oilseeds, potato, sugarcane, jute, rubber, cotton; pulses- lentil, chickpea, pigeon black gram, horse gram, grass gram, soyabean and others; and other crops- including spice crops (cardamom, ginger, garlic, chilli, turmeric and others), fruit crops, fresh vegetables, tea, coffee, honey, fish and silkworm, honey, fish and fresh mushrooms.

[5] HVA crops on Table 2.1 does not include information on honey, fish, and fresh mushrooms.

products was Nepalese Rupee (NPR) 12.67 billion and agriculture import was NPR 138.06 billion till mid-March of the financial year (FY) 2018/19. This is a trade deficit of over 90 per cent (MoF, 2020). Nepal has been a net agricultural importing country since the mid-1970s (Khadka, 1991). The low production and productivity rates have made this situation worse. This has been compounded by the rapid rate of urbanisation (turning fertile lands into settlements) in the plains, migration abroad, and leaving fertile lands fallow for non-farm jobs (Devkota et al., 2020; Khanal, 2018; Ojha et al., 2017; Paudel et al., 2020; Rimal et al., 2018).

The extent of leaving land fallow in mountain, mid-hills and Terai was 48 per cent, 15 per cent and 4 per cent respectively (Rai et al., 2019). Farmers who continue are only cultivating land for one season. Previously, it would have been cultivated for two or three seasons (Devkota et al., 2020). When farmers are unable to meet their need for food products and cash through agriculture, they lose interest and leave agriculture for alternative work (KC & Race, 2020; Rai et al., 2019). In the meantime, performance of HVA crops shows promise and Nepali agriculture is shifting towards commercial farming of market orientated crops (Kumar et al., 2020). The three tiers of government are facilitating the agricultural shift from subsistence farming of cereal and pulse crops to commercial farming of HVA crops.

2.1.2 Shift in agricultural practice: Subsistence farming to high-value crops

There are several studies that show how farmers in Nepal are switching from subsistence farming of traditional crops to commercial farming of HVA crops (Brown & Kennedy, 2005; Dahal et al., 2009; Gautam, 2011; Pokharel, 2019; Thapa et al., 2018). Thapa et al. (2018) have analysed the shift in agricultural practice from 1994 to 2010. Their findings show that the farming area of HVA crops has grown by 9 per cent whereas the farming area of cereal crops has fallen by 15 per cent. Likewise, the contribution of HVA sub-sector to the agricultural GDP increased from 11 per cent to 20 per cent, and the contribution of cereal sub-sector decreased from 77 per cent to 62 per cent over the same period.

This shift in agricultural practice was more profound among 2009/10 to 2018/19. In this period, the cultivated land for agricultural production increased by 6 per cent. This increase in cultivated land differed distinctly within the agricultural products category. The increase in production area was highest for HVA crops 28 per

cent, followed by cash crops- 18 per cent, pulse crops 4 per cent and cereal crops 2 per cent. Likewise, the volume of production for the same crops grew by 39 per cent between 2009/10 and 2018/19. Growth in the individual crops category was highest for HVA crops 139 per cent followed by cereal crops 94 per cent, pulse crops 46 per cent and cash crops 34 per cent (Ministry of Agriculture and Cooperative [MoAC], 2011; MoAD, 2015a; MoALD, 2020). Table 2.2 illustrates the change in agricultural practice from cereals to HVA in Nepal in terms of growth by area, and by volume over the past 10 years, 2009/10 - 2018/19.

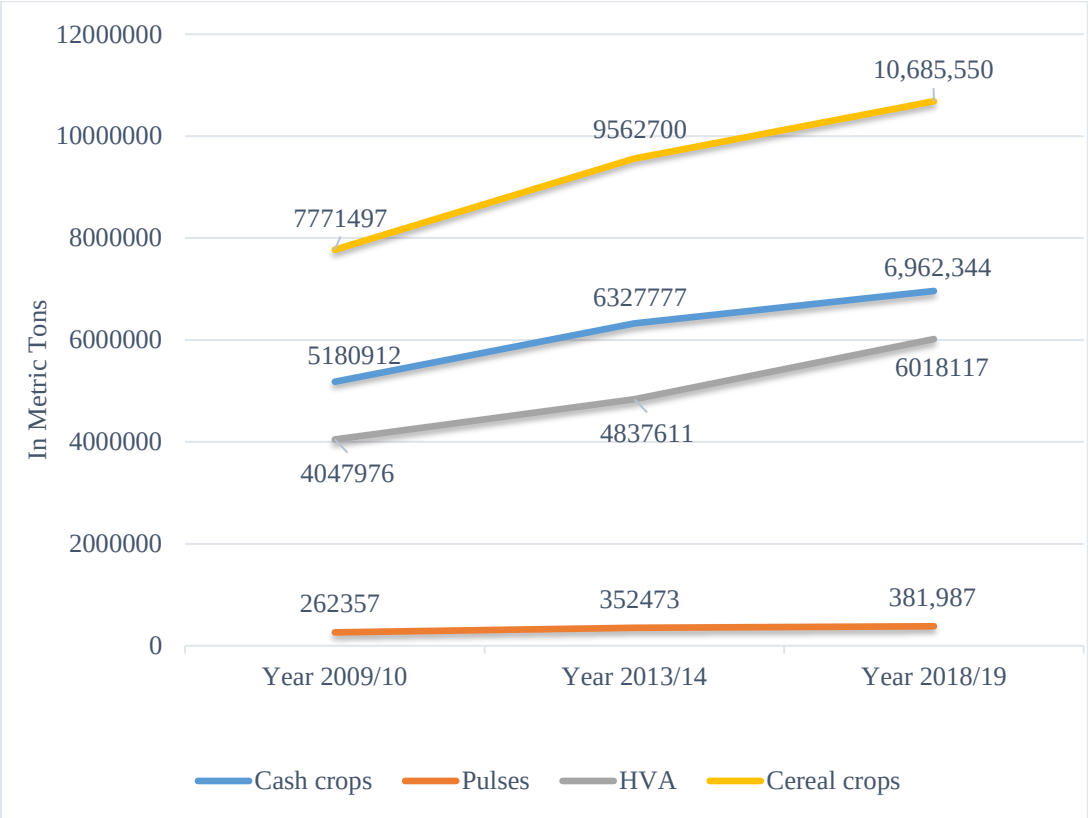
Table 2.2: Shifting agricultural practice to high-value in Nepal (2009/10-2018/19)

Crop	Production					
	Year 2009/10		Year 2013/14		Year 2018/19	
	Area (ha)	Production (MT)	Area (ha)	Production (MT)	Area (ha)	Production (MT)
Cash crops	452,626	5,180,912	498,962	6,327,777	533,787	6,962,344
Pulses	319,471	262,357	328,738	352,473	331,740	381,987
HVA crops	407,327	4,047,976	481,960	4,837,611	521,532	6,018,117
Cereals	3,393,457	7,771,497	3,480,052	9,562,700	3,450,163	10,685,550
Total	4,572,881	17,262,742	4,789,712	21,080,561	4,837,222	24,047,998

Source: Statistical information of Nepalese agriculture for the year 2009/10 (MoAC, 2011), 2013/14 (MoAD, 2015a), and 2018/19 (MoALD, 2020)

The growth in volume of production of HVA for the period 2009/10 to 2018/19 is shown in Figure 2.1.

Figure 2.1: Growth in production of HVA crops by volume in Nepal (2009/10-2018/19)



Source: Statistical information of Nepalese agriculture for the year 2009/10 (MoAC, 2011), 2013/14 (MoAD, 2015a), and 2018/19 (MoALD, 2020)

The growth in production of HVA has implications for the growth of the export trade. Spices, tea, and coffee are Nepal's main export led HVA crops. These crops have grown in terms of production area, production volume and the amount of foreign capital earned from the export. The representative export-led HVA crops- large cardamom, ginger, tea, and garlic comprise only 1.5 per cent (i.e., 30,913 thousand ha) of the total cultivable land of the country (MoALD, 2020). However, the overall growth trend is grounds for optimism. Table 2.3 demonstrates the growth in the trend of farming export-led HVA crops in Nepal in the past 10 years, from 2009/10-2018/19.

Table 2.3: Growth in cultivation of export-led HVA crops in Nepal (2009/10-2018/19)

Crops	Crop type and production years					
	Production (area and volume)					
	Year 2009/10		Year 2013/14		Year 2018/19	
	Area (ha)	Production (MT)	Area (ha)	Production (MT)	Area (ha)	Production (MT)
Spice crops[6]	45,744	320,143	57,639	429,709	71,364	543,439
Tea	17,451	17,438	19,271	21,394	28,732	25,206
Coffee	1,752	402	1,911	429	2,761	530
Total	64,947	337,983	78,821	451,532	102,857	569,175

Source: Statistical information of Nepalese agriculture for the year 2009/10 (MoAC, 2011), 2013/14 (MoAD, 2015a), and 2018/19 (MoALD, 2020)

As shown in Table 2.3, export led HVA crops grew in area by 58 per cent, while the growth in volume of production was 68 per cent. But the growth status for individual crops remained highest for tea, 65 per cent in terms of area; and spice crops, 70 per cent in terms of volume of production for the period 2009/10 to 2018/19. The share of these crops in terms of export value was also high.

In value, large cardamom yielded USD 43.21 million while tea contributed USD 29.02 million in 2017/18. Likewise, ginger contributed USD 6.90 million, and lentils contributed 9.02 million in the same year. In export volume, large cardamom, ginger and tea and lentils comprise 5,402 MT, 23,123 MT, 15,684 MT and 10,450 MT respectively (MoICS, 2019a). In 2018, large cardamom accounted for 5 per cent of total export value and ranked top of the list (MoICS, 2019b).

This provides an optimistic outlook of HVA in terms of its contribution to farmers' livelihoods. In addition, the role of women in the value chain has increased with HVA - unlike their roles in subsistence agriculture. The following section provides a brief overview of why farmers are attracted to HVA for livelihood, markets for HVA products and women's increasing role in HVA in the context of Nepal and other Global South countries.

[6] Spice crops include cardamom (large), ginger, garlic, chili, and turmeric (MoALD, 2020).

2.1.3 Growth in HVA production and market dynamics

2.1.3.1 Growing production and livelihood

The growing body of literature claims that farmers' increasing attraction to commercial farming of HVA crops is rooted in its support of livelihood. HVA provides such opportunities to rural farmers, specifically small farmers with limited off-farm livelihood opportunities. Unlike subsistence crops, HVA crops offer a better income and employment opportunities. As a measure, HVA has a higher Benefit-Cost Ration (BCR). For example, in the case of vegetable farming in Nepal, BCR is 1.5-2.5, and this provides employment 1.5-3 times higher when compared to paddy and wheat (ibid). Small farmers are attracted to vegetable farming because they lack enough land to cultivate alternative crops for their livelihood (Mishra et al., 2018; Pokharel, 2019). In addition, HVA provides high rates of returns even from a small unit of land contributing to the livelihoods of small farmers from rural regions (Dahal et al., 2009; Gautam, 2011).

Unlike HVA farmers, subsistence farmers are unable to meet their financial needs. Earning enough is vital to meeting household needs to buy deficit food and manage expenses incurred in health, education, clothing, and social events. It is the main reason small farmers switch towards HVA (Rai et al., 2019; Rana, 2019; Thapa et al., 2019). Citing evidence from the peri-urban area of Kathmandu valley, Rai et al. (2019) claim vegetable farmers have a net income of over NPR 100,000 per annum, enough to manage food and other necessary household expenses. If farmers had chosen traditional crops, they would barely make enough food for the family (Rai et al., 2019).

Some studies also argue that HVA reduces the contribution of remittance in gross family income in the rural regions because HVA reduces the out-migration of young people from agriculture. Kafle et al. (2021) revealed that HVA farmers were making 50 per cent more income than subsistence farmers. They were also receiving 31.5 per cent lower remittances per annum than subsistence farmers. Furthermore, HVA farmers were making additional investments from the remittance in terms of expanding farms. Some HVA farmers consider remittance as a co-insurance against the risks of agricultural shift from subsistence to HVA (Maharjan et al., 2013; Rana, 2019; Thapa et al., 2019). With the growth in farming HVA and more affordable prices, consumers' capacity to purchase the food of their choice has increased. This has changed the type of food they buy. Nepali consumers have increased per capita

consumption of vegetables, fruits, meat, mushrooms, honey, and other products (Thapa et al., 2018).

Evidence from studies outside of Nepal also claim that HVA farming is linked with farmers' income, employment, and livelihoods. Citing evidence from Bangladesh, India, Sudan, China, and other countries, Thapa et al. (2018) claim farmers are attracted to HVA because of high productivity, income, and employment generation. Simmons (2003) suggests farming of HVA in African developing countries was to increase people's income and improve livelihoods. Farmers use income from HVA to fulfil their basic needs of food and investment in health, education, purchasing valued assets, savings, and shares in companies in the African context (Diao et al., 2012). Miyata et al. (2009) find farmers have increased income from growing apples and onions in contract farming in China. In Thailand, farmers increased income from rubber plantation and invested it in children's education. Many returnee migrants also see rubber farming as a feasible occupation (Thongyou, 2014).

Haggblade et al. (2012) claim that HVA provides an alternative livelihood opportunity as subsistence agriculture suffers more from seasonal fluctuations in the agricultural calendars, part-time work, and long seasonal non-farm activities. As HVA farming is labour intensive, the greater availability of cheap labour in developing countries fits best with farming HVA (UNCATD, 2008).

2.1.3.2 Expanding market for HVA products

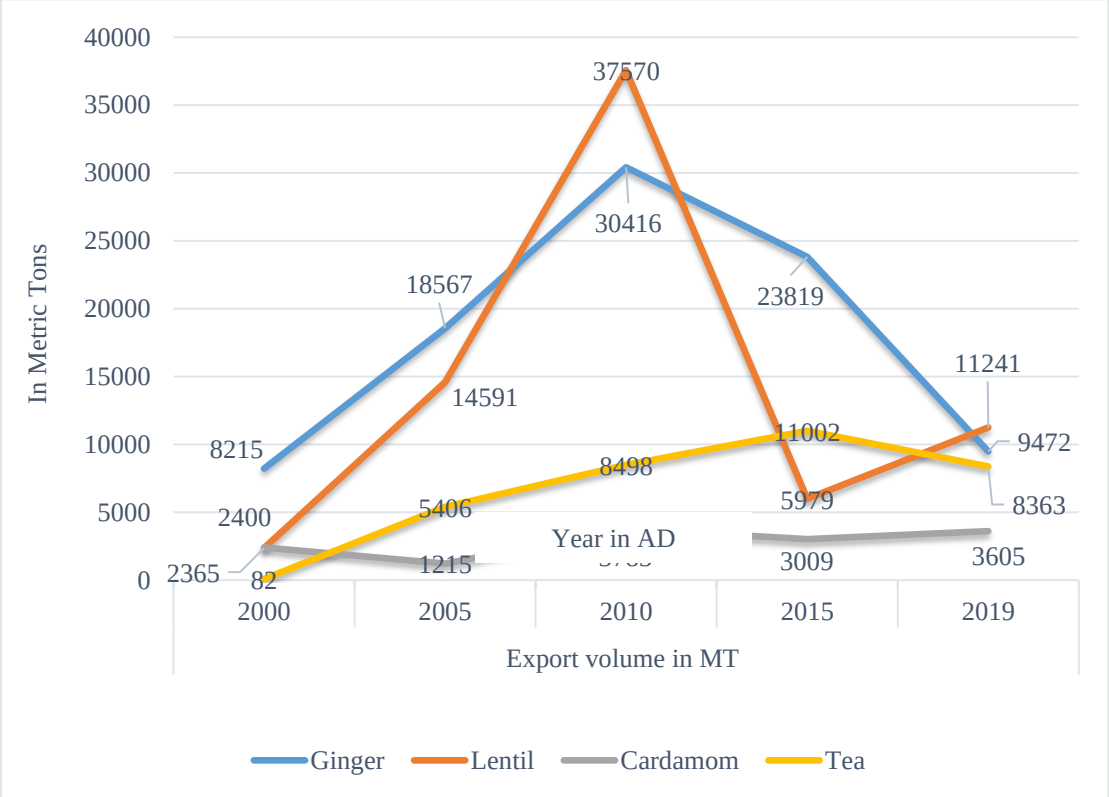
The market for HVA products has grown over the years. Access to the market and getting a fair price for their produce are vital to all HVA farmers, both small and large, and to men and women. Nepali farmers produce HVA products aimed at domestic and international markets. Fresh vegetables, fruits, honey, fish, and mushrooms are aimed at the domestic market, whereas tea, coffee, ginger, turmeric, garlic, chili, large cardamom are aimed at the international market. Among HVA crops on the international market, ginger, lentils, large cardamom, and tea are ranked top based on export volume and value. According to FAO Statistical Databases (FAOSTATS, 2020), collective export of ginger, lentils, large cardamom and tea by volume and value in the year 2000 was 13,062 MT and USD 7.133 million respectively. The volume and value of export of these products increased on average 7.5 per cent and 33.5 per cent per annum respectively in 2019. In 2019, they had reached 32,681 MT by volume and USD 54.869 million by value, Table 2.4 and Figures 2.2 and 2.3 show this trend clearly.

Table 2.4: Export volume and value of agricultural products from Nepal (2000-2019)

Product	Export volume (vol) in MT and value (val) in USD ('000)									
	2000		2005		2010		2015		2019	
	vol	val	vol	val	vol	val	vol	val	vol	val
Ginger	8,215	2,763	18,567	3,443	30,416	6,234	23,819	4,411	9,472	3,579
Lentil	2,365	1,093	14,591	7,273	37,570	51,193	5,979	8,378	11,241	11,523
Large cardamom	2,400	2,915	1,215	2,873	3,783	16,016	3,009	42,866	3,605	23,427
Tea	82	362	5,406	6,778	8,498	16,340	11,002	17,694	8,363	16.340
Total	13,062	7,133	39,779	20,367	80,267	89,783	43,809	73,349	32,681	54.869

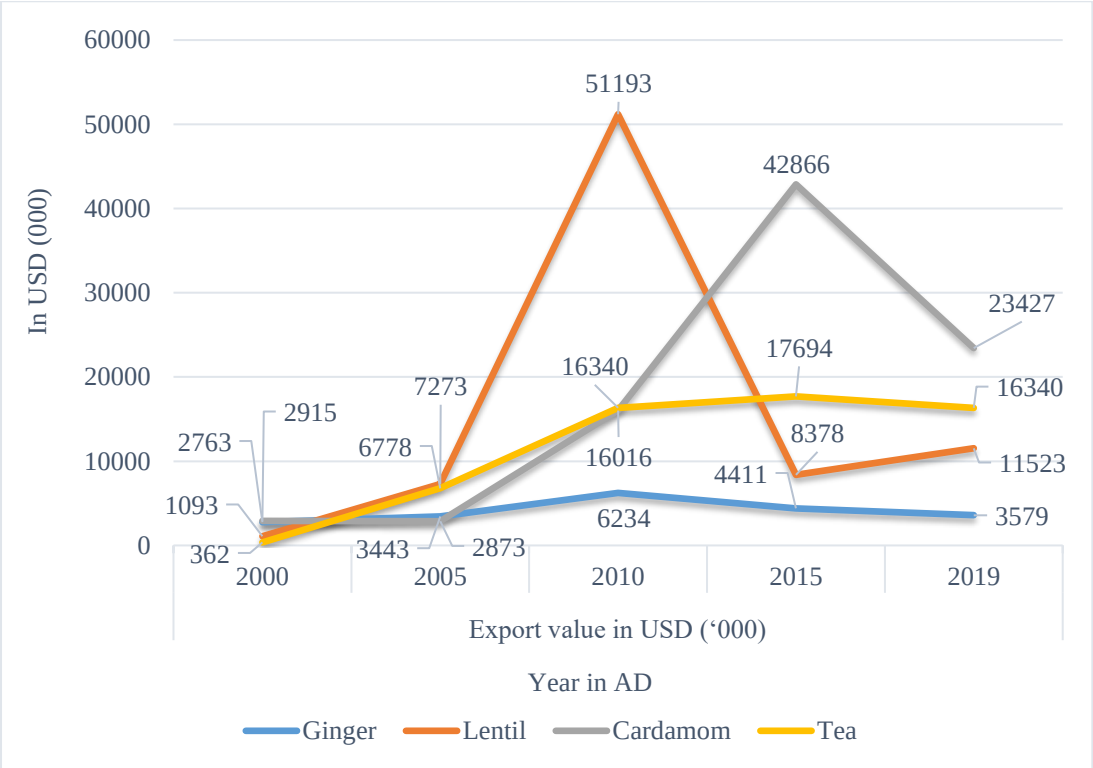
Source: Timeseries data, FAOSTAT (2021)

Figure 2.2: Growth in export volume of high-value products in Nepal (2000-2019)



Source: Timeseries data, FAOSTAT (2021)

Figure 2.3: Growth in export value of high-value products in Nepal (2000-2019)



Source: Timeseries data, FAOSTAT (2021)

The World Bank report (2021) highlighted the importance of export led HVA to Nepal. It stated that Nepal has potential to create an additional 38 jobs in agriculture for every USD 1 million of new exports. Further, if the country can harness its full potential, it can generate an additional 220,000 jobs in the agriculture sector. Nepali farmers can benefit from the export of HVA products, which is facilitated by developing regional and global value chains. These value chains have connected farmers from developing countries with the consumers of developed countries (Bamber et al., 2013; Pietrobelli & Rabellotti, 2011). These value chains have also increased composition of agricultural trade. Likewise, the development of fast-food culture with increased processed products, and location of food processing in different parts of the world have created an enabling environment for the production of export led HVA (Minot & Roy, 2007).

2.1.4 Changing gender roles in agriculture

The shift in agriculture in Nepal has not only increased women's participation in the agricultural labour force, it has also changed the gender-based division of roles.

In Nepal, women made up 70 per cent of the labour force in agriculture during the mid-2000s (Bhadra & Shah, 2007). In the last 10 years, this has increased to 80 per cent (Food and Agriculture Organization [FAO], 2019). With this, the share of women in paid employment has also reached 44.8 per cent in 2015 (NPC, 2016). Several studies also claim that men's reduced presence in agriculture provides opportunities for women in paid jobs in Nepal (Devkota et al., 2020; FAO, 2019; KC & Race, 2020; Maharjan et al., 2012; Pokharel, 2019).

The division of roles among men and women are less distinguished in HVA than in subsistence agriculture, such as in the pigeon-pea value chain in Malawi (Malapit et al., 2018; Me-Nsope & Larkins, 2016). In subsistence agriculture, women's collective engagement is confined to the exchange of labour for production. But in HVA, it has capacity for coordinated production, increased access to market, reduced marketing costs, and synchronised buying and selling (Shiferaw et al., 2016). Collective engagement also brings synergies which amplify each member's efforts to get higher socioeconomic benefit than the individual can. This creates an environment to emerge in public space, strengthens the agency of women (Deere & Doss, 2006; Farnworth et al., 2019; Upreti et al., 2018), and promotes the collective and individual agency of women.

Studies citing specific cases across countries of the Global South, claim that HVA has helped to improve women's socioeconomic condition. In Nepal, women who participate in paid roles in HVA or who are self-employed on their own farm, get more income and employment opportunities (KC & Upreti, 2017; Rana, 2019). Furthermore, HVA gives women space to participate and influence household farming decisions, for example: buying inputs such as fertiliser, seeds, equipment (KC et al., 2016; Upreti et al., 2018).

Similarly, the cut flowers value chain in Guatemala provides 48 per cent employment to women in production and 49 per cent in value addition (Dűrr, 2018). Likewise, in Uganda, women involved in HVA have better lives and are more able to make family decisions and earn social recognition (Alam, 2012). Duflo (2012) finds that women's recognition in the family increases when they can financially contribute to family food, health, and education.

In addition, HVA provides space for women to work together with their spouses and bear shared responsibility for financially supporting the family and caring. This builds cooperation and trust among them. It also provides an environment for women's mobility, creates space for women to form formal and informal groups of mutual interest, increases access to assets and improves their financial conditions (KIT, Agri-Pro Focus & IIRR, 2012; Meinzen-Dick et al., 2019). An increased financial contribution gives women more recognition in the family and means they are more able to have their voice heard in public. Such changes in gender dimension are not only linked to the division of roles, but also to livelihood opportunities and access to market. However, HVA also has associated livelihood risks, gender inequalities, and constraints in market diversification. All of these are discussed in detail in the following sections.

2.1.5 HVA and associated risks

2.1.5.1 Livelihood risks

Farmers are cultivating HVA in the mid-hills of Nepal in the context of growing uncertainties linked to environmental factors including climate change. At present, farmers who rely on HVA for their livelihood are facing negative effects of climate change such as seasonal rainfall, long droughts, and crop damage by unprecedented windstorms and hailstorms (Acharya et al., 2021; Joshi & Joshi, 2019; Karki et al., 2020; Khanal et al., 2018). HVA production is also impacted by the ill effects of unpredicted change in degradation of soil quality, crop disappearance, water scarcity for irrigation, increased incidence of insects, pests and diseases, declining productivity, and quality of agricultural produce (Deshar, 2013; Shrestha & Nepal, 2016; Wester et al., 2019).

Several studies have also questioned whether HVA is resilient to disruptions in product value chains, and heavy price fluctuations (Acharya et al., 2021; Amin et al., 2020; Dahal et al., 2009; Kafle et al., 2021). They claim that traditional crops provide a resilient livelihood to farmers. According to Wester et al. (2019), a large population in the Hindu Kush Himalayas depend on traditional crops for their food and livelihood security. Adhikari et al. (2021) claim that in terms of food security of farmers, traditional crops are more resilient than HVA. Gauchan et al. (2020) argue that traditional crops not only play a crucial role in household food security and livelihood for mountain communities but also safeguard biodiversity for future generations. In the same vein, Adhikari et al. (2019) portray traditional crops as future smart crops

considering their social acceptance, high nutritional value, high agrobiodiversity, resilience of farming systems, and efficient energy use of energy in the production cycle.

2.1.5.2 Gender inequalities

Many studies claim women's growing role and increased participation in agriculture in Nepal (Adhikari & Hobley, 2015; Paudel et al., 2016; Rana et al., 2018; Spangler & Christie, 2020; Tamang et al., 2014). This has become a common phenomenon in the countries of the Global South including Nepal (Bigler et al., 2017; Gartaula et al., 2010; Khader, 2019; Lastarria-Cornhiel, 2006; Song et al., 2009). The term used to define this phenomenon is the feminisation of agriculture. This phenomenon is also argued as the collective outcome of shifts in agricultural practice and production (Adhikari & Hobley, 2015; Paudel et al., 2016; Tamang et al., 2014), growth in demand in both domestic and world markets, men switching to non-farm jobs and men's out-migration (Upreti et al., 2018). However, the increasing participation of women in agriculture is also inevitably affecting the traditional division of roles among men and women.

Studies on the feminisation of agriculture in Nepal have claimed that this has negatively impacted women. Tamang et al. (2014) argue it has added a burden to women, left women in a weak socioeconomic condition, and added to women's roles in the household and community. Such a situation mean that women's time is more constrained than ever (KC & Race, 2020; Upreti et al., 2018). Amongst women, the feminisation of agriculture has differential impacts because women are characterised by caste/ethnicity, gender, class, and socioeconomic status (KC & Race, 2020).

In contrast, farming technologies or agricultural equipment are less suited to women farmers, for example, improved plough in hills. In some communities, social norms restrict women's use of the plough or other agricultural equipment (Devkota et al., 2020). In Nepal's agriculture sector, the FAO (2019) reports that women agricultural workers receive 25 per cent lower wages than men in the same role. It has also revealed that the productivity of farms managed by women is lower than farms managed by men. This is attributed to women's unequal access to production assets combined, with poor knowledge and skills, weak decision-making, and bargaining power. They also face a triple-work burden (productive, reproductive and community work), have limited knowledge about market dynamics, and restricted opportunities for

setting-up micro-enterprises and agriculture businesses (FAO, 2019). Furthermore, existing agricultural policy, institutions and technology have not paid enough attention to harness women's potential in agriculture.

Women have contributed to changing farming practice in the countries of the Global South with differential impacts on them (Bieri, 2014; Bigler et al., 2017). Bieri (2014) finds that women prefer traditional food crops to ensure family food security whereas men prefer farming HVA crops because it provides cash for buying food products, and meets household needs for money. Unlike subsistence agriculture, HVA crops have longer value chains which provides further scope to engage women. Studies on gender division of roles in the agricultural value chain claim that there are more women at the bottom where they are paid less, and in roles that are less secure, less recognised and work in poor conditions (Gartuala et al., 2010; KC & Race, 2020; Malapit et al., 2018). Such a division of roles are linked to women's poor access to finance, self-confidence in taking risks and sociocultural constraints (Upreti et al., 2018; KC et al., 2016).

It is also open to question whether women involved at post-production in HVA face more constraints than women in production. Studies outside of Nepal, for example, in Guatemala's pigeon pea value chain, shows women face mobility restrictions, unequal division of labour in reproductive and household chores, limited access to public transportation, limited credit, and fewer non-farm employment opportunities. Such a situation leads women to poor performance (Meinzen-Dick et al., 2019). In addition, in the labour market, employers perceive women as submissive and docile; they believe women are more suited to tasks that require care and patience, women are more flexible than men in terms of working conditions (hours, wages, contracts etc.) and are more willing to work without any job security (Lastarria-Cornhiel, 2006).

Cabezas et al. (2008) demonstrated that women face labour disadvantages, risks and insecurities where the division of roles is based on access to and control over resources. Meinzen-Dick et al. (2019) claim that women are in a subordinate position to men when it comes to choosing roles which provide better economic opportunities and recognition. Some authors also argue that women face unfair treatment in terms of roles, employment, pay, property ownership and asset accumulation, access to education or skills, and women are also constrained in terms of technology, credit, and market information (Ajani & Igbokwe, 2014; Raney et al., 2011; Song et al., 2009).

Other studies have also shown that such conditions limit women's potential contribution in HVA and put them in a vulnerable position (Hill & Vigneri, 2011).

Chant (2008) claims that when discussing women's increased income from HVA, one should not forget that they also have an increased workload. Chant (2014) emphasises the time that women spend in farming HVA as well as in household roles can lead to time poverty. Furthermore, women possess unequal access to farm inputs to services because they have weak networks. Moreover, women face obstacles in the choice of roles (Croppenstedt et al., 2013), face mobility constraints (FAO, 2013), do not earn the same as men (citing differences in performance level), and women are also likely to be in less secure roles (Erenstein & Rahut, 2014; Nakazibwe & Pelupessy, 2014).

Apart from the above-mentioned livelihood and gender related risks, HVA also seems to entail several market associated risks. This is due to fluctuations in price and dependence on the solo Indian market. Some of these issues are discussed below.

2.1.5.3 Constraints in market diversification

Though there is a constant increase in export volume and value of HVA products from Nepal, the export market is dependent in India. Among exported HVA products, more than 95 per cent of ginger, large cardamom and tea is sent to India. Nepal trade portal export data for 2020 shows the country exported 99.4 per cent (in volume) of ginger to India and 0.6 per cent to Bangladesh and Japan. In the same year, Nepal exported 95.5 per cent of its tea to India. The rest of the tea was exported to Russia, Germany, Czech Republic, Japan, France, and the United States (US). Likewise, Nepal exported 99.3 per cent of its large cardamom to India and only 0.7 per cent of its large cardamom to Pakistan. In contrast, Nepal exported 49.3 per cent of its medicinal and aromatic plants to France, 24.6 per cent to India, 17.1 per cent to USA, 6 per cent to China and 3 per cent to Pakistan (MoICS, 2019a). It is argued that such heavy dependence on the Indian market could limit the growth of HVA in Nepal.

Nepali HVA export is largely dependent on the Indian market. Nepal has exported tea and large cardamom to India for over 100 years. Despite this long history and experiences, Nepali traders are finding it very hard to diversify the market beyond India. Identifying what has limited Nepali HVA products from accessing markets outside of India is challenging. Government and private sector efforts to diversify the

market have so far proved ineffective. For example, the registration of trademarks 'Everest Big Cardamom' and 'Nepal Tea- Quality from the Himalaya' for large cardamom and tea respectively were supposed to make a difference in export market diversification. However, this has made zero difference in reality (KC, 2019).

With an aim to diversify its market, the government of Nepal adopted liberal economic policies in 1992, joined the WTO in 2004, SAFTA in 2006, and revised its trade policies in 2009 and 2015. To support export, the Nepal government launched the NTIS in 2010 and later revised it in 2016. The current ADS (2015-2035), and the 15th Periodic Five-Year Plan (2019/20-2023/24) of Nepal also emphasise agricultural commercialisation and market diversification. To facilitate this, the government is implementing a high-priority project, the PMAMP across the country. But there have been no significant changes, particularly in export market diversification.

In conclusion, a thorough review of studies on commercial farming has revealed knowledge gaps regarding resilient livelihoods, gender roles, and market issues. Starting with resilient livelihoods, there is a knowledge gap in farmers' understanding of resilient livelihoods, livelihood risks, and farmers' responses to those risks. Certainly, farmers have adapted to those risks through spontaneous or planned adaptation measures. However, it is under explored how effective these adaptation measures are and the social, economic, and environmental implications of those adaptation measures.

Likewise, a dominant body of literature has claimed that roles in agriculture are gendered. However, it is not apparent if the same applies to HVA. Unlike in traditional agriculture, the intensive demand for labour, a different set of skills, technology, and resources by HVA can create a separate space for men and women. However, it has not been explored in depth to what extent roles are gendered in HVA and how they differ across the value chain nodes. Social norms have a huge influence on the division of roles and gender relations. However, there is less research on how capabilities link with the division of roles and how capabilities reshape gender relations.

Another knowledge gap is on export market diversification of Nepali HVA products. Why has Nepal failed to diversify its market despite having over 100 years of export experience? The reasons may include the fact that the Indian market provides lucrative prices than elsewhere, the Indian interest in Nepali agriculture products, or

Nepali traders' own capacity to handle exports. It is highly risky to depend on a solo market. Market diversification is also about the sharing of risks and safeguarding the livelihoods of farmers and other value chain actors. Thus, these knowledge gaps provide the foundation to formulate the research objectives and questions for this study which I explained in Chapter One.

2.2 Gender Inequality and Women's Empowerment in Agriculture

2.2.1 Feminisation of agriculture

The debate on gender inequality in agriculture came to the fore in the 1970s in the form of the feminisation of agriculture. This is one form of gender inequality where the livelihood of people depends on agriculture and agriculture depends on women. The concept was first put forward by Ester Boserup to describe the female context in European countries in the early 1970s. There women were bearing responsibility for both household roles and farm roles as men out-migrated to work in industries (Song et al., 2009). Since then, the concept has developed to capture a range of diverse issues women face in agriculture. Feminisation of agriculture happens through women's increasing participation in the agriculture labour force as independent producers, as unpaid family workers, or as agricultural wage workers (Lastarria-Cornhil, 2006).

Since then, gender inequality debates in the countries of the Global South have been more directed towards the feminisation of agriculture. Gender inequality in agriculture refers to a situation where men and women do not enjoy the same rights, opportunities, resources, obligations, and benefits; and where men and women are found in different roles or paid different wages because of their gender. In contrast, gender equality is a situation where men and women have equal opportunities to realising their full human rights and for contributing to, and benefiting from, economic, social, cultural, and political development (Markel & Jones, 2014). There is an argument that to achieve gender equality, society must place equal value on the similarities and differences between men and women, and the roles they play. This includes equal visibility, empowerment, and participation of both sexes in all spheres of public and private life. This is not the same as establishing men, their lifestyle, and conditions as the norm (Deere, 2009).

In the same vein, gender equity is taken as a process of being fair to men and women by putting certain measures in place. Through this process, women are enabled in a way that allows both women and men to operate on a level playing field. This implies considering the interests, needs, and priorities of both women and men. It also means recognising the diversity of different groups, and abilities to make choices without limits set by stereotypes and prejudices around gender roles (Akter et al., 2017). It was observed that gender inequality persists in agriculture in Global South countries even where the sector depends on women's labour. This shows the need for equity related provisions for women.

Feminisation means incorporation of women into a group or a profession that was once dominated by men (Douglas, 1977). Broadly, it is the shift in gender roles and sex roles in a society, group, or organisation towards a focus upon the feminine (Bradshaw et al., 2018). In agriculture, feminisation can be observed in the form of labour, a process by which increasingly more women work in farming, or as managers. Managerial feminisation occurs in a situation when women become primary decision-makers and gain greater access to agricultural resources (Lastarria-Cornhil, 2006).

Pattnaik et al. (2018) observed the feminisation of agriculture in two ways. First, there was increased women's responsibilities in small production and growing participation as wage workers. Second, it was observed in the form of how women define, control, and enact the social processes of agriculture. This can be labour, ownership of farmland, access to resources, the power to make decisions, recognition in the public sphere and others traditionally assigned to men. They further explained that the process of feminisation of agriculture is influenced by market policies, such as import liberalisation, privatisation, liberalising labour, land, and capital markets.

Agriculture is in a state of flux in many countries of the Global South in terms of the active engagement of women. This transition includes a mass population decline from agriculture and a structural transformation of the sector. As such, agriculture is unable to fully employ and sustain livelihoods (Lobao & Meyer, 2003). Agricultural transformation means a shift in farming practice from subsistence to commercial as a major livelihood strategy (Poulton & Lyne, 2009). This transformation is influenced by income, investment, and access to productive resources (Govereha & Jayne, 2003).

Agriculture in Nepal is also transitioning from subsistence farming to HVA crops (KC, 2019). This process is influenced by climatic suitability, labour availability, high income, market demand and accessibility and investment from financial institutions. In addition, HVA provide opportunities for coordinated work among family members and application of technology. Social processes like rural to urban migration, urbanisation, dietary transformation, occupational profile, and increase in per-capita income have brought changes in food demand patterns from cereals towards HVA and processed foods (Mishra et al., 2018; Thapa et al., 2018).

HVA has a major role in shifting agricultural practice in Nepal. HVA here means crops which are cultivated to sell in the market and support livelihoods from this income. This research includes HVA crops as 'cash crops' and 'other crops' category as defined by the agriculture ministry of Nepal (MoALD, 2020). The government has made HVA a priority and adopted policy that facilitates developing marketing channels, expansion of processing farms, large-scale outlets, and food service industries (Pokharel, 2019). With this, food quality that meets Sanitary and Phytosanitary Standards (SPS) have become mandatory regulatory measures in export trading of HVA products (Minot & Roy, 2007).

2.2.2 Gender-sensitive agricultural value chains

There is a general claim that the development of agricultural value chains, allows smallholder farmers of rural regions to connect with consumers near and far and benefit. Studies on the agricultural value chain further argue that regardless of whether the value chain of an agricultural product is small (local) or long (regional or global), it can provide opportunities for farmers or small traders from developing countries to take part in globalised trade (National Board of Trade [NBT], 2013). In addition, this can bring changes in production, value addition and trading patterns with new knowledge and innovation, and increased farm productivity (Pietrobelli & Rabellotti, 2010).

The concept of the value chain was first put forward by Michael Porter (Baum, 2013). A value chain comprises a full range of activities required to bring a product or service from conception to the final consumer, and disposal after use (Farnworth, 2011). In the value chain, actors operate in the context where the institutional environment makes each value chain unique by a distinct combination of 'links'. These links are

coordinated to add value at each stage and to respond to demand at local, national, and international markets (SPORE, 2012). Value chain actors operate within an institutional environment, which can either facilitate or hinder its performance (Gereffi, 1995).

There is also a general claim that value chains are gender sensitive. Gender-sensitive agricultural value chains benefit women and small farmers from developing countries by linking them with rich consumers in developed countries (Nakazibwe & Pelupessy, 2014). However, Lanjouw (2007) pointed out the gaps that agri-farms operated by small farmers involve simple, labour-intensive technologies, possess small capital for investment, and purchase few or low-quality inputs. This leads to lower farm productivity, less income, and low returns for family labour.

Likewise, Pietrobelli (2008) finds that small firms in developing countries are not benefiting from the development in agricultural value chains as they should. This is because they lack institutional and infrastructural support, resources, and efficient and effective coordination in value chains. Blank and Thompson (2004) add that small changes in demand or supply can create market niches that succeed or fail on the product's desirability and how profitable it is. This debate reveals that when value chains are inclusive and profitable, they can be the means of women's empowerment and if not, they can disempower women. This raises another question that even if agriculture is feminised do women benefit from high-value and their access to market? The section below takes a look at women's empowerment in agriculture.

2.2.3 Women's empowerment, agency and power

Women's empowerment is a means to minimise gaps between men and women in the social, economic and environmental spheres of a society. The term 'empowerment' was first used by Barbara Bryant Solomon in her book, Black Empowerment: Social Work in Oppressed Communities in 1976 (Solomon, 1976 as cited Wong, 2003). This concept was developed further by other academics. Sen and Grown (1987) used 'empowerment' to indicate the situation of women in the Global South where women's roles are less welcome in the development process. To release women from suppression, women need the power to bring about change in the development method and structure. They consider women's empowerment as a method

to educate and inform women about social, economic, and political processes that affect their lives.

Kabeer used the term empowerment to describe ‘the expansion in people’s ability to make strategic life choices in a context where this ability was previously denied to them’ (Kabeer, 1999). She further explains that women’s empowerment is a situation where women have control over key aspects of their own lives. This can include roles in decision-making around earnings and expenditure; self-reliance where women support each other, and choices, such as choosing their spouse. Women’s empowerment comprises resources, agency, and achievements (Kabeer, 2001). It is a process where individuals or groups of women are supported by institutions or agencies to enhance their abilities (Rowlands, 1998). Tandon (2016) defines empowerment as women’s ability to earn and use earnings for their own and for household needs, and the means to make important decisions. Women’s empowerment is subjective and shaped by social context, including participation in development projects (Meinzen-Dick et al., 2019). Not all women in a community need empowerment. Empowerment is required for women who are dominated because of gender, caste and ethnicity, being poor, and people from religious or cultural minorities (Batliwala, 2007). Empowerment helps them to become aware of their own surroundings, choices and political situation (Datta & Gailey, 2012). Women’s agency is vital to the empowerment process.

Agency enables women’s independent ability to express and make meaningful choices from the options available, and impose those choices where they live (Appadurai, 2001). Agency can be both for an individual or group members working collectively. A person without agency is forced, oppressed, or passive. Agency expands the horizons of concern beyond a person's wellbeing or helping others. People who have agency are active, creative, and can act on behalf of their aspirations. The concern for agency means that development processes should foster participation, public debate, and democratic practice (Alkire & Deneulin, 2009). Agency is what a person is free to do and achieve in pursuit of whatever goals or value they deem important. The capability approach (CA) puts human agency at the centre. This is where social opportunities can help grow the realm of human agency and freedom, for both this purpose and to further expand freedom. CA views a person with agency as having

diverse valued goals and commitments, both on their own behalf and those of their society.

Empowerment and agency are influenced by the power differentials between men and women. Rowlands (1995) defines power as an ability of an individual's choice, self-confidence, political participation, and organisation for better conditions. Paechter (2006) defines power as the relationship between men and women in social, economic, political, and cultural spaces. Power can be expressed as 'power over' meaning dominating others, 'power to' meaning enacting personal goals, 'power with' meaning acting collectively toward shared interests, and 'power within', meaning internalised power derived from self-respect, self-efficacy, and awareness of rights (Rowlands, 1997).

It is necessary to understand the nature of power in the context of the dominant power structure and subordination that exists in society (Hartsock, 1987). Altering the power relationships among men and women by strengthening agency empowers women (Miedema et al., 2018). Women's empowerment does not aim to reverse the relationship between men and women (Meinzen-Dick et al., 2019), and neither is women's empowerment at the expense of men (Rowlands, 1997).

This research considers women's empowerment in agriculture as a situation where men and women are equally able to decide which roles they take, are involved in farm and family decisions, family earning and participate in public by overcoming sociocultural and economic barriers. Likewise, agency refers to women farmers' ability to make meaningful choices regarding farm decisions and family decisions around their preferred division of roles, access to resources and achievements. Women's agency is viewed in relation to access to assets. For example, owning land gives a person certain power to make meaningful choices. Power differential refers to how men and women interact with and influence each other in the social, economic, environmental, and political spaces created by HVA. This also includes how power differences among men and women affect them in their private, family, and public spheres.

2.2.4 Factors that influence women's empowerment process

Human diversity, social structures, institutions, and access to resources influence the process of women's empowerment by creating power differentials. Human diversity exists in society in the form of social class, gender, race, caste, and

ethnicity. This influences the plurality of functionings, and social, institutional, and environmental contexts. In turn, this affects women's capabilities and their functionings (Robeyns, 2017).

Social structure influences women's agency. Social structure refers to a distinctive stable arrangement of institutions whereby human beings in a society interact and live together. This explains integration and trends of inequality among members of society where individual choices are shaped and circumscribed by the social environment. As such, human beings in a society are not completely free and autonomous in their choices and actions due to social constraints (Encyclopaedia Britannica, 2018).

Social structure creates power differentials in access to economic, political, and social opportunities by enabling some people and constraining others (Logan, 2006). People who face structural constraints have lower conversion factors than those who do not have them (Robeyns, 2017). For example: if gender orientation has explicit or implicit discrimination in the labour-market, those discriminated against will be unable to use the same labour-market resources to generate the same level of capabilities in the professional sphere of life when compared to those who face no (or less) discrimination. Structural constraints also restrict upward mobility due to social norms and societal discrimination related to gender, caste, and others (Robeyns, 2017).

Social institutions influence agency and empowerment of an individual or group by shaping interaction among members in a formal or informal way (North, 2010, as cited in Holmes et al., 2011). Institutions shape societal interactions through codified and explicit rules and standards (formal) or by written or unwritten norms, values, beliefs, and traditions (informal) (Casson et al., 2010; Hodgson, 2015). Informal institutions influence formal institutions from their governance system which depends on shared meanings and collective understandings (Casson et al., 2010; Scott, 2005).

Social institutions shape relations and the preferences of men and women in society by subverting or facilitating the social change process (Hoobler et al., 2014). They frame gender roles and the distribution of power in different social platforms - including family, market, social and political life. This influences social and economic opportunities, autonomy, and capabilities of women. They shape women's preferences

so that women prefer roles that are less challenging, physically less hard, low risk and show less interest in taking new roles (Niederle & Yestrumskas, 2008). They also contribute to the reproduction of masculine authority (West & Zimmerman, 1987).

Analysis of social institutions demonstrates men's interests and masculinity (Acker, 1992) as well as the ways that enable women to come out of poverty, debt, and food insecurity (Sen & Grown, 1987). Likewise, analysis of social institutions helps already empowered to exercise their actions (Alkire, 2008). As institutions are key in distribution of resources, institutional analysis can create space for women to access resources (Markel & Jones, 2014). Thus, institutions can facilitate or constrain women in terms of access to resources.

Access to resources refers to women's access to and control over human, material, and social resources required for agricultural production, value addition and trading. Here, human resources include labour, time, knowledge, information, soft and hard skills. Likewise, material resources include cash, financial services, land, and productive equipment, while social resources include access to power and networks / connection with others (Kabeer, 2018). Kabeer argues many of the deprivations and deficits that women experience come from their weak economic capabilities, and thus emphasises the important of enhancing these.

2.3 Theoretical Approach/Frameworks

2.3.1 Capabilities approach

2.2.1.1 Understanding capabilities approach

The capabilities approach and value chain approach provide an analytical framework for this research. In the capabilities approach, 'capabilities' refers to the various combinations of functionings (beings and doings) that the person can achieve (Robeyns, 2017), and substantive freedoms 'a person' that enjoys leading the kind of life they value and have reason to value (Alkire & Deneulin, 2009). Capabilities exist in various forms– including basic, internal, collective, and combined. Basic capabilities are the innate capacity of individuals necessary to develop advanced capabilities (Nussbaum, 2000). Internal capabilities are the state of a person that enables him/her to exercise a specific capability, the person has the conditions to exercise these requisite

functions and speaks the native language (Robeyns, 2017). Likewise, combined capabilities are also the internal capabilities together with the external provisions that effectively enable the person to exercise their capability (Nussbaum, 2000).

Collective capabilities are a sub-set of individual capabilities which are not mutually exclusive capabilities that require action by a group to be realised (Robeyns, 2017). Collective capabilities also refer to the function of people's primary engagement in social relationships and can be a means to alter pre-existing unequal power relations. Collective and individual capabilities mutually reinforce each other to negotiate norms, challenge existing inequalities, and defend their rights (Ibrahim, 2006).

Capabilities are various combinations of functionings where this refers to things a person may value doing or being. For example: being healthy and well-nourished. When people's basic need for food is met, they enjoy the functioning of being well-nourished (Alkire & Deneulin, 2009; Robeyns, 2017). Functionings are achievements in terms of being and doing against their capabilities. Functionings are key elements of human life, which consists of both wellbeing and ill-being. Examples of ill-being include suffering from an excessive level of stress or suffering from an incurable disease. Functionings include working, resting, being literate, being healthy, being part of a community, and being respected etc (Robeyns, 2005).

Individuals with equal resources may not have equal ability to convert them into valuable functionings. This is because they might have different levels of conversion factors - or the ability of a person to convert resources into functionings (Robeyns, 2017). Conversion factors can be influenced by personal condition: physical state, skills, or intelligence; social condition: public policies, social norms, practices, power relations related to class, gender, race, or caste; and environmental: the physical or built environment in which a person lives (Robeyns, 2017).

2.2.1.2 Analysis of capabilities

Capabilities analysis is the evaluation of a person's achievements and freedoms in terms of his or her actual ability to do different things. Capabilities analysis evaluates inequality, poverty, changes in the wellbeing of person, or the average wellbeing of members of a group. This also evaluates unfair gender inequalities (Robeyns, 2017).

Analysis of capabilities starts from ends rather than from means. This is because people differ in their ability to convert means into valuable opportunities (capabilities) or outcomes (functionings). Means can depend on context. For example, for some capabilities the most important means can be financial resources, whereas for others it can be change in political practices and institutions. Ends matter when we are thinking about wellbeing and quality of life. Means provide reliable proxies of people's opportunities. For many ends, material resources are not required, for example - self-respect, supportive relationships (Robeyns, 2017).

Capabilities analysis considers income and social indicators of multiple dimensions of human life (Robeyns, 2017). Moreover, this approach provides flexibility in the choice of research indicators so that these are linked with the goals to be evaluated. While selecting capabilities, Alkire and Denulin (2009) suggest choosing those that people value and that are relevant to a given policy, project, or institution.

2.2.1.3 Application of capabilities approach

The capabilities approach provides a suitable framework to examine the real-life situation in their material and social settings (Nussbaum, 2003). Nussbaum believes gender inequality exists in societies where women have unequal human capabilities, and which are the product of discriminatory sociocultural practices. These can be observed in- women's nourishment, physical violence, sexual abuse, or harassment in the workplace, less access to education or technical training, family obstacles to work, gender discrimination in hiring, barriers to participating in political life etc.

In many nations, women are not treated as equals in terms of voting rights, property rights, rights of association, mobility, and religious liberty. Women in many countries and cultures must also bear full responsibility for housework and childcare. This limits their opportunities. Some are also forced into marriage and are unable to escape abusive relationships. Such social and political circumstances give women unequal human capabilities (Nussbaum, 2000). This research has adapted the list of human capabilities to assess gender inequality in HVA, specifically in large cardamom from the list of central human capabilities of Robeyns (2003, 2017). Table 2.5 provides a list of capabilities, indicators and respective functionings for this study.

Table 2.5: Women's capabilities and capabilities indicators used in this study

Capabilities	Indicators	Functioning
Knowledge and skills	Women possesses knowledge, skills, information related to production (nursery, harvesting), value addition (drying), and trading Large Cardamom (LC)	Women's actual involvement in production, value addition and harvesting LC
Interest to enter into farm jobs	Employment conditions and or social norms do not constrain women from going into farm jobs	Proportion of women in paid jobs in LC value chain
Role related mobility	Women do not face constraints in choosing roles that require mobility	Actual involvement of women in roles that require mobility
Role related decisions	Ability to make decision regarding LC farming, trading and others	Women's area of influence in role related decisions
Access to resources	Women do not face constraints in access to resources required by role	Women mobilise available resources to perform their roles
Physical and mental health	Women are free not to choose roles which affect their physical and mental health	Non-participation of women in roles that affect their physical and mental health
Physical strength	Women possess physical strength to perform role of choice	Participation of women in roles that require physical strength
Women's collective strength	Women benefit from involvement in groups / cooperatives	Area of women's collective involvement and benefits from there

Source: Author (2018), adapted from Robeyns (2003, 2017)

2.3.2 Value chain framework

2.2.2.1 Understanding value chain framework

Value Chain (VC) is a market-driven approach encompassing a network of competing vertical supply channels linking input suppliers, farmers, processors, distributors, and final consumers. The value chain map provides a schematic snapshot of value chain actors and the existing structure of raw material, product, and information flow at a given point in time. The vertical product flows describe the alternative supply channels, while each horizontal level shows the product function (Haggblade et al., 2012).

In the value chain, there are no long-term relations between actors and the market price is central to the governance mechanism. All value actors, including poor, compete in the markets without specific support aimed at facilitating market access and/ or guidance from buyers on quality, quantity, or commitment. In contrast, in the relational value chain, transactions occur in the framework of established relations

among actors. The forms of relational value chain can be buyer-driven, where a dominant buyer determines what is produced and sold, producer-driven where farmers and their organisations constitute the lead actors and determine the production and trading, and intermediary-driven where key links are fostered by third parties, usually service providers or social institutions (Haggblade et al., 2012).

Vertical coordination describes how value chain actors of a certain enterprise interact with their input suppliers- one or more functional levels below them in the value chain map; and with the firms that buy their output- one or more functional levels above them in the value chain map. The nature of these interactions defines the governance structure, which influences the distribution of benefits and, in turn, reflects the distribution of power and control within the value chain (Haggblade et al., 2012).

A horizontal slice of a value chain traces the major categories of competing firms in an industry. Horizontal coordination among firms can often confer competitive advantages too. Farmer associations and marketing cooperatives help large numbers of small value chain actors to increase their bargaining power and to reduce transaction costs. Also, horizontal coordination helps to reach economy of scale in production to attract high prices and meet the requirements of larger farms (Haggblade et al., 2012).

2.2.2.2 Analysis of agricultural value chains

Value-chain analysis (VCA) is a method to increase competitiveness of an agricultural product by pinpointing where and how value chain participants could introduce efficiencies, reduce costs, and maximise value. Analysing the value chain map of a product provides competitive market niches that work for smallholder farmers or entrepreneurs. Porter was first to popularise the use of competitive strategies to promote consumer behaviour that make value chains more competitive. The competitiveness of the product can be improved through process upgrading, product upgrading, or functional upgrading (Haggblade et al., 2012).

Baum (2013) adds that competitive capacity of the product is determined by the capacity to supply as per demand, ability to meet the quality of the product demand, price of the product as compared to alternatives, and delivery time. VCA provides useful information on structural linkages, actors, and dynamics of the product studied. This also helps to identify where, how, why, and by whom value is added and created

along the chain as well as how changes could result in improved performance (Hawkes & Ruel, 2011).

VCA provides an analytical and diagnostic method to identify viable, remunerative, income-earning opportunities for poor households in developing countries (Farnworth, 2011). This analyses opportunities and constraints that agri-business face while integrating into longer value chains which can be regional or global. Global value chains are dominated by agri-business that requires suppliers to comply with an ever-growing set of standards to secure access to markets (Tallontire et al., 2011).

Pro-poor VCA approach offers an analytical framework around challenges and opportunities faced by the rural poor (Stamm & von Drachenfels, 2011). The emergence of pro-poor VCA approaches raises new challenges on how to make value chains more inclusive for poor small farmers, women, and young people without harming their competitiveness. An inclusive VCA approach calls for a balance between competitiveness and equity so that small farmers, women, and young people benefit from participating in the value chain (Altenburg, 2007).

2.2.2.3 Application of VCA framework

Haggblade et al. (2012) suggest that VCA provides practical solutions for successful agricultural growth, improving productivity, marketing, and agro processing. In the product value chain, improved market access is necessary to maintain production incentives, permit household specialisation, and enable the movement to high-value products and value-added activities. In addition, VCA gives enough attention to the analysis of production and trade policies, social norms and values, institutional environment, infrastructure, research, extension, price information systems, and business development services (Farnworth, 2011).

A gender sensitive VCA approach provides a framework to analyse participation of women in farming and linkages with production and productivity of farms, the adoption of innovations and raising household incomes to ensure significant improvements in child health, nutrition, and educational levels. VCA reviews the policies and identifies constraints for women and smallholder farmers concerning production technology, product quality, perishability, price, input and skill requirements, and investment. Together, these create financial, physical, and human capital barriers (Farnworth, 2011). This study believes most

of the agricultural production system is structured by gender roles and responsibilities. Therefore, any attempt to intervene in value chains will affect gender relations.

For this study, VCA approach provides a framework for the thorough analysis of inputs supply, production, value addition, and trading of large cardamom, livelihoods opportunities and sustainability risks in farming. VCA also assesses horizontal and vertical relationships among actors and stakeholders. In addition, this framework provides space to map the participation of men and women in roles across the nodes of the large cardamom value chain. The outcome of this analysis is the value chain map. Table 2.6 provides an overview of components of value chain considered for study and respective indicators.

Table 2.6: Value chain analysis: function and indicators

Value chain node	Function	Indicators
Input supply	Ability to manage material and technical inputs	Inputs are accessible at each node and access to inputs is not changed by gender
Production	Involvement in LC production activities	Women participate equally in production and managerial roles in production
Value addition	Involvement in value addition activities carried-out at Rong and at Birtamod	Women participate equally in value addition and managerial roles in both study sites
Trading	LC trading in village, in Birtamod and export	Women participate equally in LC trading roles in both study sites
Relationship among actors and stakeholders (SHs)	Horizontal and vertical relationship among value chain actors and SHs is functional	Relationship among value chain actors and SHs is not influenced by gender identity

Source: Author (2018), adapted from Haggblade et al. (2012); Farnworth (2011)

2.3.3 Additional frameworks applied in this thesis

In addition to the capabilities and value chain approach, this research has also applied complementary frameworks including the livelihood resilience framework, farming system resilience framework, Women's Empowerment in Agriculture Index (WEAI) for value chains framework, and agricultural value chain analysis framework for developing countries. These frameworks provide a more specific lens to analyse research sub-questions.

2.2.3.1 Livelihood resilience framework

As stated earlier, farmers cultivate HVA crops, including large cardamom for high income and to improve their livelihoods. But there is not enough information on the resilience of farmers' livelihoods in large cardamom farming. Thus, to fulfil this research gap, this study assesses the livelihood resilience of farmers applying the Quandt (2018) livelihood resilience framework. Resilient livelihood here refers to the ability of farmers to deal with risk either spontaneously or through planned action. This includes livelihood strategies and activities that farmers adopt to cope and manage the impacts of risks in production or post-production. Resilient livelihood is measured taking indicators as farmers' access to livelihood assets: financial, human, social, physical, and natural. Table 2.7 provides an overview of livelihood assets studied and respective indicators based on large cardamom.

Table 2.7: Livelihood assets and resilience indicators of large cardamom farming

Livelihood assets	Resilience indicators
Financial assets	Farmers have regular and increasing income from LC and adequate savings or backup provisions at times of crop failure or falling price
Human assets	Farmers have knowledge and skills related to their roles which they can apply in other areas to enhance their livelihood
Social assets	Farmers including women are engaged in social networks which help to enhance role related capabilities, and support when they need it
Physical assets	Farmers have access to market infrastructure that facilitate production and trading
Natural assets	Farmers have access to production resources land, water and forest and they use these resources to maximise production

Source: Author (2019) adapted from Quandt (2018)

2.2.3.2 Farming system resilience framework

This study believes that resilient livelihood of farmers' is founded on resilient farming systems. A resilient farming system is defined as one which can continue to provide a vital service such as food production if challenged by severe climatic conditions, for example: drought, or by a large reduction in rainfall (Lin, 2011). A resilient farming system can ensure provision of the system functions in the face of changing economic, social, environmental, and institutional risks, by being robust and adaptable (Meuwissen et al., 2019). A robust farming system can withstand stresses and (un)anticipated shocks whereas an adaptive farming system is able to change the

composition of inputs, production, marketing, and risk management in response to shocks and stresses without changing structures and feedback mechanisms of farming system (ibid). For this study, perceived risks and resilience indicators are shown in Table 2.8.

Table 2.8: Perceived risks and resilience capacity of large cardamom farming system

Perceived risks	Risks description	Resilience indicators
Social	Shortage of labour in LC due to opportunities in non-farm jobs, men-outmigration Increased workload of women	Farmer's management strategies respond to labour shortage Women's traditional roles are shared by family members
Economic	Highly fluctuated market price of LC risks to lower income and increased financial burden to small farmers	Small farmers can cope with price risks through social network, savings and other means
Environmental	Climate change can affect water supply, increasing incidence of pest and diseases, uncertain natural risks may emerge (COVID-19)	Farmers can manage climatic or other environmental risks through adaptation measures
Institutional	Government policies and system is whether able to respond any form of farming risks or not	Farmers who face economic or environmental risks benefit from safety net like insurance and subsidies

Source: Author (2019), adapted from Meuwissen et al. (2019)

2.2.3.3 WEAI for value chains framework

The WEAI framework is used to analyse women's empowerment in five domains in agriculture. These include production, resources, income, leadership, and time. The framework is extended to value chains by the International Food and Policy Research Institute (IFPRI) and has been piloted in Bangladesh (Ahmed et al., 2018) so women's empowerment can be analysed more broadly. The extended Women's Empowerment in Agriculture Index for Value Chains (WEAI4VC) framework adds livelihoods, intra-household relations and role related mobility as new units of analysis. Table 2.9 provides a framework for assessment of women's empowerment and respective indicators.

Table 2.9: Assessment of women's empowerment in the large cardamom value chain

Empowerment criteria	Description	Indicators
Employment	Women get equal employment opportunities and equal wages in all nodes of LC value chain	Proportion of participation of women in paid jobs in LC value chain and respective wages
Decision-making	Women involve and influence family and farm decision making	Women farmers' perception regarding involvement and influence in decision-making
Family earnings and financial decision	Women contribute in family income and involve in financial decision-making	Perception of women towards contribution in family income and financial decisions
Intra-household relations	Men members of family share women's workload and recognise women's role	Perception of women on changes in intra-household relations
Public participation	Women get equal opportunity to take public roles and their role in public is recognised	Proportion of women participation in local organisations and women's perception
Feeling of satisfaction	Women feel satisfaction in their lives from LC farming	Perception in satisfaction in life by women before and after LC farming

Source: Author (2018) adapted from Ahmed et al. (2018)

2.2.3.4 Agricultural value chain analysis framework

Agricultural value chain analysis framework for developing countries (Trienekens, 2011) is applied to analyse the large cardamom export constraints. This framework consists of three components. The first analyses constraints in value chain upgrading, such as market access restrictions, the state of infrastructure, resources, and the role of institutions. The second focuses on value addition, horizontal and vertical chain-network structure, and value chain governance mechanisms. The third evaluates upgrading options within the elements mentioned within the first and second components (ibid). This framework is adapted to large cardamom export from Nepal with indicators related to domestic, regional, and international market context, competitive capacity, market access restrictions, export environment and the role of institutions in overall export facilitation.

2.4 Policy and Institutional Review

2.4.1 Policy review

This section reviews policies related to large cardamom production, trading, and gender in agriculture. The main aim of government policies is to reduce hunger poverty, improve livelihoods and achieve gender equality. For these purposes, the agriculture sector is a priority. The 15th periodic development plan of Nepal (2019/20-2023/24) has set a long-term vision of 'Prosperous Nepal, Happy Nepali' (NPC, 2019). The plan aims to achieve prosperity through poverty alleviation, education, health, gender equality as well improvements to physical infrastructure and the energy sector. It also aims to achieve happiness through improvements to people's living standards, and by fulfilling biological and human needs. The plan targets reducing poverty levels to single figures during its operation. The agriculture sector is expected to help achieve this target through increased production and productivity, job creation, fostering agri-businesses, commercialisation of agriculture sector by using innovative technology, modernisation, and mechanisation of the sector.

The ADS (2015-2035) of Nepal has envisioned the sector as self-reliant, sustainable, competitive, and inclusive. This will help drive economic growth and contribute to improved livelihoods and food and nutrition security. This strategy has targeted increasing farmland ownership of women or joint ownership to 50 per cent by 2035 from the current figure of 10 per cent; increasing average annual agriculture growth rate to 5 per cent from 3 per cent; and increasing land productivity to USD 5,000 per ha from USD 1,600. This growth is expected even in the face of climate change, low productivity, and poor market access. The ADS has identified the Value Chain Development Programme (VADEP) as a methodological approach to achieve these results by developing competitive and inclusive value chains for commercially viable agricultural commodities (MoAD, 2014a).

The federal and provincial governments have recognised the importance of HVA crops to sustaining the agriculture sector's contribution to the national economy, generating local employment and improving livelihoods. The priority activities of these programmes include construction of warehouse / cold storages on a cost-sharing basis with entrepreneurs, focus PMAMP on commercial crops; establishing local collection

centres, subsidies for buying vehicles to transport agri-products; subsidies on seeds and seedlings of commercial commodities; soil testing etc. In addition, the government has assured provision of inputs - fertiliser, seeds, pesticides, equipment, and other basic services from local agriculture service centres. Further, government is implementing crop insurance policy which covers 75 per cent of the total loss in investment of farmers and provision of a loan of up to NPR 700,000. Government has provisioned that educated and young farmers could take loans from financial institutions by showing educational certificates as collateral. This encourages young people who do not have their own land or valuable fixed assets for collateral, in farming or in agricultural businesses.

Policy specific to large cardamom, the large cardamom Disease Management and Nursery Establishment Guidelines (2014) aims to control the diseases related to virus and fungus which poses risks due to the high demand of seedlings. For this, the guidelines suggest a coordinated engagement of actors in large cardamom seedling production and disease management (MoAD, 2014b).

Likewise, policies related to agricultural trading aim to increase export volume, value, and market diversification. The 15th five-year periodic plan of Nepal aims to promote agricultural trade by - easy access to market information, capacity development, research and development (R&D), and policy and advocacy; private sector support-product quality improvement, design development and use of new technology in association with the private sector; and building trade infrastructure, logistics and procedural development to facilitate export trade (NPC, 2019).

NTIS (2016) aims to strengthen Nepal's trade capacity by focusing on cross-cutting reforms to make the export sector more competitive. This strategy has identified 19 products including service for export potential. NTIS emphasises the establishment and promotion of collective branding, trademarks, traditional knowledge and geographical indications for Nepali products and services. Specific to large cardamom, it plans to distribute energy-efficient improved dryers to farmers at grassroots level (MoC, 2016).

Trade policy 2015 aims to strengthen supply-side capacity and minimise trade deficit by increasing exports of value-added competitive products and enhancing reach in regional and world markets. This policy has adopted the strategy of active participation

of the private sector, enhanced competitive capacity, trade facilitation and institutional strengthening and maintaining trade order. It has also provided special programmes that link micro, cottage and small and medium industries and industries run by women in export (MoC, 2015).

Similarly, strategy on large cardamom export (2017-21), considers large cardamom a lucrative business that benefits all actors and suggests it to develop product competitiveness and market diversification. This strategy provides a roadmap to improve export competitiveness through stronger institutional support and stimulation of trade with the provision of product research and market promotion support services. This strategy focuses on sectoral coordination and research. The aim is to enable producers and exporters to improve their technical knowledge and cooperation, leading to quality standardisation and upgraded production techniques (MoC, 2017).

The Warehouse Establishment and Operational Guideline (MoC, 2017) aims to address the problem of the low price of high valued commodities during production and reduce losses from waste through cold storage. By establishing warehouses, farmers and traders could increase the competitive capacity of large cardamom by retaining quality, providing security and quantity at scale for value addition and trading. Warehouses also provide additional services of storage, grading, weighing and profile preparation.

Achieving gender equality is a cross-cutting issue. All government policies including the Constitution of Nepal aim to create equality in every aspect of human life. The Constitution of Nepal (2015) provisioned that the state shall not discriminate among citizens on the grounds of origin, religion, race, caste, tribe, sex, economic condition, language or geographical region, ideology, etc. The Constitution has provided to protect and empower women and equality in terms of pay for work and employment rights. It also includes special opportunities for women in the spheres of education, health, employment, and social security through positive discrimination.

The gender-related objective of the 15th periodic plan of Nepal sets out the following: create an environment which respects women; end all forms of discrimination, violence, and exploitation against women; ensure equal access to resources, means, opportunities and benefits, by establishing equal initiatives and leadership roles of women for economic prosperity and sustainable development. By the end of the plan, the

Gender Development Index (GDI) will have increased from 0.897 to 0.963. In addition, the ratio of women who have experienced physical, psychological, and physical violence in their lifetime will have decreased from 24.4 per cent to 13 per cent (NPC, 2015).

The SDGs for Nepal, SDG 5 states the aim of achieving gender equality and empowering all women and girls. United Nations Development Programme [UNDP], (2015a) states that participation of women in the paid workforce is 41 per cent in the non-farm sector. SDGs aim to end all forms of discrimination against women, sexual violence and exploitation, the unequal division of unpaid care and domestic work, and discrimination in public decision making. Thus, SDGs targets for goal 5 include - elimination of physical/ sexual violence, eradicating all harmful practices related to marriage and *chhaupadi*[7], increasing women's participation in public service decision-making positions to 30 per cent (NPC, 2017a).

The Gender Equality and Social Inclusion (GESI) strategy of agriculture ministry (MoAC, 2006) aims to increase women's participation in all institutional representations, ensure markets for women farmers, access to market information and technology and increase women's participation in HVA production. Similarly, increased access to irrigation facilities can provide efficient water use technology to women and increase production.

2.4.2 Institutional review

This section provides an overview of organisations involved in production, trading, and gender with their specific roles. MoALD is the top organisation which aims to contribute to the country's economy through growth and development of agriculture. MoALD prepares and executes programmes and policies, and defines the delivery approach, which also influences large cardamom production and trading. The Department of Agriculture (DoA), under MoALD aims to diversify and commercialise agriculture, ensure food security and contribute to poverty reduction. For this, it implements specific programmes related to production and productivity, supply of raw materials, plan and budget specific programmes for women, small and marginalised farmers. Specific to

[7] Cultural practice in western Nepal where women are not allowed to mix up with other family members during menstruation period because they are said to be impure and are forced to live in cowshed, or other places which are insecure.

HVA crops, DoA has established a National Potato, Vegetables and Spices Crops Development Centre (NPVSCDC). This provides crop-specialised services to farmers. NPVSCDC also offers innovative technologies, propagation materials and consultation services.

The Large Cardamom Development Centre (CDC) was established under NPVSCDC to promote large cardamom in the eastern region. CDC provides seedlings, trains farmers in nursery and farmer techniques. CDC also raises awareness among farmers about disease-pest management, technological innovation in production and value addition and provides technical assistance and extension services to farmers. The Agriculture Knowledge Centre (AKC) is not directly related to large cardamom. However, its services complement large cardamom farming. AKC provides extension services and facilitates insurance and agricultural loans for farmers.

At the local level, Rong RM has an agriculture unit at its municipal office and ward offices which provide basic technical services to farmers. These include soil testing, recording crops production, documentation of loss of crops, insurance processes and others. Rong RM also takes revenue from its large cardamom exports.

The agriculture ministry of Province One has focused its plan and budget on commercialisation of HVA. Province 1 government has identified large cardamom, ginger, betel nut, broom, kiwi, avocado, chili, milk, and honey as priority agriculture products which have domestic and world markets. The PMAMP is the government's priory project which aims to commercialise agriculture from small pockets – areas of at least 10 ha, and blocks – at least 100 ha to large production areas called zones - at least 500 ha, and super zones - at least 1000 ha. As of October 2021, the project has established 177 zones and 16 super zones in the country. Among them, is the large cardamom super zone in Taplejung, while zones have also been established in Panchthar, Sankhuwasabha, Terathum, Bhojpur and Lamjung districts. In Ilam district, there are large cardamom blocks and pockets. PMAMP has adopted the value chain approach.

Trade and Export Promotion Centre (TEPC) aims to promote the country's export trade by enhancing the internal and external market, linking producers with buyers, and increasing cooperation among organisations for export promotion and market diversification. In addition, TEPC facilitates improving the quality / standard of

exportable products, provides information about exportable goods, conducts market tests, organises capacity growth and marketing events. It is also responsible for simplifying procedures related to quality control, insurance, and transport.

For quality control, the Department of Food Technology and Quality Control (DFTQC) is responsible for ensuring and enhancing the quality and safety of food and feed products. It also augments appropriate food processing and post-harvest techniques to promote agri-business. Additionally, DFTQC acts as the CODEX Contact point for Nepal and plays the role of National SPS Enquiry. Likewise, Nepal Agriculture Research Council (NARC) conducts research on large cardamom related to diseases and pests, crop varieties, farming techniques. In addition, NARC, supports policy formation, documentation, and dissemination of research, alongside research and consultancy services to clients.

Among NGOs, Agro Enterprise Centre (AEC) of Federation of Nepal Chamber of Commerce and Industries (FNCCI) aims to expand and strengthen market oriented private sector agro enterprises. This will increase both the value and volume of HVA products. For this purpose, AEC provides services related to agricultural research, business and market development, and information. It works to build the capacity of entrepreneurs, farmer groups, and traders. AEC also works to developing linkages along the nodes in a value chain. It has supported formation and strengthening of product association in large cardamom, tea, coffee, ginger, Medicinal and Aromatic Plant (MAP) and floriculture.

The Federation of Large Cardamom Entrepreneurs of Nepal (FLCEN) is a product association. Functions of FLCEN include providing indicative price of large cardamom daily which can be accessed through SMS in mobile phones. FLCEN monitors processing firms to maintain uniformity in quality, takes the certificate of origin for trading and explores potential buyers for market diversification. It also connects farmers, traders, and stakeholders to promote large cardamom production and trading. In its establishment phase, FLCEN facilitated transportation of large cardamom from villages to trading in difficult circumstances where army and rebels suspected traders were spying.

Many donors worked on large cardamom production and trading. These include UNNATI Inclusive Growth Programme supported by the Denmark government, and the

HIMALICA[8] project of International Centre for Integrated Mountain Development (ICIMOD). In addition, World Bank projects were implemented for the growth of large cardamom and to improve the livelihoods of farmers, women and other actors in the value chain through interventions at different nodes of the large cardamom value chain (WB, 2014).

2.5 Conceptual Framework for this Research

The conceptual framework for this research is guided by the concepts and approaches of the agricultural value chain and women's capabilities best suited for the questions at hand. There are four main research questions supplemented by seven minor research questions. For the first research question, I employ the value chain analysis framework (Haggblade et al., 2012) to analyse Value Chain Development (VCD) of large cardamom alongside livelihood opportunities and farming risks in large cardamom. In addition, I use the livelihood resilience framework (Quandt, 2018) to further analyse the livelihood opportunities created by large cardamom. I also use the farming system resilience perspective (Muewissen et al., 2019) to further examine the farming risks of large cardamom.

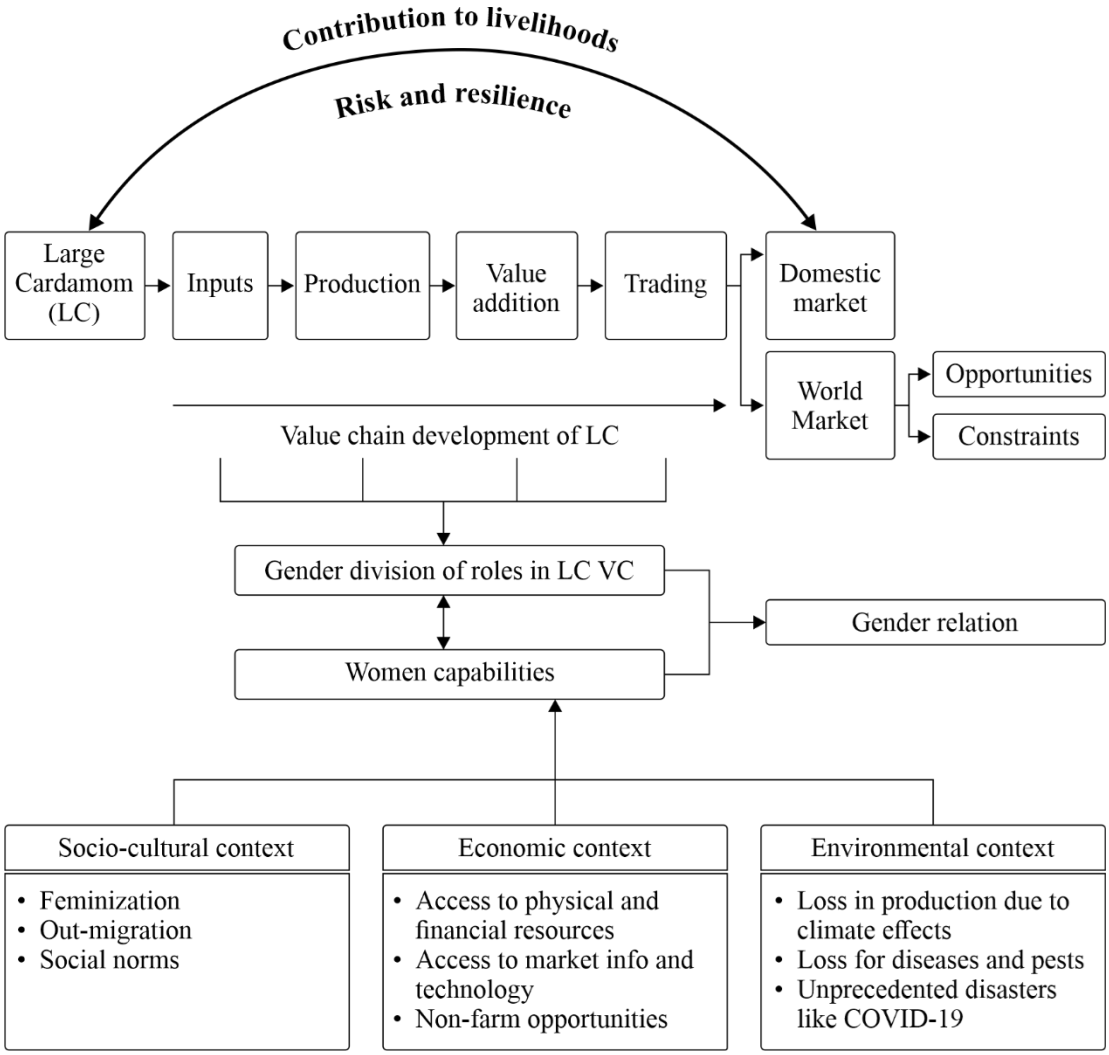
Similarly, research question 2 maps the participation of women in production and post-production roles in the large cardamom value chain. I used the capabilities framework (Robeyns, 2017) to provide overall guidance to address the research question of whether division of roles relate to capabilities. This research question further explores factors that influence the division of roles or women's capabilities. It believes that women's capabilities are influenced by social structure, human diversity, agency, social institutions, and access to resources. This means women who have similar central capabilities set would not produce similar results because they differ in terms of caste/ethnicity, class, age, and other factors.

Research question 3 analyses present gender relations in large cardamom production sites among farming households. This question assumes that the economic empowerment of women from their engagement in large cardamom enhances their capabilities and will ultimately help to alter power relations between men and women. I

[8] The Rural Livelihood and Climate Change Adaptation in the Himalayas project was named as HIMALICA

have adapted the indicators for assessing gender relations from WEAI4VC's framework (Ahmed et al., 2018). Finally, research question 4 assesses existing cardamom trading in domestic and international markets. I apply Trienenken's agricultural value chain analysis for developing countries (2011) to assess the issue of large cardamom export constraints for Nepal. Figure 2.4 provides a schematic presentation of the theoretical framework applied in this research.

Figure 2.4: Conceptual framework for this research



Source: Author (2019)

CHAPTER THREE

RESEARCH METHODOLOGY

In this chapter, I explain the research methodology in detail. This chapter starts with my philosophical position followed by research design. For this research, I used qualitative-led embedded mixed-method research design. It explains in-depth the qualitative and quantitative data collection and interpretation, process of data collection and provides details on quality assurance and ethical considerations.

3.1 Understanding Research Philosophy

The term ‘philosophy’ refers to the existence of multiple views and processes to see how the world works. In research, philosophy focuses primarily on reality, knowledge, and the existence of being. Holden and Lynch (2004) believe that the perception of reality and the process to gain knowledge affects how research is planned to be done. Lincoln et al. (2011) interpret the research paradigms in social science as positivism, interpretivism and pragmatism.

Researchers who believe in positivism observe the social world as natural. They see social entities as real, in the same way as physical objects. They see the observable reality within society in knowledge production and generalisation. They consider pure data and facts in knowledge production process and believe that its interpretation should be free from human bias. Positivist epistemology focuses on the discovery of facts or regularities that are observable and measurable. These facts lead to credibility and meaningfulness in the data. Positivist researchers use universal rules and laws to support and explain the behaviour of society being studied (Alharahsheh & Pius, 2020). Positivist researchers use quantitative methods for data collection and analysis.

Researchers who believe in interpretivism observe the natural world and social world as different entities. They view human beings as influenced by the subjective perception of their environment which may differ across regional and cultural contexts. So, interpretivist researchers focus to understand the subjective perceptions

of people in their social and cultural context and capture their lived experiences. Interpretivist researchers thus, have a qualitative approach to data collection and interpretation whereas positivist researchers follow a quantitative approach to data collection and analysis (Willis et al., 2007).

Researchers who believe in pragmatism observe the social world through the lens of positivism and interpretivism depending on context. They consider positivism and interpretivism as two sides in a continuum. A pragmatist researcher can be anywhere between them. Pragmatism provides flexibility to researchers in designing research frameworks (Johnson & Onwuegbuzie, 2004). Pragmatism is useful in applied research where research is carried-out to find practical solutions to social problems (Creswell et al., 2011).

To define my philosophical position on this research, I put the definition and features of three philosophical positions on one side and research questions on the other. The research I am doing is applied research which investigates practical solutions to the problems in the value chain of HVA and the division of roles among men and women. Thus, I need both subjective and objective data for the in-depth scrutiny of these issues to find practical and policy solutions. In this context, pragmatism offered a suitable philosophical orientation on how to take subjective and objective elements together in the research process. This benefits the large number of people involved in the large cardamom value chain specifically women as stated by Kaushik and Walsh (2019). Pragmatism also provided flexibility in reasoning, enabling me to move back and forth between deduction and induction during data analysis (Creswell, 2009).

According to Lincoln and Guba (1985, as cited Kivunja & Kuyini, 2017), a particular research paradigm comprises four elements- epistemology, ontology, axiology, and methodology. As I have followed pragmatism as my research philosophy, my understanding of these elements and their application in this research is explained in the section below.

3.1.1 Epistemology

In social science research, epistemology is concerned with the nature of knowledge and how it is developed. This includes generation, understanding and use

of knowledge on the one hand, and how knowledge generation, understanding and use is shaped by the researchers' beliefs on the other. Thus, there exists a relationship between researcher and the subject being researched. When the relationship between researcher and the subject being studied is independent, it follows quantitative epistemology. Conversely, when the relationship between researcher and subject being studied is interactive and inseparable, it follows qualitative epistemology (Teddlie & Tashakkori, 2009).

In this study, I played a dual role – I became independent from respondents while collecting and analysing quantitative data, and became interactive while collecting and interpreting qualitative data. For example: I collected data from large cardamom farmers regarding- wage rates, employments, labour use, quantity produced and sold, land holding size, price of large cardamom etc. While collecting such data, I remained independent from the farmers. However, when I was investigating the factors that influence the division of roles among men and women, or implications of large cardamom price on the livelihoods of farmers, I could not claim to be separated from my research participants, despite having no influence on them. Thus, pragmatism gave me flexibility in defining the epistemological position depending on the context (Creswell, 2012).

3.1.2 Ontology

Ontology is how the researcher perceives reality in social science research. The researcher's ontological position is defined by the philosophical standing. Positivist and subjectivist researchers have contradictory views of reality. Positivist researchers perceive the existence of reality to be external and independent of social actors. Reality is a single truth and universal, and such truths await discovery. Subjectivist researchers meanwhile believe that reality is dependent on social actors and social phenomena where the contribution of individuals matters. Individuals in society construct reality where they live, and it is context specific. For this research, I believe that reality can be objective and subjective depending on the environment and experience of the individual (Kaushik & Walsh, 2019).

Giving an example of a flat surface supported by four legs, Goles and Hirschheim (2000) revealed how reality is perceived differently by researchers based

on their ontological position. A positivist researcher would define it as a table, no matter how it was being used. Conversely, a subjectivist researcher would define it based on its use, i.e., a table if used for eating, a bench if used for sitting, and a platform if used for standing. I believe that the object can be defined based on its use in context. For this research, I believe that research participants possess differing views towards reality which are rooted in their context. During field work, I captured how perception towards reality can change while sitting in a different context and presented this case in Chapter Four (see case 4.1). I also believed that among diverse beliefs, some beliefs may be more likely than others as mentioned by Morgan (2014).

3.1.3 Axiology

Axiology refers to how research values the research participants, the data and the audience. This also includes how the researcher defines, evaluates, and understands the concepts of the ethical behaviour in research. It is about researchers' own values regarding the research, participants, and protection of research participants. It is linked to truthfulness in data interpretation, research results to satisfy as many people as possible, understanding the consequences of research actions and fair treatment to research participants. Based on the paradigm, researchers' position can be value-free, value-laden or both (Kivunja & Kuyini, 2017).

As I have adopted pragmatism as a research paradigm, my axiological position was value-laden and value-free depending upon the context. While collecting qualitative data, I was value-laden and emic. This means, I could not separate myself from the research participants, and might by biased by my beliefs towards phenomena, cultural experiences, and upbringing. On the other hand, while collecting quantitative data, I was value-free and etic. I have no reason to connect myself with the respondents. On the ethical aspects, I have explained this in the ethical considerations section below.

3.1.4 Methodology

Research methodology refers to a model for undertaking a research process in the context of a particular paradigm. It comprises the underlying set of beliefs that guide a researcher to choose one set of research methods over another (Kaushik & Walsh, 2019). As I have chosen pragmatism as the paradigm for this research, my

focus was on methodology. This is academic research conducted for "new knowledge generation" and "reconfirmation of the existing knowledge" with the potential of practical implication in both policy and program domains. Thus, this research demands both qualitative data and quantitative data for this analysis. This led me to adopt a mixed-method research design focused on a qualitative approach.

3.2 Research Design: Mixed-method

As research questions demand both qualitative and quantitative data, I adopted qualitative-led mixed method research design. This design offered me guidance in selecting the data collection techniques, analytical techniques and combining the qualitative and quantitative results. Onwuegbuzie and Johnson (2006) state that mixed-method research design provide guidelines on selecting quantitative and qualitative methods, approaches, and concepts that have complementary strengths and non-overlapping weaknesses. Creswell (2012) said that mixed-method research design provides a deeper understanding of the research problem and question than either method alone.

Among the various types of mixed-method research design, I have followed embedded design. Embedded design is used when one type of data provides a supportive, secondary role in a study based primarily on the other type of data (Clark et al., 2008). My study exactly fits this situation. In my study, quantitative data provides a supportive, secondary role in the interpretation of findings based on qualitative data. In addition, this design type offers flexibility in the sequence of data collection. In this study, I have followed a qualitative - quantitative sequence.

This research has four main questions. The first question analyses the large cardamom value chain and assesses its contribution to the livelihood resilience of farmers. The second question maps women's participation across the nodes in the large cardamom value chain and explores links between women's roles and capabilities. The third question analyses the change in gender relations specifically due to large cardamom, and other HVA products. Finally, the fourth question analyses the constraints in market diversification of large cardamom. These research questions demand qualitative analysis supplemented by quantitative analysis. Based on the research questions at hand, I was aware in the choice of research sites, selecting the

sample, and the data collection and data analysis techniques following Terrell (2012), and Onwuegbuzie and Johnson (2006).

3.2.1 Selection of research sites

I chose two research sites purposely to best address the research questions at hand. The first research site was ward no. 6 of the Rong Rural Municipality[9] (hereafter Rong) of Ilam district. This site represents a large cardamom production and first level value addition site. The second site was Birtamod Municipality (hereafter Birtamod) of Jhapa district. This represents a large cardamom second level value addition and trading site. The section below provides further detail on these research sites and why I chose them.

Rong of Ilam district

Ilam district is one of the pioneer districts of Nepal in commercial farming of HVA crops. It produces and exports tea, ginger, large cardamom, milk, broom, Akabare chili, fresh vegetables, kiwi, honey and many other HVA products at economies of scale. Moreover, Ilam is famous for being Nepal's first tea farming site. According to Nepal Tea and Coffee Development Board [NTCDB], (2018), tea was first planted in Ilam during the 1860s. Ilam is also Nepal's first site for farming large cardamom, having been planted even earlier in the 1830s in Maijogmai area, (ITC, 2017a). At present, Ilam is one of the country's top five large cardamom producing districts. Out of the 7,954 MT large cardamom produced in 2018/19, Taplejung district produced 2,958 MT and was top in the list followed by Sangkhuwasabha, 1,140 MT; Panchthar 1,037 MT; Ilam 810 MT; and Dolakha 680 MT (MoALD, 2020).

Rong is one of the large cardamom producing sites in Ilam. Before deciding to select Rong as a study site, I consulted with stakeholders at Ilam, and visited the site to check it was suitable for my research. From district consultation and meeting with people at Rong, I gained several insights which led me to choose this site for fieldwork:

[9] Jirmale Village Development Committee became ward number 6 of Rong Rural Municipality after restructuring of the country in 2017.

- Rong is the origin of Salakpurey variety of large cardamom in Nepal, which grows at a lower elevation than other varieties of cardamom.
- Production, productivity, and price of Salakpurey large cardamom is high compared to other varieties of cardamom grown in Nepal.
- Salakpurey large cardamom is the main livelihood source for most farmers in Rong.
- Large cardamom trade hub in Nepal, Birtamod is nearby, about a three-hour drive. This provided opportunity to trace the value chain of large cardamom within a short distance.

- Finally, there has been little research on this type of large cardamom regarding attacks from diseases and pests.

In addition, in Rong, I chose three distinct settlement clusters Salakpur, Rambheng and Jirmale that belonged to the previous Jirmale Village Development Committee. Farmers from various ethnic groups- Tamang, Rai, Lepcha, Magar, Gurung, Bramhin, Chhetri, Dalits and Newars reside in these clusters. The name 'Rong' is derived from the Lepcha language and means sacred land. The Lepcha community is a vulnerable indigenous group of Nepal, the first to settle and cultivate this land.

The Village Profile of Rong Rural Municipality (2019) has the most recent information on local demography. According to this, the study site is an area of 37.83 square km, with 1,101 households and a population of 6,256. The male population is 43 per cent and the working population 65 per cent. Among the working population, 61 per cent were engaged in commercial agriculture, 12 per cent in household work, 8 per cent in waged work, 8 per cent in non-farm jobs, 4 per cent in other jobs and 1 per cent in business. The unemployment rate in Rong-6 was 6 per cent. Five categories were used to further classify households based on income: very poor (6 per cent), poor (11 per cent), average income (37 per cent), middle income (34 per cent) and high-income (12 per cent).

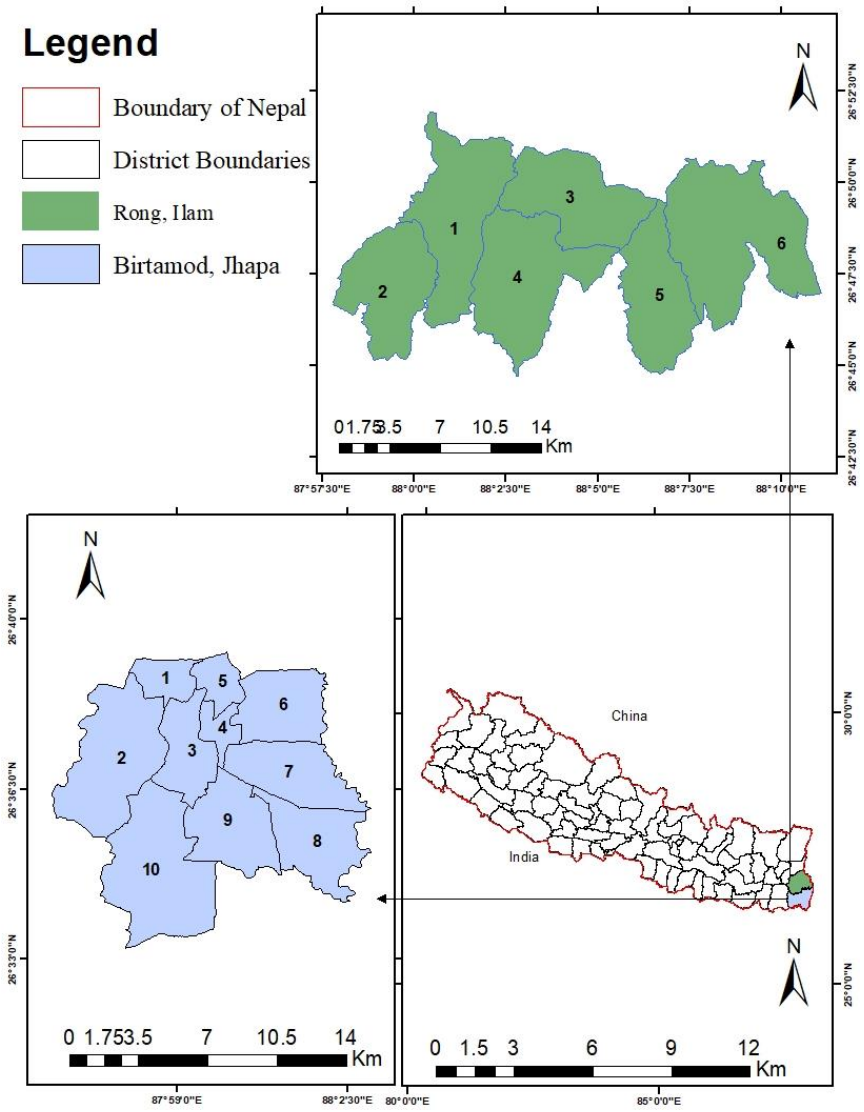
Likewise, land use classification shows forest and grassland comprise 60 per cent of the land followed by 35.5 per cent agriculture land, 3.5 per cent river/ wetland and 1 per cent other land. Regarding agricultural production (as of 2018), production

volume of subsistence crops was 180 MT for maize and 80 MT for rice. Likewise, production volume of HVA crops shows broom 277 MT, tea 78 MT, large cardamom 72 MT, ginger 38.5 MT and betel nut 10 MT.

Research site II: Birtamod city

I chose the second research site, Birtamod city of Jhapa district after consulting with large cardamom traders and FLCEN executives in December 2017. Birtamod is the main cardamom trading hub in Nepal where 80 per cent of the large cardamom produced in Nepal is brought for second level value addition and export (MoC, 2017; Shrestha, 2018b). During our consultation meeting, large cardamom traders and FLCEN executives suggested an in-depth study of why Nepali large cardamom was not exported to markets other than India. There had been considerable research on large cardamom which argued for export market diversification of large cardamom. However, no comprehensive research existed around the opportunities for Nepali large cardamom in other markets, and export related policies, procedures, and constraints. This led me to add a question on large cardamom market diversification. In addition, Birtamod provided scope for further investigation of women's role at higher nodes of the large cardamom value chain- value addition and trading. Both research sites were from eastern Nepal. Figure 3.1 provides a location map of the Rong and Birtamod research sites.

Figure 3.1: Location map of study sites Rong and Birtamod



Source: Author (2019)

3.2.2 Sampling strategy

I have followed Onwuegbuzie and Collins (2007) to understand the definition of sample and sampling strategy. They define a sample as the process of selecting a portion, piece, or segment that is representative of a whole. The sampling strategy refers to the techniques that the researcher applies to generate data from a population under study. This section describes how I determined sample size (number of respondents/ participants) and sampling scheme (procedure of selection). Following Teddlie and Yu (2007), I have applied sampling strategy differently for qualitative data and quantitative data collection.

3.2.2.1 Sampling strategy for qualitative data

Determination of sample size and nature of research participants

While determining the sample size for qualitative data collection, I was open in terms of the number of research participants. For qualitative data collection, I considered settlement clusters Salakpur, Rambheng and Jirmale as strata. Within these strata, I developed sub-strata of farmers based on ethnicity and size of production of large cardamom. Within these sub-strata, I purposely chose research participants for in-depth interviews and focused groups. I was not limited to specific numbers, rather I tried to capture data from the maximum number of people from each stratum until reaching saturation. I followed the common concept of 'data saturation' in qualitative data collection (Malterud et al., 2016). I provide details of the sampling strategy for in-depth interviews, focused groups and case stories with breakdown below.

Sampling strategy for In-depth Interviews

I chose In-depth Interviews (IDIs) as a technique for qualitative data collection because it is considered a powerful technique for data collection in qualitative research (Yeo et al., 2006). It further provides researchers with an opportunity to understand the concerns of human beings and explore topics in-depth in their own settings (Fontana & Frey, 2005). In addition, it provides flexibility in application, i.e., it can be applied in structured and controlled context as well as in an unstructured and fluid context (Boyce & Neale, 2006). Before conducting IDIs, I was aware of the ethical considerations suggested by Allmark et al. (2009). I conducted IDIs with 56 research participants. These participants were selected considering the value chain node of their engagement, gender, caste/ethnicity, and size of farm. By node of engagement, 34 were producers and primary processors, 12 were intermediaries, and 10 were secondary processors and traders. Among producers, farmers were sub-stratified based on size of production as very small producers, small producers, medium producers, and large producers; by gender 21 were female by caste/ethnicity, majority, i.e., 34 were Janajati. Table 3.1 describes the research participants for IDIs.

Table 3.1: Description of IDI participants in large cardamom value chain (2018-2019)

Value chain	**By gender**		**By caste/ethnicity**				**Total**
Node	Male	Female	*Janajati*	BC[10]	*Dalits*	*Marwari*	
Production	17	17	30	2	2	0	34
Intermediary	10	2	4	7	0	1	12
Trading	8	2	0	3	0	7	10
Total	35	21	34	12	2	8	56

Source: Fieldwork (2018-2019)

For data collection in Birtamod, stratum was formed according to gender and ethnic identity of enterprise owner, and size of business farm, i.e., intermediary or export trader. I identified research participants for qualitative data collection based on their function in the large cardamom value chain. This included category input suppliers, producers, intermediaries, and traders. As large cardamom production and first level processing is carried out at Rong-6 and second level processing and trading in Birtamod, many research participants overlapped.

Sampling strategy for Focused Group Discussions

Focused Group Discussion (FGD) was another technique I applied for qualitative data collection. I carried out FGDs after having some IDIs with research participants to understand the group's response on certain social problems explored during IDIs. Morgan (1996) and Kitzinger (1995) suggest that FGD gives the research an opportunity to recognise the research participant's interaction in a group and stimulates identification and sharing of perspectives on the same topic. For these purposes, I organised four FGDs- two FGDs with women farmers, one with male farmers and final one with large cardamom processors at Rong. There were altogether 20 participants present in four FGDs, please see Table 3.2 for detail. The checklist used for the FGDs can be found in Annex III.

[10] BC here means Bramhin and Chhetri caste group of Nepal

Table 3.2: Description of participants of FGDs (2018-2019)

FGD type	Date	Place	Gender		Ethnicity			Total
			M	F	*Janajati*	BC	*Dalits*	
Women farmers group	03.2018	Salakpur	0	6	5	0	1	6
Men farmers group	11.2018	Rambheng	7	0	4	3	0	7
Mix group	08.2018	Salakpur	3	3	6	0	0	6
Women leader's group	03.2019	Rong	0	6	2	0	4	6
Total			10	15	17	3	5	25

Source: Fieldwork (2018, 2019)

To validate the field data and canvass stakeholders' opinions on the research problem, I visited government, non-government, and private organisations at local, regional, and national level. These stakeholders were identified during in-depth interviews (IDIs) in Rong-6 and Birtamod.

Sampling strategy for stakeholder interviews

I have a pre-determined strategy for identification of stakeholders for interviews. the stakeholders with their respective roles were identified during value chain analysis of large cardamom. Identified stakeholders were grouped based on their nature- as government, non-government, and private. Similarly, based on their involvement in the value chain node, they were further grouped into local, district, and central level stakeholders. From this process, I identified 23 stakeholders for consultation. Table 3.3 provides further details.

Table 3.3: Description of stakeholders interviewed for the study (2018-19)

	Government	Non-government	Private sector
Central	TEPC, DoA, CDC, DFTQC	ICIMOD, UNNATI, FLCEN	
District	AKC, Ilam Customs Office, Mechinagar Plant Quarantine Office, Mechinagar		FLCEN, Ilam FNCCI, Mechinagar
Local	Rong RM Ward-6, Rong RM	SUMADUA Cooperative Jirmale Women Agriculture	Jiban Bikas, MFI

Source: Fieldwork (2018-2019)

3.2.2.2 Sampling strategy for quantitative data

Determination of sample size

I used Yamane's formula (1967) to determine the sample size for quantitative data collection:

$n = N / (1 + N (e^2))$ where,

n = sample size

N = population size

E = level of precision or Sampling of Error which is +-5 per cent

I considered 1,080 households as a population (Central Bureau of Statistics [CBS], 2014) to determine the sample size. Among 1,080 households, 650 households were involved in large cardamom production and the remaining 430 households were involved in the production of other HVA crops. For me, large cardamom was the main crop for research interest. I divided the total number of households into two strata as cardamom growers and non-growers. Thus, the population size for large cardamom growers was N1 = 650 and for non-growers it was N2 = 430. From this population, I identified sample households for growers (n1) and non-growers (n2) as:

Sample size for large cardamom growers $n1 = 650/ (1+ 650 (0.05)^2 = 248$

Sample size for large cardamom non-growers $n2 = 430/ ((1+ 430 (0.05)^2) = 208$

Thus, sample size (n) for this research was calculated to be 456.

After determining the sample size for growers and non-growers, I chose the settlement clusters of large cardamom growers and non-growers and applied census techniques to collect data. Settlements in Salakpur, main Jirmale and Rambheng represented large cardamom growers and Lower Jirmale, Patapur and upper Rambheng represented non-growers. While doing the census in the identified clusters, the total number of households surveyed reached 512 where n1 was 352 and n2 was 158. Table 3.4 shows population and sample size for growers and non-growers.

Table 3.4: Selection of sample for survey, Rong (2018)

Strata	Population (Household [HH])	Sample (HH)	Nature of sampling
LC- grower	650	354	Cluster / census
LC non-grower	430	158	Cluster / representative
Total	1,080	512	-

Source: Field Survey (2018)

3.3 Data Collection

3.3.1 Primary data collection

In determining the techniques for qualitative and quantitative data collection, I kept in mind research questions and indicators as suggested by Hox and Boeije (2005). This states that the chosen data collection techniques should suit the specific research question. Thus, I chose a questionnaire survey as a quantitative technique, and in-depth interviews, focus groups, participant observation, case-study documentation and stakeholder consultations as qualitative techniques. I explain how these techniques were introduced and applied in research below.

3.3.1.1 Questionnaire survey

Quantitative data were collected through questionnaires at two levels - household and individual. The household survey comprised questions on production, value addition and trading; access to resources of production - land, finance, education and skills, human resource; livelihood of the farming households - income, employment, and services. Likewise, the individual survey comprised of questions on men and women related to income, employment, decision-making, ownership of assets, participation in groups/public, workload, and mobility. Thus, the household questionnaire was designed to gain an overview of the value chain of large cardamom, whereas the individual questionnaire was designed to analyse the participation of men and women in the large cardamom value chain in Annex I.

The process I followed was as follows. First, I conducted the surveys. I prepared a draft set of questionnaires based on research questions and indicators. I added these questionnaires to the Feminization, Agricultural Transition and Rural Employment

(FATE)[11] questionnaire set, and field tested them with large cardamom farmers in Panauti of Kavre district. As per learnings from the field test, I rephrased some questions for clarity and reorganised others to maintain flow and consistency. I then organised training to orient enumerators on questionnaires, process, and use of tablets. After training, I led the FATE Panel Survey of nine members for data collection in Rong. For the household survey, I chose one primary respondent of each gender per household. For individual surveys, two respondents, one male and next one female were selected from each household. If one of the respondents was absent, I conducted one interview for the individual questionnaire. Data were collected using tablets and uploaded directly to the server through the SurveyCTO technique to ensure data wasn't accidentally lost. Finally, 512 household surveys and 778 individual surveys were conducted. In individual survey, the participation of men and women was 351 and 427 respectively. I grasped the idea of designing and executing the survey from Fowler (2009).

3.3.1.2 In-depth interview (IDI)

I prepared the checklist separately for the actors in production, and post-production nodes- producers, local intermediaries, district intermediaries and traders. The checklist captures the main themes and sub-themes of the research. Themes for KII broadly capture the main research questions, and sub-themes capture the sub-questions. Main themes for KII included value chain development, farm-based livelihoods, division of roles, women's capabilities, gender relations, large cardamom market diversification, and constraints in export market diversification. Annex II provides a checklist for IDI with breakdown of themes and sub-themes.

3.3.1.3 Focus group discussion (FGD)

For focus group discussions, I focused on points I had identified during IDIs. These points were discussed among four groups- two women farmers group at two locations, one male group (local teacher and farmers), and finally one with local women leaders. During FGDs main points discussed were farm and non-farm sources of livelihoods in the intersection of farm size, caste/ethnicity and gender; reflection of

[11] FATE is the R4D Project of the Swiss Agency for Development and Cooperation and Swiss National Science Foundation. This project provided the scholarship for this study through Nepal Centre for Contemporary Research.

changes in roles, women's leadership, women's access to resources, social norms constraining women in different stages of value chain, income, and employment, and other. Details of the checklist used for FGDs is presented in Annex III.

3.3.1.4 Stakeholder interviews

I carried out stakeholder interviews with government, non-government, and private sector officials at local, regional, and central levels. These interviews were conducted after identifying the concerns that research participants raised during IDIs and FGDs. For example, farmers in Rambheng raised the issue of large cardamom diseases. Thus, CDC was approached to know more about large cardamom disease issues and the role of CDC in large cardamom development in the region. cardamom traders raised the issue of large cardamom market diversification. To know more about this issue, I approached TEPC. Likewise, to know more about export procedure, I approached the plant quarantine office, food quality control office and customs office. I consulted 30 officials from 23 stakeholders. I met them at their offices and conducted interviews in this environment. This had the further benefit of other staff joining the meeting and providing more information. For example, at the Women's Development Office (WDO) in Ilam, the manager called her employees to join the discussion giving the chance to find out their collective views.

3.3.1.5 Case-story documentation

Case-story documentation was not in my sampling strategy. Later during IDIs I noticed that some women were doing something different to others. I further noticed that within the cohort of women, some were successful in their roles while others were not getting opportunities despite their potential. This led me to document these cases which could support interpretation. During fieldwork, I documented 10 such case studies where 9 women, 6 producers, 1 intermediary, 1 trader and 2 from stakeholders. In addition, I also documented a separate case that reflects contesting views on the processing method of large cardamom. These short case studies were developed based on data collected from IDIs.

3.3.1.6 Field-observation

During fieldwork, I took notes which reflect my own perceptions and feelings regarding the phenomenon taking place. In my notes, I have documented participants'

expressions and their background context. These notes were useful while analysing data, for example, observation of roles of men and women in farm work and in family. Mulhall (2003) highlights that field observation provides insight into interactions between individuals and groups, captures context, processes, and informs about the influence of physical environment.

3.3.1.7 Phases of fieldwork

I did a series of field visits with the specific purpose of site selection, data collection, data validation, and sharing of research findings. I did my first field visit in December 2017. This gave me a general overview of production, value addition and trading of large cardamom in eastern districts. I consulted with stakeholders to finalise the research sites. In addition, I built a rapport with large cardamom actors and stakeholders. In this visit, farmers, traders, and stakeholders raised the common issue of the large cardamom market. This was not a research priority initially. However, after the field visit, it became an important area of research gap. In consultation with supervisors, I then added large cardamom market as a research question.

I collected qualitative data from farmers during my second (March 2018) and third field visits (August 2018). In the second fieldwork, I collected data on large cardamom farming, role division among men and women and the basis for this, farmers' livelihoods, and livelihood risks in farming large cardamom. In addition, I collected data related to women's capabilities in relation to their engagement in the large cardamom value chain. I also met with some stakeholders in Ilam and collected some data from traders in Birtamod. I also observed large cardamom harvesting, separation, drying, packaging, and trading from Rong-6 to Birtamod. In the third fieldwork, I took part in the harvesting and separation of large cardamom pods. In Birtamod, I observed business meeting between Nepali large cardamom and delegates from China who came to Nepal to find out about large cardamom. I also interacted with large cardamom district traders who attended this meeting.

I collected quantitative data during the fourth fieldwork in November – December 2018 in Rong-6. In this data collection, I led a team of nine enumerators, coordinated with local stakeholders and resolved unforeseen issues that emerged during this process. I also did some IDIs and case-story documentation during this visit. The fifth field visit was in February - March 2019 in Birtamod and Kathmandu. In this

period, I collected qualitative data from traders and regional and central stakeholders in Jhapa and Kathmandu.

The final field visit was in December 2020. This fieldwork was useful to understand the impacts of COVID-19 in the large cardamom value chain. In addition, I had a chance to share research findings with the FLCEN, farmers and stakeholders and validate some information. Table 3.5 provides an overview of the fieldwork done during the research period.

Table 3.5: Summary of field visits for data collection

Field visit date	Place	Objective	Duration
Dec-2017	4 districts of Mechi	To have an overview of proposed research sites and to know VC actors and SHs	8 days
Mar-2018	Rong-6, Ilam, and Birtamod	To collect qualitative information from participants and consultation with SHs	21 days
Aug-2018	Rong-6, and Birtamod	To observe value chain process of large cardamom in study sites	15 days
Nov-Dec 2018	Rong-6	To collect quantitative data from surveys, and conduct some IDIs and document case studies	30 days
Feb-Mar 2019	Rong, Birtamod, Mechinagar, Kathmandu	To collect information from SHs located at local, district/regional and central level	35 days
Dec 2020	4 districts of Mechi	To share research draft findings with farmers and stakeholders, and to understand the impact of COVID-19 in large cardamom	8 days

Source: Author (2017, 2018, 2019 and 2020)

3.3.2 Secondary data collection

Secondary data refers to data collected by other researchers earlier for their purpose, which is also relevant for use by another researcher a different purpose. I mapped the required secondary data together with potential sources and accessed them. During my PhD, I got an opportunity to visit the University of Bielefeld in Germany as an Erasmus student from Kathmandu University. My stay at Bielefeld for six months enabled me to access international journal articles and relevant resources which were

difficult to find from Nepal. Table 3.6 provides an outlook of secondary data and their sources.

Table 3.6: Description of secondary data and their sources

Collected secondary data	Source of secondary data	Data form
Large cardamom production	MoALD, CDC, NARC	Soft copy
Large cardamom price, market and export	TEPC/ MOICS and FLCEN	Soft copy
Large cardamom trading data (global)	ITC, FAOSTAT, Spices Board of India (SBI)	Soft copy
Socio-economic context of study site	Rong RM, AKC; Jirmale Women Agri. Cooperative, SUMADUA Cooperative	Hard copy
Large cardamom trading issues-market, price, policy and procedures	National and local newspapers, op ed articles, blogs and grey literature	Hard copy and soft copy
Government policy, plan and budget	MoF, MoALD, NPC, province 1 government and Rong-RM	Soft copy, hard copy
Empirical evidence	Peer reviewed journal articles, books, strategy papers	Soft copy, hard copy

Source: Author's collection (2017, 2018, 2019, 2020)

3.3.3 Unit of analysis

Qualitative data for this research were collected at an individual level, while quantitative data were collected both at household level and individual level. Data related to production, value addition, trading, income, expenditure, contribution to livelihood, production and trading risks were collected at household level. Household level data primarily contributed to research question 1 (Chapter Four) and research question 4 (Chapter Seven). Similarly, individual level data were collected from both male and female respondents of the same household to analyse the gender-based division of roles, roles-related capabilities and changes in gender relation which contribute to research question 2 (Chapter Five) and research question 3 (Chapter Six). Thus, the unit of data analysis for this research was at two levels – individual and household.

3.4 Data Analysis

Data analysis was carried-out at three levels – analysis of quantitative data, qualitative data, and interpretation of data regarding research questions and indicators at hand.

3.4.1 Analysis of quantitative data

Quantitative data analysis began with checking data for clarity and errors. Next the data was cleansed and anonymised. This data was then analysed as per the research questions using the Statistical Package for Social Science (SPSS). Descriptive analysis was applied to map the participation of men and women-specific activities in the large cardamom value chain and their perceptions towards them. Quantitative data was also analysed to compare differences among men and women related to earnings, employment, ownership of productive assets, public participation etc.

3.4.2 Analysis of qualitative data

Analysis of qualitative data started with data transcription, coding, building concepts and themes. Themes were developed as per the indicators developed in line with the research questions. I chose thematic analysis as a technique to analyse qualitative data. This guided me to capture important points from data, derive meaning, summarise key features, maintain a clear description and distinguish similarities and differences across the dataset. I followed Braun and Clarke (2006) for guidance on thematic analysis.

The VCA approach and capabilities approach provided clear guidelines in developing themes. For example, one of my research indicators was the value chain of large cardamom. I developed sub-themes of production and post-production. The sub-theme production included inputs supply and farming activities, while the sub-theme post-production included value addition, trading, and export activities. Likewise, role division among men and women was my other theme. Under this theme, I developed sub-themes of social norms and values regarding role division, employment conditions, knowledge, and skills etc across the large cardamom value chain nodes and sub-nodes. I also developed sub-themes on access to assets and role of institutions as these can provide opportunities or constraints to women/or certain group of people. I followed

Haggblade et al. (2012) believing that economic opportunities expand space to gain social opportunities and social opportunities expand women's political opportunities.

CA provided guidance to develop themes around role related capabilities and functionings. Themes developed as women's capabilities were broken down into sub-themes as knowledge/skills, access to assets (land, information, technology, equipment, finance) mobility and more. Likewise, sub-themes under changing gender relations included relation measured objectively and relation measured subjectively. Such thematic analysis helped to draw findings to establish the relation between capabilities and changing gender relations in the large cardamom value chain.

3.4.3 Interpretation of data

I interpreted qualitative and quantitative data based on the research indicators and sub-indicators developed for each research questions by grouping them around themes. For example, to interpret employment generation from large cardamom, quantitative data revealed the total jobs created by large cardamom at production and post-production level. This also provided disaggregated information on roles regarding gender, ethnicity, and size of production. Likewise, qualitative data provided information related to work conditions, household conditions, wage rates and others which influence women's participation. Through quantitative data, I demonstrated the gender gap in employment in the large cardamom value chain, and through interpretation of qualitative data I was able to explain the reasons for this.

Another example of combining qualitative and quantitative data comes from irrigation. Quantitative data showed that almost all men participate in irrigation. Qualitative data revealed that women are less keen on irrigation and related activities such as water source maintenance, clearing pipe blockages, water storage. For women, irrigation is often a last resort. Women said that large cardamom requires physical strength, good mobility and is uncomfortable because you get wet and cold. They added that the clothing and shoes they wear are not fit for this role. More interestingly, they said that when men do irrigation, women do household work, or other farm work. Yet when women do irrigation, men may not do household work. This showed that combining qualitative and quantitative data provided more meaningful insights than either datum on its own. Onwuegbuzie and Teddlie (2003) say that combining two types

of data is challenging and suggested a seven steps guideline - data reduction, data display, data transformation, data correlation, data consolidation, data comparison and data integration. During data interpretation, I followed these steps. This enabled me to finally answer my research questions.

3.5 Triangulation for Reliability and Validation

I chose triangulation as a method for checking the reliability and validation of the data collected for this research. For data source triangulation, I arranged questions in such a way that any misinformation can be tracked and clarified during data collection. While designing the survey, I took variables that more precisely establish the causal relationship regarding questions at hand and excluded variables that influence results. Creswell (2009) says that the triangulation process varies depending on the research methods and techniques used in data collection and analysis.

To begin with, firstly, I developed the draft set of questionnaires based on the minor research questions. Secondly, I conducted field-test of the questionnaire and based on the field-test results, revised the questionnaire. Thirdly, I took support from Statistician in coding and upload questionnaire in the Tablets. Fourthly, I and Statistician trained Enumerators regarding questions and the use of Tablet. After having adequate mock exercises and second field-test, survey was conducted.

While conducting surveys, I stayed in the field the whole time to gather data and monitor data collection. I also randomly did audits of some households whose data was collected by other enumerators. Each day after data collection, I stayed with the enumerators in the evening. This was a chance to review the data collection and ensure that any issues or new observations were documented in the form of field notes. Data collected were rechecked for mistakes before uploading to the survey instrument, SurveyCTO. When I collected data from respondents working in different roles, I cross checked data there too, and took that in a separate note. Thus, I minimised the effect of confounding variables and maintained the internal and external validity of this research.

While collecting qualitative data, I followed Guba (1981) for criteria used to validate qualitative data. I applied multiple techniques for data collection and stratified the sample to capture the diversity in views of research participants. I visited research

sites and met with the same research participants multiple times, asked the same questions, and self-observed to ensure the validity of the collected data.

I believe that authentic data can be collected when researcher and research participants trust each other. Thus, I visited field sites before the start of the data collection, to build rapport with local elites, teachers, farmers etc. I also visited the field site on several occasions (four times for data). This gave me the opportunity to correct data that was not reliable. After data collection, I thoroughly rechecked each data and any ambiguous data put aside. After preparing the first draft of the thesis, I did a separate field visit in December 2020 with list of data that were ambiguous and cleared them. I was aware of how to maximise the credibility and dependability of the collected data. Thus, I ensured the credibility and dependability of the data.

In addition, I gathered secondary information from official sources to validate primary data. For agriculture production and trade data, this included, for example, the statistical division of MoALD for production data and TEPC for trade data. For other empirical evidence, I accessed literature published in respected and credible journals. I also cited data from multiple other sources, such as grey literature.

3.6 Ethical Considerations

Ethics in scientific research means a fundamental set of actions that need to be accounted for by a researcher in the research process. Keeping this front of mind, I was conscious of research ethics from start to finish. I followed Creswell (2009) and Hammersley and Traianou (2012) in building trust with research participants and ensuring it would cause them no harm.

During data collection in the field, I always put the needs of research participants first, in terms of their time and where contact took place. Before the start of data collection, I briefed the purpose of research and gained their verbal consent. Throughout the research process, I kept the identity of research participants confidential and stored securely.

While collecting data from farmers and village intermediaries, I did not face any difficulty in getting consent from research participants. They were happy to be photographed and to have conversations recorded. However, I noticed that while

recording audio, they were less open than they were in general conversation. They were circumspect in choosing words and tried to use formal language. After collecting some audio records, I decided to stop using this method and took notes instead. At Birtamod, traders and intermediaries did not allow audio recording. Traders were not keen on providing their business information. For example, they did not tell me the exact price of large cardamom they paid to a farmer. While interviewing wage labourers in Birtamod, I was joined by either traders or their supervisors. Despite explaining everything to them, they were suspicious that I would focus on any negative thing I heard.

While writing and disseminating the research findings, I was conscious of the use of language or words that respect gender, ethnicity, role, or other aspects of research participants. I also duly recognised the respondents / research participants for their contribution in published academic work. I will continue to acknowledge the contribution of research participants in forthcoming academic works.

Before going out in the field, I prepared the data collection and analysis matrix shown in Table 3.7.

Table 3.7: Data collection and analysis matrix

	Research Indicator	Data collection instrument	Data source	Analytical framework
R.Q. 1	What is the context of value chain development of large cardamom in eastern Nepal and how is this contributing to the livelihood of farmers?			
R.Q. 1.1	What is the state of value chain development of large cardamom in the study sites?			
	Revealed actors, SHs and their functions and relationships in the value chain map of cardamom	Questionnaire survey, IDIs, SHs consultation	Rong and Birtamod	VC analysis framework (Haggblade et al., 2012)
R.Q. 1.2	How is large cardamom contributing to building resilient livelihoods of farmers?			
	Increased access to livelihoods assets of large cardamom farmers	Questionnaire survey, IDIs	Rong	Livelihood resilience framework (Quandt, 2018)
	Analysed large cardamom farming risks and responses by VC actors	IDIs, FGDs and SH consultation	Rong and Birtamod	Agricultural resilience framework (Meuwissen et al., 2019)
R.Q. 2	How are roles divided among men and women in the large cardamom value chain and how do women's capabilities influence in this?			

	Research Indicator	Data collection instrument	Data source	Analytical framework
R.Q. 2.1	What is the participation of women in production and post-production roles in the large cardamom value chain?			
	Revealed women participation roles in the large cardamom value chain map	Questionnaire survey, IDIs	Rong and Birtamod	VC analysis framework (Haggblade et al., 2012)
R.Q. 2.2	How do women's capabilities link with division of roles in the large cardamom value chain?			
	Analysed links between women's capabilities and women's role in the large cardamom value chain	IDIs, FGDs, Field observation, Case stories	Rong and Birtamod	Capabilities approach (Robeyns, 2017)
R.Q. 2.3	Which factors influence the division of roles and women's capabilities in the large cardamom value chain?			
	Explored factors which influence role division and women's capabilities	IDIs, FGDs, Field observation, Case stories	Rong and Birtamod	Capabilities approach (Robeyns, 2017)
R.Q. 3	How is large cardamom changing gender relations in the study sites?			
	Revealed change in gender relations among large cardamom farmers	IDIs, FGDs, Field observation, Case stories	Rong	WEAI4VCA (Ahmed et al., 2018)
R.Q. 4	What are the opportunities and constraints in large cardamom market diversification?			
R.Q. 4.1	What are the opportunities for large cardamom market diversification in domestic and world markets?			
	Analysed opportunities for domestic and international trading of large cardamom	IDIs, SHs interviews, secondary data	Birtamod	VC analysis framework (Haggblade et al., 2012)
R.Q. 4.2	What are the constraints in export market diversification of large cardamom?			
	Documented export market diversification constraints of large cardamom	IDIs, SHs interviews, secondary data	Birtamod	Agricultural VC analysis framework (Trienekens, 2011)

Source: Author (2019)

CHAPTER FOUR

COMMERCIALISATION OF LARGE CARDAMOM AND LIVELIHOOD RESILIENCE

In **Chapter Four**, I introduce large cardamom and provide a detailed account of value chain development, followed by how it contributes to farmers' livelihoods. The value chain of large cardamom is analysed for production, value addition and trading nodes only. Likewise, the contribution to the livelihoods of farming households is analysed through livelihood assets - economic, human, social, physical, and natural. This chapter also briefly assesses the social, economic, and environmental risks in large cardamom farming and the response strategies adopted by the farmers.

4.1 Brief Introduction of Large Cardamom

Cardamom is a herbaceous evergreen perennial plant in the *Zinziberaece* family. The term 'cardamom' denotes two Genus of cardamom: '*Amomum'* and '*Elettaria'*. The *Amomum* cardamom is widely known as large cardamom (*A. subulatum Roxb.*), spoken as *alainchi* in Nepali and *bada elaichi* in Hindi. Study crop, large cardamom is native to Eastern Himalayan Region (EHR)– Nepal, Sikkim state of India and Bhutan (Adhikari & Sigdel, 2016; ITC, 2017a). It is different to green cardamom (*Elettaria cardamomum*), known as *sukumel* in Nepali and *chhota elaichi* in Hindi.

Among the many varieties of large cardamom, *Ramsai*, *Golsai*, *Chibesai*, *Dambersai*, *Sawney*, *Kantidaar* and *Salakpurey* are widely cultivated in Nepal. These varieties require a definite elevational range and certain climatic conditions to grow. For example: *Salakpurey* cardamom grows at an elevation below 600 m, whereas *Ramsai* grows at an elevation above 1500 m. Leaving *Salakpurey*, the rest of the varieties prefer to grow under light vegetation cover as an understory of trees. They do not tolerate frost, snowfall, or waterlogged conditions (Adhikari & Sigdel, 2016; Timilsina & Paudel, 2016).

The dried fruits of cardamom (large and green) possess economic value. These fruits are used as a spice to give flavour in food dishes. In India and other South Asian

countries, cardamom[12] is used in *biriyani*, a special regional dish, and in meat dishes. In Middle Eastern countries, cardamom powder is used in sweet dishes, and in coffee and tea. People also take cardamom drinks to cool down in summer. In Nordic countries, cardamom powder is used for baking. In China, another variety of *Amomum* cardamom, *A. villosum* is used in traditional medicine (George & Cherian, 2017; Sharma et al., 2016; The United States Agency for International Development [USAID], 2011).

In Nepal, cardamom is used as a spice in food dishes – *pulao*, fish and meat, *biriyani*, sweets, bakery, biscuits and in drinks - tea and local wine. Likewise, cardamom is a traditional medicine to treat asthma, arthritis, stomach-ache and jaundice, and is also used as a blood purifier and energiser. Hindu people take cardamom as a holy product and one of the constituents in *puja* (Adkhikari & Sigdel, 2016). Due to its high economic value, cardamom is called the 'queen of all spices' and ranked third in terms of price per volume after saffron and vanilla in the international market (George & Cherian, 2017). Large cardamom in specific, is known as 'black gold' in Nepal.

Large cardamom farming and trading has been going on for 170 years in Nepal. It is believed that large cardamom was first planted in Ilam district in the 1850s (ITC, 2017a). Since then, Nepal has progressed in production and is currently the world's largest producer of large cardamom, contributing more than 55 per cent (Bhutia et al., 2017). As of 2018/19, large cardamom was commercially cultivated in 15,055 ha land 48 districts[13] by over 70,000 farming households and production was 7,954 MT (MoALD, 2020). However, more than 90 per cent of the total production of large cardamom is confined to the districts of Province One (ibid). Table 4.1 provides an overview of province wise production of large cardamom by number of districts, area under farming, volume, and yield per ha in Nepal for the 2018/19 financial year.

[12] While describing the use of cardamom, literature have not distinguished between large and green cardamoms.

[13] For this research, the district which produces at least 1 MT of cardamom per annum is counted as cardamom producing district.

Table 4.1: Province-wise production of large cardamom in Nepal (2018)

Province name	No of Districts	Production area (ha)	Production volume (MT)	Yield (MT/ha)
Province 1	14	13,293	7,186	0.57
Madesh	0	0	0	0
Bagmati	12	600	333	0.56
Gandaki	10	930	353	0.38
Lumbini	3	142	32	0.22
Karnali	6	81	45	0.55
S. Pachhim	3	10	5	0.55
Country total	48	15,055	7,954	0.53

Source: Statistical Information in Nepalese Agriculture 2018/19 (MoALD, 2020)

4.2 Overview of Large Cardamom Production in the Study Site

Despite the long history of large cardamom farming in Ilam, it has only been farmed in the study site for 30 years. This is because Rong's climate was warm and its elevation below 1,000m from mean sea level. Farmers of Rong Salakpur explained that Suntunge Kanchha, who came from West Bengal, introduced a new variety of large cardamom to Salakpur and the rest of the country. This new variety survived at a warmer temperature and lower elevation. It was later called the Salakpurey variety. This large cardamom was first planted at Buddha Singh Syangbo's farm in the early 1980s and soon expanded in the region. In the early 1990s, Rong became a commercial producer of Salakpurey large cardamom. Compared to other varieties of cardamom cultivated in Nepal, it has several appealing features including high yield, large pods, and an attractive appearance. This has made it popular in Ilam and beyond as *Salakpurey*, *Jirmale* or *Pakhey* cardamom. The first two names indicate the place where it was first cultivated, and the latter indicates the landscape it prefers to grow in, i.e., open, and sloped land or *Pakho* in Nepali. Unlike other varieties of large cardamom cultivated in Nepal, it does not grow well under shade or in wet land.

Farmers in the study site consider large cardamom the best HVA crop because of its economic importance. Out of the 512 farmers surveyed, 70 per cent said that large cardamom is the main crop to contribute to family income from the agriculture sector. However, they have also cultivated other HVA crops such as tea, betel nut, broom, and produce honey and milk too. The remaining 30 per cent said that non- large cardamom

crops contribute more to the family. It should be noticed that farmers who cultivated HVA crops other than large cardamom did so because cardamom was unsuitable to farm in their land. For example, *Salakpurey* cardamom is not suitable in Patapur and lower Jirmale due to high temperatures, and in the upper part of Rambheng due to low temperatures. Thus, betel nut and broom were cultivated as the main crops in Patapur and lower Jirmale, and tea as the main crop in upper Rambheng. Table 4.2 demonstrates HVA crops which serve as the main source of household income in number, size of production in kilogram (kg) and the per cent of farmers within each production category.

Table 4.2: Main crop for household income and size of production, Rong (2018)

N = 512 Households

HVA crop	Production (kg)/ No of households (%)				
Production of HVA (kg)		>100 kg	100 – 300 kg	300 – 500 kg	>500 kg
Large cardamom	354	44	42	9	5
Betel nut	52	10	18	20	52
Broom	50	14	34	24	36
Orange	18	11	6	-	83
Tea	9	11	33.5	22	33.5
Ginger	2	50	-	50	-
Rice	3	33	-	-	66
Honey	1	100	-	-	-
Vegetables	8	25	37.5	-	37.5

Source: Field Survey (2018)

Secondary data also proves that large cardamom provides the highest income to farming households when compared to other HVA crops. The BCR of large cardamom can be as high as 3.06 (Shrestha, 2018a). Tea has a BCR of 1.08 (Baral, 2019); betel nut has a BCR of 2.02 (Ghimire & Dhungana, 2021), broom has a BCR of 1.43 (UNDP, 2015b), and ginger has a BCR of 7.22 (Gurung et al., 2021).

4.3 Brief Analysis of Large Cardamom Value Chain

The value chain of large cardamom is analysed at two levels: production and post-production. Production of cardamom includes analysis of inputs supply, planting,

weeding, and cleaning, fertilising, harvesting, local transportation and separation of pods. The post-production value chain analysis is further broken down at two levels: post-production Phase I activities in Rong-6 and post-production Phase II activities in Birtamod.

4.3.1 Inputs analysis

Inputs required for large cardamom production include seedlings, irrigation, organic fertiliser, equipment, and technical services. Farmers in the study area have cultivated almost all the potential land with large cardamom so there was little demand for seedlings. However, at the start of cultivation, farmers established cardamom nursery and had also produced seedlings from separating sticks from the main plant. They added new seeds production skills after CDC training. As *Salakpurey* large cardamom gained popularity. Nursery growers first received orders from different parts of Ilam and later huge orders from different hill districts of Nepal. Farmers had established around 20 nurseries and supplied millions of seedlings in each planting season.

Irrigation is an important input in large cardamom production. However, it was not accessible to all farmers. Large farmers have managed irrigation through their own efforts and investment, whereas small farmers rely on rainfall. Large farmers have brought water in polythene pipes from a distance as far as 6-10km with an initial investment of at least NPR 500,000. There are limited water sources for irrigation where farmers are in competition. Farmers in Salakpur and Rambheng have brought water from Indre *khola*[14] and Darpane *khola*. Likewise, farmers in Kuwapani, Lamitar and Jirmale have brought water from Telpani *khola* and Jirmale *khola*, and farmers in the lower parts of Jirmale and Patapur have brought water from Ninda *khola*. In addition, some farmers have brought water from small natural springs (*sasana panika mul*) in private land they rent. But small farmers do not have the resources to invest in irrigation. Though they invest, their landholding was so small they could not consume adequate water. Thus, only around 35 per cent of large cardamom farmers have access to irrigation in the study area. Of these, 10 per cent have solo access and 25 per cent shared access. The remaining 65 per cent of large cardamom farmers depend on rainfall for irrigation.

[14] *Khola* means small streams in English

Farmers did not use chemical fertiliser, insecticides, and pesticides in large cardamom production. Instead, they use locally produced compost for fertilisation and claim their product is organic. Some farmers had tried using products called growth enhancers which are sold by private agro vets. However, farmers have learned that such growth enhancers had no effect in production and the claims made by the private agro vets were false. One such farmer from Rambheng shared that three agro vet staff from a company in Jhapa stayed at his home for three months to sell products they said were vitamins. Many farmers bought these vitamins at a high cost to use in large cardamom farms but observed they made no difference to production. During data collection with officials at Rong municipal office, one agent from a bio-pesticide company in Kathmandu came and explained that these products control dying large cardamom farms in Rambheng and orange orchards in Salakpur. But farmers were not convinced. Farmers have asked Rong to make policies to control the sale of such products in Rong to stop farmers from being cheated.

Regarding technical services, farmers were getting these from Rong, CDC, AKC [then District Agriculture Development Office (DADO)]. However, farmers had grievances with these organisations, saying that their problems with diseases in large cardamom in Rambheng and orange in Salakpur had not been addressed. Service-providing organisations are also referred to as stakeholders in inputs, production, value addition and trading. See sub-section 4.2.6 of this chapter for an explanation.

4.3.2 Production

Large cardamom production starts by preparing land for farming. This includes clearing bush, ploughing, pitting, fertilisation, and plantation. There is little scope for new plantations or expansion of farms. This is because farmers have planted large cardamom in all available potential land and established farms bear fruits for 15 to 20 years. Once the farm is established, farmers routinely carry out intermediary operations such as weeding, cleaning, fertilisation, irrigation and harvesting every year. Farmers harvest large cardamom once the fruits ripen in late July / early August in lower parts of Salakpur and Jirmale. Large cardamom harvesting gradually moves upwards and ends in Rambheng in September. In areas of higher elevation, harvesting continues till November.

After harvesting, farmers transport large cardamom from field to home and pile for 2-3 days in open space under the roof. This is to heat the fruits so that the outer skin weakens, and it is easier to separate pods. After this has been done, fresh cardamom is dried in a traditional fire-burn dryer to prepare for sale. Per unit production of *Salakpurey* large cardamom is around 600 kg per ha. According to farmers, this is higher than other varieties of large cardamom cultivated in Ilam. This is also above the national average production of large cardamom, 570 kg per ha (MoALD, 2020).

However, some farmers sell fresh large cardamom to local intermediaries before drying. Farmers sell fresh large cardamom for several reasons. For example, they don't have a dryer, there is not enough large cardamom for drying, there were no working men at home, or they were unable to manage firewood for drying. The price farmers receive for fresh large cardamom is around 20 per cent less than dried large cardamom. Large cardamom engages farmers all year round. Farmers start preparing land in April and May and carry out plantation during the rainy months of June and July up to August. Farmers harvest large cardamom from late July to September. Other activities are done inbetween. Figure 4.1 provides an overview of the seasonal calendar of large cardamom production in the study area.

Figure 4.1: Seasonal calendar of large cardamom production in Rong

Farming activities	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Preparation of land												
Plantation												
Weeding / cleaning												
Fertilizing												
Irrigation												
Harvesting, separation, and drying												

Source: Fieldwork (2018)

The volume of large cardamom production depends on farmers' access to land and irrigation. Most farmers (55 per cent) in the study site are very small and hold land up to 0.3 ha, whereas only 8 per cent hold land of over 1 ha. The former group produce below 100 kg of large cardamom, and the number of farmers comprise 44 per cent of 354 large cardamom farmers surveyed. In comparison, the latter 5 per cent of farmers produce

more than 500kg of the 354 large cardamom farmers surveyed. Table 4.3 provides an overview of size of land holding by per centage of farming households and household level production of large cardamom in kg by percentage of farming households.

Table 4.3: Household holding of farm and production of large cardamom, Rong (2018)

N = 354 Households

	Landholding size		Production size	
	Land holding (ha)	HHs (%)	Production	HHs (%)
Very small	Up to 0.3 ha	55	Below 100 kg	44
Small	0.3 ha to 0.5 ha	31	100 – 300 kg	42
Medium	0.5 to 1.0 ha	15	300 – 500 kg	9
Large	Above 1.0 ha	8	Above 500 kg	5

Source: Field Survey (2018)

4.3.3 Post-production: Phase I

Post-production of large cardamom is distinguished from production by taking the separation of pods as a cut-off point. From this stage, farmers can sell fresh large cardamom locally. The post-production phase is sub-grouped as Phase I and Phase II based on the nature of activities and where they are carried out. Post-production activities in Rong-6 are viewed as Phase I, and in Birtamod as Phase II.

Post-production Phase I starts with drying fresh large cardamom. Farmers dry fresh large cardamom in a traditional dryer using firewood as energy. A common traditional dryer of size 6*6 square feet surface area can accommodate 200 kg fresh large cardamom in one shift. It takes around 24 hours to dry one shift of fresh large cardamom. To maintain uniformity, this process requires frequent stirring up and down and side by side. In one shift, farmers get around 40 kg dry cardamom, which is then sundried for 1-2 days. Extraneous materials are then removed, and it is packed in jute bags. This large cardamom is then sold to intermediaries or traders.

Farmers sell almost all large cardamom they produce, i.e., this means they keep hardly 0.5 to 1 kg for their own consumption. Likewise, 80 per cent of farmers go to Birtamod to sell large cardamom at least once, 38 per cent of farmers sell large cardamom from their home to traders, and 36 per cent sell to intermediaries and / or family friends. Farmers usually do not keep large cardamom after drying as they have

an advantage of being the first suppliers in the new season. This means they can fetch a good price. Another reason was that they need cash to pay any advances they've taken, and they need it to celebrate the main festivals in October / November.

4.3.4 Post-production: Phase II

Post-production Phase II starts with the value addition of large cardamom in Birtamod. After buying large cardamom from farmers or intermediaries, traders do some activities which add value. These include head-and-tail cut, cleaning and grading; weighing, labelling and packaging, and finally export. Traders employ women wage-labourers in head-and-tail cut, cleaning, and grading. While men wage labourers are used in weighing, labelling, and packaging, and loading / unloading during export.

The quality of large cardamom is defined based on size, shape, and colour of the pod. Jumbo Jet (JJ) quality means large cardamom which has pods size 1.3 cm or more, attractive shape and black-brown colour; Super Deluxe (SD) quality of large cardamom has middle size pods (at least 1.2 cm) and has a similar shape and colour to JJ; and Chalan Chalti (CC) has pods mixed in terms of size, shape, and colour. The price of large cardamom differs with grades. The difference between two successive grades was around 5 per cent. After this, the large cardamom was packaged in 10 kg, 25 kg and 50 kg jute sacks and stored until it was sold.

In the value addition process, large cardamom dust, *chhika*, and seeds come as by-products. Large cardamom dust was used to scent incense sticks and sold at NPR 30 per kg. The residue from head and tail cutting is called *chhika* and is used to add flavour in food dishes. This sold at NPR 200 per kg. Similarly, large cardamom seed was sold at NPR 1,100 per kg (price as of March 2019). These by-products make up a very small proportion of sales: seeds were around 0.5 per cent and *chhika* around 1 per cent of processed large cardamom. These by-products were sold at local markets.

Traders export large cardamom to the Indian city of Siliguri. Siliguri serves as the regional hub of large cardamom produced in Nepal, Bhutan, Sikkim, and other eastern states of India. Traders based in the city have placed their agents in Birtamod to facilitate large cardamom export. From Siliguri, large cardamom was transported to Delhi, the central hub of cardamom collection and trading in India. Around 99 per cent of Nepali large cardamom is exported to the world market. Chapter Seven covers this in detail. In

summary, the value chain of large cardamom is well developed and functional in the study area. At the same time, there are differences between small farmers and large farmers in terms of their ability to access inputs, size of production, value addition and trading. Traders in Birtamod responded to market demand through some value addition activities. However, their entire export is confined to the Indian market.

4.3.5 Large cardamom actors' relationship analysis

Large cardamom value chain actors interact with each other within the same node (horizontal) and across the nodes (vertical). This interaction provides a picture of internal governance. Farmer cooperate with each other in the exchange of labour, shared irrigation, and shared transportation of large cardamom. Large farmers buy fresh large cardamom from small farmers, which small farmers perceive as support. Likewise, large nursery growers support small growers in trading large cardamom seedlings.

The relationship among intermediaries has changed from one of competition to cooperation in just a few years. When the price of large cardamom was high, they were competing amongst each other to grab more large cardamom. Since large cardamom prices have fallen and become more unpredictable, intermediaries have started supporting each other. For example, by providing information, sharing costs of hired vehicles used in large cardamom transportation and others. Traders have also moved from a competing relationship to become more supportive of one other. When one trader gets demand they cannot meet or is not interested in selling at the price offered, they pass a message to another trader. Traders share a common platform, FLCEN, where they share and discuss issues like price, quality, market promotion, market diversification and more.

Vertical relations among farmers, intermediaries and traders show a functional relationship of interdependency. They also have some grievances against each other. Behind the strong vertical relationship, is the role of the relation-based value chain of large cardamom. This relationship has a long history built on cooperation and trust. Thus, traders have their own large cardamom production pocket areas in the villages where other traders don't go. One trader explained this as:

> *"Large portion of large cardamom from Taplejung district comes at my store. It is due to trust on my father. My father spent around 50 years in Taplejung*

and every farmer knows him. He was with farmers in their joys and sorrows." [IDI, Male Respondent, 32, Birtamod, March, 2018]

Intermediaries and traders provide finances or food and utility goods to needy farmers in advance. These farmers pay them back by selling large cardamom to them. Farmers can sell large cardamom at the price traded in Birtamod, i.e., not at a lower price. In addition, traders and intermediaries provide large cardamom storage facilities so that farmers can sell as per their need or price. District intermediaries and traders make payments immediately after the sale of large cardamom. Thus, many farmers describe intermediaries and traders as ATM (Automatic Teller Machine) and the amount of large cardamom they have as an ATM card.

On the other side, there were grievances among value chain actors. Farmers believed that intermediaries and traders do not give them a fair price. For example, for 40 kg of large cardamom a trader will pay for only 37 kg saying that 3 kg will be wastage due to head-and-tail cutting, cleaning, and grading. Some farmers feel that traders act like they're doing them a favour, as without them buying large cardamom, the farmers would have no income. On the other hand, traders questioned the standards and quality of large cardamom that farmers and village intermediaries bring to them. Nepali traders did not trust Delhi traders to consult them while fixing the indicative price of large cardamom. Nepali traders also said that Indian traders mix Nepali large cardamom with low-quality Assamese and Bhutanese cardamom. This study also found there was no common platform for farmers, intermediaries, and traders to interact and sort-out issues. Case 4.1 reveals how cardamom farmers' perceptions changed while sharing a platform with traders.

Case 4.1: I have never realised traders' have their own pains

"I always have thinking that traders do not provide fair price of large cardamom to farmers. Traders earn money exploiting us, accumulate huge assets and live luxurious life. One event I participated with traders changed my perception towards them and realised that everyone has his own pains. That event was a picnic organised by FLCEN and I was invited as farmers' representative".

"In picnic, everyone was enjoying in own way, eating, drinking, playing cards, singing, and dancing. I was enjoying looking how others are enjoying. In the meantime,

one trader sang a song of veteran Nepali singer in self-made remix version. One line of that song touched men deeply which states- parkhi banse aaula bhau bhani mero kurne palo (I am waiting for the day price of large cardamom would go up again). It was the time that price of large cardamom has dropped to its minimum. After a while, another trader sang another popular Nepali song in his own remix version as- udaayoo sapana sabaii alainchi bhaaule (drop in price of large cardamom swept my dreams away). He was the person who had lost huge property due to fall in price. After hearing two songs, I find myself happier that I have managed livelihoods without having much pain".

As explained above, all actors in the vertical chain of large cardamom have their own grievances. This case provides an example that when actors can get platforms to express each other's joys and grievances it helps to build trust between them. But there is not a platform where all such actors can air their grievances.

4.3.6 Role analysis of stakeholders

In each node of the large cardamom value chain, government, non-government, and private sector stakeholders are connected. In large cardamom production, Ministry of Agriculture, Department of Agriculture and Province Ministry of Agriculture are connected directly. These organisations formulate policies, plans and budgets related to production, expansion, value addition and trading. On the other hand, field-based organisations, CDC, AKC, PMAMP provide technical and material support to farmers. They support farmers in large cardamom nursery, soil test, crop insurance, agricultural loans and local research. However, large cardamom farmers were not satisfied with stakeholders, because of a mismatch between farmers' needs and stakeholders' support.

In large cardamom trading, TEPC is the main organisation which provides market information, promotion, preparation, and implementation of large cardamom strategy. In addition, TEPC supports traders in trademark registration in India, Pakistan, and the United Arab Emirates. TEPC also organises exposure to traders for large cardamom market diversification. However, TEPC's efforts in large cardamom market diversification have proved fruitless.

Likewise, DFTQC should be the responsible government organisation to assure food quality of large cardamom. DFTQC should also provide an accredited certificate

to traders, so traders don't need to go to Kolkata. Yet this has not happened. Specific to research, NARC is responsible for addressing farmers concerns around large cardamom disease, soil quality and variety development. But NARC research was unable to find solutions to large cardamom diseases and prescribe suitable varieties based on agro ecology.

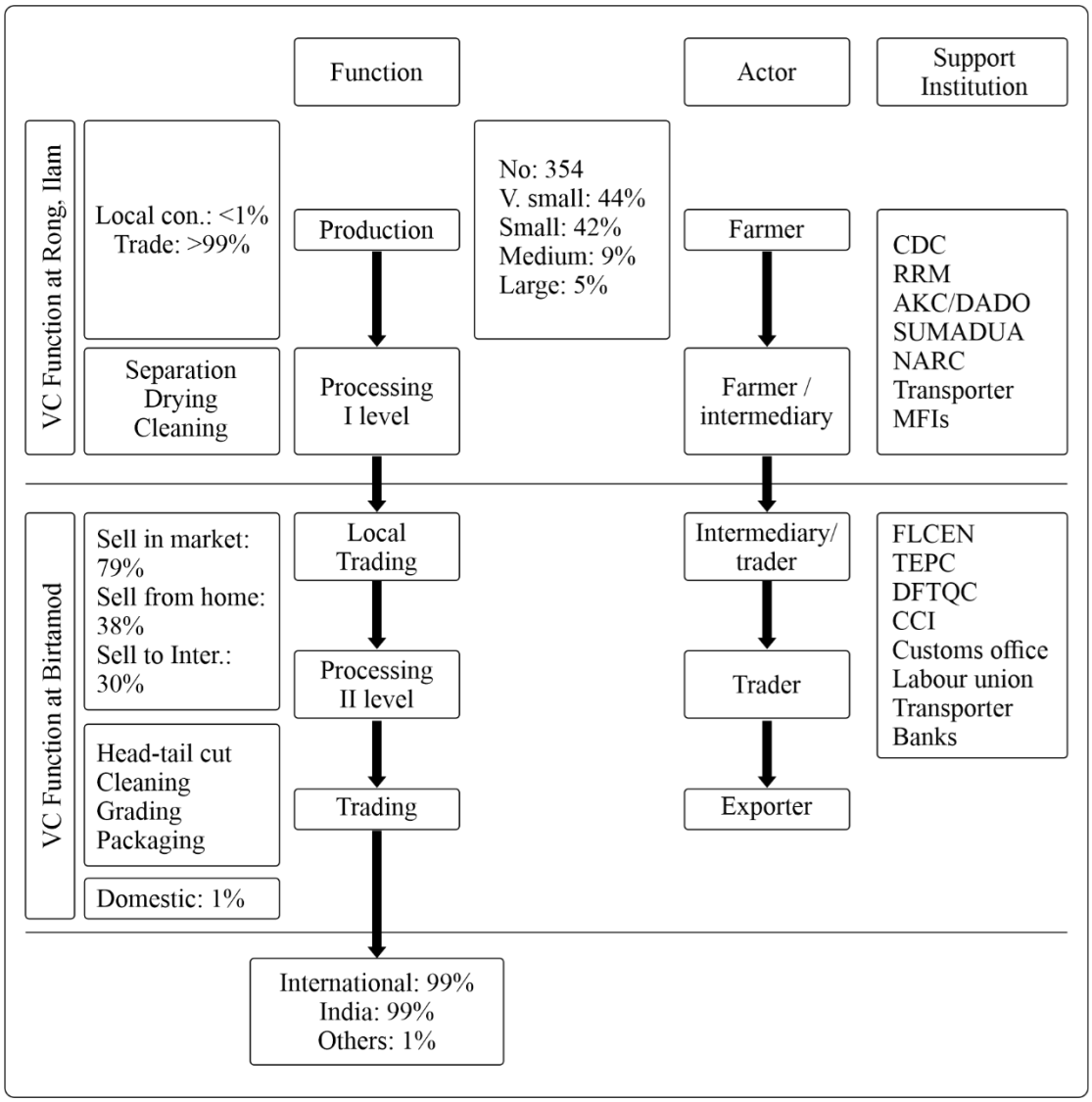
The FLCEN is an umbrella organisation of traders which facilitates trading by fixing a daily indicative price. Farmers can access this price through SMS. The city level chapter of FNCCI can quickly provide traders with a certificate of origin.

The local government Rong Rural Municipality has provided basic technical services and support for specific activities such as a soil PH test. The municipality has kept records of crops production, documentation of loss, and process for insurance. Likewise, large cardamom farmers were organised in a product-based cooperative: SUMADUA, which represents four top HVA products, SU - *Suntala* (Orange), MA-*Maha* (honey), DU - *Dudh* (Milk) and A - *Alainchi* (large cardamom). Women farmers were organised in Jirmale Women Agriculture Cooperative Limited (JWAC), and informal women's groups. They provide credit to farmers, raise awareness and technical skills and support farmers as needed. In summary, large cardamom actors and stakeholders have a direct and influential role in the function of large cardamom. However, the degree of engagement and influence varies depending upon the nature of stakeholder. Farmers and traders have grievances with each other. Such grievances of actors and stakeholders may be mitigated through continuous engagement. However, value chain actors and stakeholders should focus on large cardamom business services, disease control, and market diversification. Figure 4.2 summarises the value chain analysis of large cardamom in a map.

In summary, large cardamom is the first choice HVA crop of farmers as it provides a high price, long-product life and well-established value chain. Farmers have used all available land to cultivate large cardamom or other HVA crops. Most farmers are small, and they lack irrigation which reduces their production by half. Farmers who harvest large cardamom in July / August fetch a good price by being the first supplier of the season. Most farmers directly sell large cardamom in Birtamod and some sell through village intermediaries. Farmers produce smoke-dry large cardamom which has demand in the market. Yet, some stakeholders have contested raising food quality

standard issues if the product is traded in the international market. Large cardamom value chain is relation-based. However, actors in the vertical chain have grievances with each other and there was no shared platform to air these grievances.

Figure 4.2: Value chain map of large cardamom in the study sites and beyond



Source: Author (2021) and (MoAD, 2015b)

4.4 Contribution to livelihoods

This section analyses the contribution of large cardamom to the livelihoods of farmers. Livelihoods is a broad concept that includes several components like assets, vulnerability, livelihood strategies, and livelihood transformation. However, in this research, I have studied only livelihood assets as fundamental part of livelihood system. These are financial, human, natural, social, and physical assets.

4.4.1 Contribution to financial assets

The contribution of large cardamom to financial assets is analysed via two indicators- income from the sale of large cardamom and employment generated by it. Farmers consider large cardamom as the main source of family income from the agriculture sector. Farmers prefer large cardamom over other HVA crops because it provides a high price. Considering large cardamom only, this study finds that 45 per cent farmers earn below NPR 60,000[15], some 18 per cent earn between NPR 60,000 to 120,000, and 27 per cent earn between NPR 120,000 to 270,000. The remaining 10 per cent of farmers earn above NPR 270,000. Within these categories, the lowest earning 5 per cent of farmers earn around NPR 24,000; and the highest earning 5 per cent earn around NPR 1.0 million per annum.

Large cardamom has generated many different types of employment including self-employment, labour exchange, waged-labour, and labour-contract in the regions round the year. In participatory discussion, farmers estimated that they require approximately 500 working days per annum to produce large cardamom from an established one-hectare farm. This means that one-hectare generates NPR 200,000 in paid employment considering the average daily wage of NPR 400 per day.

In the study site, 87 per cent of farmers outsource labour for large cardamom farming related activities. Of these, large cardamom harvesting was the most common activity to be outsourced. Large cardamom harvesting has generated 16,922 days of work where the share of paid labour was 53 per cent. Within the total paid employment of large cardamom production, harvesting has the highest at 31 per cent, followed by separation of pods 23 per cent, irrigation 17 per cent and local transportation 15 per cent. Weeding, cleaning, and fertilisation also require huge amounts of labour. However, in terms of paid labour, these activities generated only 9 per cent. This means these activities were carried-out by family members and / or exchanged labour. Land preparation generated the least paid employment at just 2 per cent. This is because there is little scope for new plantations of large cardamom in the future.

[15] Average farmgate price of 1 kg of LC was NPR 700 during survey period, November-December, 2019.

When it comes to expenditure, results showed that farmers spent a large portion of their income on buying food products. Higher earnings from large cardamom have increased farmers' choice in what food they buy. Farmers were buying more types of foods than they used to before farming large cardamom. They were choosing rice, vegetables, pulses, and milk regularly and meat more frequently. In past, rice, millet, maize, and wheat were their main food products. 'Chayote' (*locally known as Iswara* or *Iskus*) was one such staple food crop in Rong-6 and was eaten as a vegetable, snack, and meal. At that time, farmers who produced high Chayote were seen as rich because it met their household food requirements.

4.4.2 Strengthening human assets

Farmers strengthened human assets - skills and capacities by getting involved in large cardamom production. They gained new skills in large cardamom nursery and production, harvesting, drying and value addition. Further, many farmers the opportunity to visit different parts of Ilam and beyond. This provided them with new insights and confidence in commercial farming and trading. Farmers learned about good cultivation practice, i.e., not to apply chemical fertiliser while farming large cardamom and claim that large cardamom is an organic product. They participated in different kinds of events organised by stakeholders around leadership, accounting, group mobilisation skills and approach to service providers when needed. Many women farmers participated in awareness and skill development activities which helped them to build confidence. As a result, women farmers were doing labour management, inputs management and trading of large cardamom and other HVA products.

4.4.3 Increased access to natural assets

Farmers were using land and water in farming large cardamom and other HVA crops. Farmers have not left any land uncultivated and have no water source accessible for irrigation. Likewise, farmers have managed firewood for drying of large cardamom from community forests and private land. Every farmer has easy access to drinking water. Some 65 per cent of farmers have installed private taps, 16 per cent of farmers use drinking water through sharing private taps, and another 16 per cent of farmers bring drinking water from community taps. Drinking water was brought from local

natural springs which they use without treatment as they believe it is pure. Small farmers save drinking water to irrigate their large cardamom farm or kitchen garden.

4.4.4 Enhancing social assets

Farmers have increased access to health, education, and other social services. When health issues were not treated in the local health post in Jirmale, farmers were able to go to hospitals in Birtamod, Dharan or Biratnagar for advanced treatment. This was not possible for many low-income farmers in the past. Even where farmers did not have money in their pocket, they were trusted by local moneylenders. One female head of a farm, i.e., with the main responsibility for farm and family, shared:

> *"My daughter broke her hand while returning from school. This service was not available in local health post. So, I took her to Birtamod. I did not have enough money and asked with local money lender. He gave me required money in verbal understanding. I paid him after sale of large cardamom.". [Female Participant, 41, Jirmale, December, 2018]*

Farmers were organised in both formal and informal social networks. These include mothers' group, vegetable farmers' group, cooperatives, micro-financial groups, and others. Being involved in the women's cooperative called JWAC, and product-based cooperative, called SUMADUA, farmers benefited from increased mutual support, access to finance, and ease in marketing. Women farmers benefited from reduced gender-based violence and increased role and recognition (I discuss these topics in detail in Chapter Five and Chapter Six). Being in groups has enabled farmers to build collective strength which has given them confidence and provided shared opportunities. Women farmers have used their collective agency in trading large cardamom and other HVA products, purchase of inputs and buying of services when required.

4.4.5 Addition of physical assets

Farmers have added various new physical assets in their homes. High income farmers have bought land and a house, a vehicle, smart mobile phones, televisions etc. Low-income farmers have also bought a radio, television, mobile phones, furniture, and other assets, though they have lower economic value. Regarding living space, almost all farmers have permanent house, thatch roof replaced by Zink plates, have added a

separate kitchen and a terrace maintained with flowers. This had visibly changed from before large cardamom. A few years back, farmers used only firewood for cooking food. This has gradually been replaced with Liquid Petroleum Gas (LPG) though farmers use firewood to prepare animal feed. Almost all farmers have access to communication through mobile phones. Around 80 per cent of farmers use solar electricity for light, mobile battery recharge and to power the television. Electrification began in October 2018 in Rong-6 and has now completed. Table 4.4 shows the change in farmers' access to physical assets in the past eight years.

Table 4.4: Change in farmers' access to physical assets over time, Rong (2018)

Asset types	Number of HHs / Year		
	2010	2015	2018
Motorcycle	16	48	71
Tractor/Pick up	3	8	14
Mobile	196	391	542
TV set	73	169	215
Radio	219	262	245

Source: Adapted from Acharya, et al. (2020)

During fieldwork, men and women respondents were asked how large cardamom has contributed to different aspects of livelihoods. Men and women both said that the biggest contribution of large cardamom was to household income. Next was increased access to food products, access to health and medicine, children's education, and accumulating physical assets.

In summary, large cardamom has contributed to farmers' livelihoods through financial asset building. Large cardamom has increased family income and generated paid employment. As farmers have made a good financial base from large cardamom and other HVAs, this helps them to build other livelihood assets. Farmers have built human assets including knowledge and skills farming, management, leadership, communication and more; physical assets in the form of land, furniture, additional rooms, solar electricity etc; and social assets such as cooperating with each other in labour, trading, finance, membership of groups, taking roles in public and others. Likewise, farmers have access to forest products, food products, drinking water and

other infrastructure. Farmers also claim that their living standards have improved compared to 10-15 years ago.

4.5 Livelihood Risks and Farmer's Response

This section analyses the risks of large cardamom farming and its implications for farmers' livelihoods. These are grouped as economic, social, and environmental risks.

4.5.1 Economic risks

Economic risks in large cardamom farming are mainly from fluctuations in price to producers and unpredicted demand of seedlings to nursery growers. This section analyses how nursery growers and farmers face economic risks while farming large cardamom. Starting with large cardamom nursery growers, as the *Salakpurey* variety became popular, there was high demand for seedlings from Ilam and other districts. To meet this demand, farmers established nurseries and attracted a good price (NPR 4-5 per seedling). In 2015-16, nursery growers in Rong-6 sold over 3 million seedlings. In May and June, there were dozens of pickup vans lined up in Rong-6 every day to load large cardamom seedlings. However, since 2017, there has been an abrupt fall in demand for large cardamom seedlings. This has meant that small nursery growers were unable to sell seedlings and so earned no income. In 2018, small nursery growers became increasingly frustrated. By 2019, many had cleared their large cardamom nursery and started vegetable farming instead.

Likewise, the price of large cardamom has fallen consistently since late 2015. The unexpected rise in large cardamom price from NPR 300 per kg in 2009/10 to NPR 1,125 per kg in 2010/11 to NPR 2,050 in 2014/15 attracted farmers to set up new farms and expand existing ones. Higher prices have implications for the expansion of large cardamom farms in India and Bhutan. This resulted in a heavy fall in price. In 2019/20, the large cardamom price fell to just NPR 650 per kg. Table 4.5 shows the change in large cardamom farming area (in ha), production (volume in metric tons) and price (maximum and minimum in NPR/kg) in Nepal from fiscal year 2009/10 to 2018/19.

Table 4.5: Large cardamom production and price in Nepal (2009/10-2018/19)

Year	Farming area (ha)*	Production (MT)*	Price (Max. NPR/kg)**	Price (Min. NPR/kg)**
2009/10	11,766	5,232	1,075	300
2010/11	12,584	5,517	1,575	1,125
2011/12	11,665	6,026	1,800	1,125
2012/13	11,434	5,753	1,825	1,175
2013/14	11,501	5,225	2,950	2,000
2014/15	11,485	5,166	2,250	2,050
2015/16	12,120	6,439	2,500	1,700
2016/17	12,508	6,521	2,000	1,500
2017/18	12,769	6,849	1,500	650
2018/19	15,055	7,954	775	625

*Source: *Statistical Yearbook on Nepalese Agriculture: MoAC (2011) to MoALD (2020); **FLCEN, (2020)*

Similarly, Figure 4.3 shows how the price of large cardamom has fluctuated over the years. This figure also maps the rate of price fluctuation within each year.

Figure 4.3: Price fluctuation of large cardamom in Birtamod (2009/10-2018/19)

*Source: *Statistical Yearbook on Nepalese Agriculture: MoAC (2011) to MoALD (2020); **FLCEN (2020)*

The fall in price of large cardamom lowered farmers' income and this imbalanced the entire livelihood ecosystem. To cope with this, farmers have adopted

strategies like selling land and valuable assets, taking loans, and switch from farming to other jobs. Many farmers shared painful stories of how they survived this fall. One farmer and village intermediary said:

> *"In 2015, I sold large cardamom at NPR 91,000 per maund[16] from my home. Being excited from this, I collected large cardamom paying higher price in 2016. But in 2016, price of large cardamom dropped to NPR 65,000. I hold large cardamom hoping for good price in 2017. But in 2017, price of large cardamom further dropped to NPR 40,000 – 65,000. I could not hold large cardamom anymore and sold at NPR 35,000 in 2018. I lost much of my property to pay loan." [IDI, Male Participant, 65, Ilam bazar, March, 2019]*

The fall in price of large cardamom attracted some farmers to vegetables, avocado, coffee, betel nut and other suitable HVA crops. Due to these price fluctuations, intermediaries and traders stopped keeping large cardamom while hoping for a better price in future. In summary, large cardamom demand and supply situation is so uncertain that farmers and traders could not predict the potential increase or decrease in price. As a result, many now face an economic crisis.

4.5.2 Social risks

The economic risks contributed to an increase in the social risks of large cardamom farming. The fall in large cardamom price made many young people from small producers turn away from farming for jobs elsewhere. Due to the price fall, most small farmers didn't have the money to meet minimum daily household expenses for food, education fees, participate in cultural events, buy medicines, or pay instalments to local cooperatives and Micro Financial Institutions (MFIs). To cope with this economic crisis, they took loans from MFIs which charged high interest rates of up to 24 per cent a year. If they could not pay an instalment, MFIs charged higher fees and finally took the property. Farmers explained that this has led to conflict in some families, even causing some to separate.

Some small farmers sold land and property to cope with the situation, some changed schools from high fee-paying to low fee-paying. One mother interviewed

[16] In local practice, one maund large cardamom equals to 40 kg. But the exact measure of one maund equals to 37.3242 kg.

expressed deep pain that she could not provide equal education to her two children. She said:

> *"We have small piece of land where we produce around 4 maunds of large cardamom. From this, we made an income nearly NPR 300,000 in 2015. From this income, we sent elder son to Kathmandu to study bachelor's in engineering. But price of large cardamom dropped in the subsequent years, which was not sufficient to make his expenses. We sold two ropani (0.1 ha) land to continue his education. Our younger son is talented and eligible to study technical subject, but we could not provide him. Being a mother, I feel deep pain that I could not provide equal opportunities for my two sons." [IDI, Female Participant, 45, Salakpur, August, 2018]*

I have also observed that when a family falls into financial difficulty, family members often blame each other for the situation rather than take collective responsibility. Small farmers see out-migration as an alternative to meet the family need of cash income. In the study site, around 20 per cent of farming households had at least one member in a job overseas. This has implications for the shortage of working labour for farm work. In contrast, rich farmers were also out-migrating from the village. Large cardamom gave them economic prosperity so they could live a more comfortable life in cities. The migration of such farmers was so high that in three years (2015-2018), more than 20 per cent of farmers left Salakpur village (Personal communication with Ward Chairperson, Rong-6, March 7, 2019). They said their reasons for doing so were educating children, health treatment and jobs.

4.5.3 Environmental risks

Large cardamom farming also has environmental risks. Farmers perceive these risks to be effects from disease, damage from wild animals, changes in rainfall patterns and higher temperatures. Among these risks, disease attack was severe in Rambheng. In this region, large cardamom leaves were drying, fruits were not ripening, and bushes were dying at earlier ages. In Salakpur and Jirmale, large cardamom was providing fruits for 15 years or more whereas in Rambheng large cardamom was dying after 5-7 years of fruiting. For this reason, many farmers questioned the suitability of the *Salakpurey* variety in Rambheng. In our visit to Chyangthapu of Panchthar in 2017,

farmers had similar experiences of farming *Salakpurey* large cardamom. So instead, farmers replaced *Salakpurey* with *Chibesai* as *Chibesai* was growing well there for many years.

Outside the study sites, the effect of disease was severe a decade ago. CDC officials said around 40 per cent large cardamom farms were attacked by *Chirkey* and *Phurkey* disease in Ilam in 2008/9. So, farmers have a fear that large cardamom on their farms can be damaged by disease at any time. This type of farmers' thinking was fuelled by the mass scale of damage in orange orchards in Salakpur in the past 4-5 years from an unidentified disease. Farmers had already watched ginger disappear from their place. In the view of CDC officials, planting healthy seedlings, and knowing which varieties of large cardamom are suitable for the locality can help reduce such incidences.

Farmers also complained about damage from wild animals in large cardamom production. Monkeys attack new coppices of large cardamom in the growing season and eat the inner part. Rats eat flowers during June-August, while another wild animal locally called *Kala* (Himalayan civet), eats ripe fruits at night. Wild animal attacks on large cardamom farms mostly happened in farms adjoining forests or rivers, and in farms which weren't cleaned properly. Farmers were applying zinc phosphate to trap rats and cleaning farms to reduce the damage they caused.

Farmers have noticed the effects of climate change in the form of unpredicted rainfall patterns. There was good rainfall in 2018 and 2020 which resulted in good production of large cardamom. But due to a long drought in 2019, production was almost half that of 2018 and 2020. Older farmers said they could no longer predict rainfall patterns, as they used to before. Rainfall in the large cardamom flowering season in February-March is good. This also decreases infestation of disease and pests. But with the change in rainfall patterns, the distribution of large cardamom and other crops has also changed. Likewise, farmers have noticed a reduced flow of water in existing water sources which were already being used by large farmers. They have seen growing large cardamom in Nanda Siran (tropical climate, lower elevation), and mango, betel nut, banana in Rambheng (in sub-tropical climate, higher elevation), which was unusual in that location.

The COVID-19 pandemic came as a new form of natural disaster. This disrupted the large cardamom value chain from March to June 2020 due to lockdowns in Nepal and India. Traders in Birtamod had 40 per cent large cardamom in stock till June 2020. Under normal conditions, this should be only 10-15 per cent. Traders cleared stock in July-August 2020. During my field visit in December 2020, traders said COVID-19 had not affected the large cardamom value chain as much as other HVA crops.

Some farmers also expressed that working conditions, work in rainy season, carrying loads and working in the cold, increase risks to their health. For more detail on these issues, see Chapter Six. Some farmers saw risks due to a lack of market information, particularly price and demand and supply situation of large cardamom, and labour shortages during harvesting season.

In summary, high price fluctuations, specifically the continuous drop over the past 6-7 years has emerged as the major economic risk to all value chain actors of large cardamom. This fall in price has differently impacted the lives of people associated with large cardamom. The increasing incidence of disease in large cardamom in one of the research clusters has made the farmers worry about the sustainability of the crop. Likewise, attacks from pests such as monkeys, rats, porcupines and Himalayan civets has also damaged crops. In addition, farmers have experienced the impacts of climate change in large cardamom production in the form of long-droughts, untimely rainfall, and depletion of water sources. Farmers have adapted differently to these risks with varying capacities. Some have gradually switched to other HVA crops, some small farmers have moved to non-farm jobs and jobs overseas. Interestingly, COVID-19 has had almost no effect on production, value addition and the price of large cardamom.

4.5.4 Farmers response to risks

In paper entitled, ‘Does High-Value Agriculture Build Resilient Livelihoods? (Acharya et al., 2021), we documented several adaptation measures farmers’ have practiced against the risks explained in the section above. Most of the farmers showed an ability to respond to the social risks. However, they were less prepared to adapt to the economic and environmental risks. Farmers were adapting multiple strategies to adapt to such risks. Farmers were intensively using the land and thus, trying their best not to leave any land fallow. Those households who do farm themselves have rented

land to others. As irrigation is one major input constraint for large cardamom farmers, large and medium scale farmers have invested in irrigation. They have brought water in polythene pipes from small spring waters, streams and rivulets from distance stretching as far as 5-10 km. Bringing water from this distance costs as much as NPR 500,000. Additional minor costs incurred in frequent maintenance of water source and removing blockages in pipes.

Likewise, farmers have taken crop diversification[17] as one of the response strategies. In Rong, farmers were also cultivating Rudrakshya (*Eleocarpus species*), kiwi, banana, avocado, tea and coffee which generate economic return in the long run. One farmer said he established betel nut nursery to replace large cardamom to avert risk of price decline of the latter. But many small farmers switched to vegetable farming because it provided cash flow for small farmers within a short period. Availability of improved variety of seeds, tunnel farming, access to technical services, high productivity and high market demand attracted farmers to vegetable farming.

Large cardamom farmers' increased financial assets have built their confidence to cope with potential risks. Many small farmers were saving their income in local cooperatives whereas large farmers were depositing in commercial banks. At the time of low price of large cardamom, small farmers made their living using saved money, taking loans andsale of valuables including land. Some small farmers changed their children's schools to avoid paying high fees, and those aspiring for technical education like engineering, agriculture, livestock at higher level were admitted to general subjects including social science, economics, education, and management among others.

Farmers have developed local strategies to manage shortage of labour during peak season. Large cardamom farmers switched from daily wage labour to piece-based contract for certain activities, for example: separating the large cardamom pods. Farmers paid NPR 50 for separation of one *tina*[18] of fresh large cardamom. This arrangement provided opportunities to older people, students, family members and neighbours to utilise their time without any restriction and earn as high as NPR 500 per

[17] Crop diversification in the context of this research is defined as- farmers can grow more than one crop in an area in an integrated way or by rotation. This also includes integration of HVA crops and livestock.

[18] It is a metal bean that contains almost 20 kg of fresh large cardamom. It is a local unit of measurement.

day. Likewise, women were taking roles that were assigned to men, for example: large cardamom harvesting. So, there was less distinction in division of roles between men and women. A few large farmers started labour contracts for the whole year. One such labour contract was worth NPR 500,000 for the FY 2018/19 to perform all activities related to large cardamom. The same farmer produced 50 maund large cardamom in 2018.

Local government has an important role in large cardamom production and trading. Likewise, Rong municipality provided support on soil test and treatment and distribution of seedlings of HVA crops to farmers. The role of local government has also initiated incentive-based mechanism targeting the farmers, for example: grants, subsidies in agricultural equipment purchase and material support have provided certain relief to farmers though some farmers expressed their dissatisfaction over the procedural difficulty and transaction cost. Municipal authorities argued documentation was not complete to provide payment. But small farmers said it was difficult for them to get incentives from those provisions. Farmers in Rong expressed their grievances on the insurance policy which they said were more procedural and time consuming. In the view of Ward chairperson, farmers' level of awareness is low and could not make documentation as demanded by the insurance service providers. Some of the banks have provided facilities of crop insurance. However, farmers have never received the insurance amount in cases of loss and damage of vegetable crops.

4.6 Recapitulation

Value chain analysis of large cardamom shows farmers prefer this crop as it provides good income and employment. The value chain of large cardamom is relation-based and has been established for decades. Farmers have left no land uncultivated that is suitable for large cardamom farming. Large cardamom has contributed to farmers' livelihoods through financial asset building first, and later human, social, natural, and physical assets. Large cardamom farming is also risky due to heavy price fluctuation, the negative effects of climate change and attack from diseases and pests. Farmers' capacity to adapt to these risks varied with their level of income. In general, small farmers are gradually switching from large cardamom to non-farm and jobs overseas. They also face certain issues- small farmers lack irrigation, contestation over use of the

drier- smoky or smoke free, and heavy price fluctuations putting farmers at risks. They also lack a common platform to discuss any problems.

CHAPTER FIVE

DIVISION OF ROLES IN LARGE CARDAMOM AND LINKAGES WITH CAPABILITIES

In this Chapter, I map the division of roles among men and women in production and post-production nodes of large cardamom value chain. This is followed by analysis of the linkages between capabilities and division of roles. The capabilities set used for analysis are knowledge and skills, access to productive resources, access to information, physical strength, role related mobility and finally, health and physical injuries. After this, I analyse the factors that influence women's capabilities, specifically, men out-migration, working conditions, social norms, and women's groups.

5.1 Mapping Division of Roles

5.1.1 Division of roles in subsistence agriculture

Four decades ago, subsistence agriculture was the main agricultural practice in the study area. Though farmers no longer practice subsistence farming, they reflected how roles were divided based on gender in the past. In the past, farmers mainly cropped rice, maize, wheat, millet, pulses and beans. These crops were the prime source to meet their family's need for food. They used family labour and labour-exchange in the production of such cereal crops with a distinct division of roles among men and women.

Men were involved in land preparation, ploughing, digging, irrigation, harvesting, and transporting harvested product from farm to home. Likewise, women were involved in planting, weeding, cleaning, fertilising, sieving, cleaning, storage, and grinding. Roles performed by men required mobility and physical strength, whereas roles performed by women required patience, less mobility, and were lower paid. This type of role division was practiced and passed on from generation to generation.

In recent decades, farmers have switched from subsistence farming to farming HVA crops. As explained in Chapter Four, farmers have been cultivating HVA crops such as large cardamom, tea, garlic, ginger, vegetables, broom, betel nut, orange, avocado, and banana. They also produce honey, milk and other products. Farmer are

attracted to cultivating HVA crops because they have high market demand, high price and access to market. Farming these crops requires more labour than cereal crops with a higher number of working days throughout the year. Farming HVA crops demand high labour and different roles to subsistence farming.

At the start of large cardamom farming, men and women did different work. Men preferred land preparation (i.e., bush clearing, plough and pitting), irrigation, harvesting, transportation, processing and trading. Women, meanwhile, preferred large cardamom planting, weeding, cleaning, fertilising, separation of pods, packaging and storage. Some roles were specifically assigned to men, such as, large cardamom harvesting, transportation and drying. On the other hand, the separation of pods was only done by women. However, such division of roles could not work overtime. As demand for labour was not met in gender specific roles, this created space for both men and women to fill the gap. Some roles, like harvesting, where there were only men previously were gradually taken by women. Likewise, roles such as separation of pods, where there had been only women were opened up to men. At the beginning, most farmers wanted me in large cardamom harvesting. However, over time they became more flexible in hiring women. The section below maps the gender division of roles at different nodes of the large cardamom value chain and explains why this change has happened.

5.1.2 Division of roles in large cardamom value chain

5.1.2.1 Input management

Inputs management in large cardamom production include management of seedlings, organic fertiliser, firewood, irrigation and access to technical services as required. Since farmers do not use chemical fertiliser, inorganic insecticides and pesticides, there was no need to manage these inputs. In the production of compost manure, role division was less distinct. Although men do cowshed cleaning and piling of animal defecation and mixing with green litter. However, there were clear division of roles in seedlings production, irrigation, firewood management, and in access to technical inputs.

Large cardamom seedlings were produced locally. Large cardamom farmers, either men or women, approach nursery growers for seedlings. As mentioned in Chapter Four, there were around 20 large cardamom nursery growers in the study site. In large

cardamom seedlings production, the roles of men and women nursery growers overlap 100 per cent. However, there are differences in the scale of seedlings production, seedlings trading and in fixing the price of seedlings. In scale of seedling production, women-run nurseries were distinctly small. The capacity of women-run nurseries was around 25,000 to 50,000 large cardamom seedlings production per annum, per nursery grower. In the case of nurseries run by men, their production capacity was more than 400,000 seedlings per annum per grower. Likewise, female nursery growers were dependent on male nursery growers to sell seedlings outside of Rong and had to accept a fixed price from them. This was because female nursery growers did not have contacts with large cardamom seedling buyers.

Irrigation is still a male-dominated role. Here the irrigation role not only means watering plants, but also includes construction of the intake tank, water storage, maintenance of water source, management of polythene pipes and removal of blockages in pipes. Almost all these activities were done by men. Women were involved in watering large cardamom farms near home and where men were absent. Large farmers hire men for irrigation whereas small farmers do their own. Women show less interest in irrigation. The reasons behind this were, it requires strength, makes the body wet, the clothes (*lungi* or *kurtha*) they wear were not comfortable for this purpose and their footwear (sandals) were also slippery. Further, households discourage women from farm irrigation due to fears of cold related diseases. Men prefer the role of irrigating large cardamom farms as they don't want to do kitchen or care work.

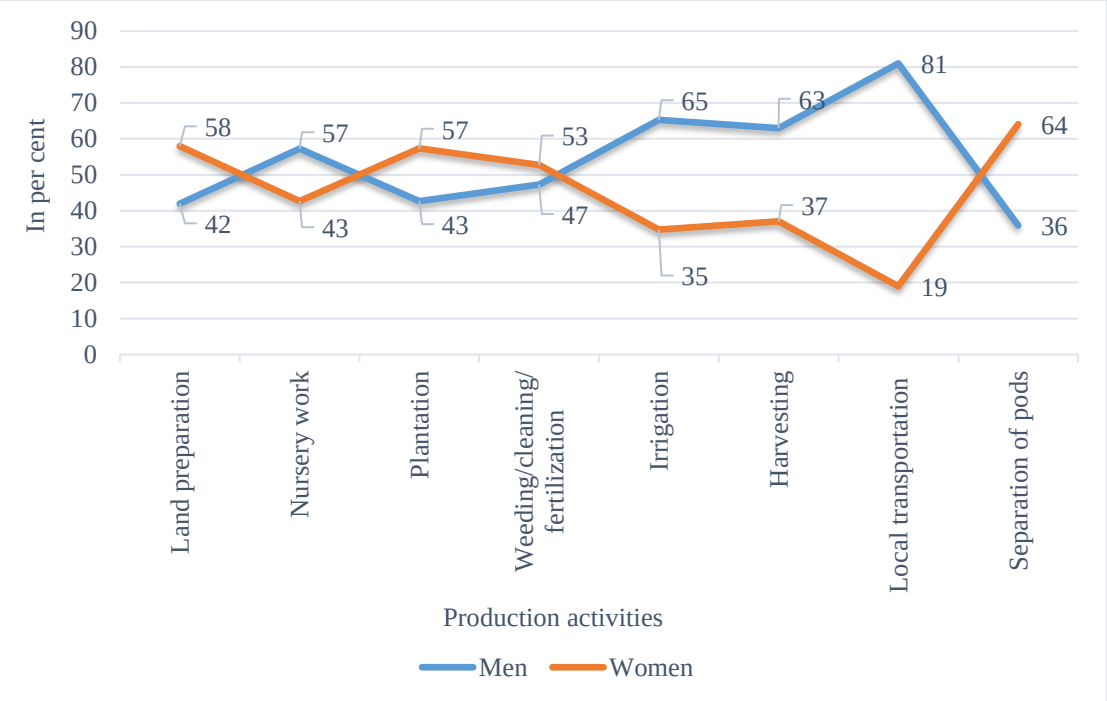
Likewise, farmers manage firewood for drying large cardamom. Firewood management means cutting down trees, delimbing, logging and splitting logs into small pieces of wood. Such activities were carried-out by men. These roles require more physical strength and skills. Women assist men in the transportation of firewood from field to home. When farmers need technical services and or material support, men contact providers. In general, women prefer not to contact government and non-government service providers where are in charge. However, women did not hesitate contacting officials of WDO and JWAC in Ilam which are by nature led by women and also work with women.

5.1.2.2 Production

Roles in large cardamom production include land preparation (bush cutting, field clearing, plough, pitting and filling organic fertiliser in pits), nursery, planting, weeding, cleaning, and fertilising, irrigation, harvesting, transportation from field to home, and separation of pods from fruits. For this analysis, I have taken the case of hired labour in production sub-nodes of large cardamom. The survey of 354 large cardamom producing households showed that farmers have hired 21,220 wage labourers for large cardamom production related roles for one production cycle in 2017/18. Among the hired labour, the share of women in paid roles was 9584 labourers (i.e., 46 per cent).

Participation of women in production sub-nodes (Figure 5.1) shows that the highest difference is observed in local transportation. Women make up only 19 per cent of these roles, this is followed by irrigation at 35 per cent. But in separation of pods, plantation and land preparation, women's participation was higher than men, i.e., 64 per cent, 57 per cent and 58 per cent respectively. The lowest difference in the participation rates of men and women was in weeding, cleaning, and fertilisation.

Figure 5.1: Participation in wage-labour in large cardamom production, Rong (2018)



Source: Field Survey (2018)

5.1.2.3 Post-production

The gender division of roles in post-production large cardamom value chain were distinguished at two levels (as discussed in Chapter Four). Unlike in production, men and women had distinct roles in post-production. There were mostly men in the drying of large cardamom. In this role, men also do construction / maintenance of dryer, manage firewood, put fresh pods over a dryer, light fire and stir large cardamom frequently through a stick to maintain uniformity in drying. Women participate in post-drying roles like cleaning, sun drying, packaging and storage.

In general, it was usually men who went to go and trade large cardamom from Rong to Birtamod. This was because women farmers were often less mobile due to their household roles. Women, specifically the small farmers, prefer not to go trading. One of the reasons for this was means of transportation. As they do not have adequate large cardamom for sale, they could not hire pickup vans. Instead, they have to carry large cardamom on a passenger bus, which they must pay fares for. In addition, they must also load and unload the large cardamom.

I observed during my fieldwork that both spouses go for large cardamom trading if they have hired a vehicle and have other reasons for their visit. For example, they need to meet children or relatives staying there, buy food and utility goods, attend a health check-up or other activities in Birtamod. This condition applies only to medium to large farmers. Many small farmers sell large cardamom to village intermediaries. There were 12-15 village intermediaries in Rong who supply large cardamom to Birtamod – all men. . However, there were four district level female intermediaries in Birtamod. They were involved directly in trading large cardamom. Women intermediaries learned this role from their family who joined in large cardamom intermediary/trading role for generations. By taking this role, it enabled their spouses time to focus on other family businesses.

In value addition roles in Birtamod, men and women perform distinct roles. Men were doing roles such as weighing, packaging, labelling, and loading and unloading of large cardamom. On the other hand, women were doing head-and-tail cutting, sieving, cleaning, and grading. In roles assigned to women, there were around 500 women who work for 7-8 months in a year. It was harder to account for male roles as the nature of work they do was on call and short-term, and they were paid

based on volume of work on fixed wage basis. Longer-term and office-related roles like accountants, supervisor, and traders usually employ men. Their logic was that it's easier to mobilise men than women and men are also able to drive a motorbike. Likewise, in trading/export of large cardamom, only two women had registered their own firm. Of these two, only one was active. This is a managerial role which includes large cardamom value addition and export, mobilising human, and financial resources, and negotiating with sellers and buyers for price.

When it comes to selling large cardamom to traders at Birtamod or export from the country, men play an influential role. This role requires negotiation skills with international traders, making transactions worth millions of Nepali rupees and the ability to take risks in trading decisions. Men traders perceive that women could not perform this role because good work experience is needed in a supportive role first. A female trader also agreed on these points but stressed that women could do this role if given the opportunity. Here, trust from family is important for getting this role. Table 5.1 demonstrates participation of men and women in waged labour in number of worked days and also in respective per centage.

Table 5.1: Women in paid roles in post-production value chain, Rong (2018)

Post-production activities	Men		Women		Total
	Days	%	Days	%	
Drying	494	100	0	0	494
Cleaning and packaging	135	26	375	74	510
Trading (village)	293	85	50	15	343
Total/average	922	71	425	29	1,347

Source: Field Survey (2018)

Table 5.1 reveals that drying of large cardamom was solely taken by men. In large cardamom trading there were 85 per cent men. But in head-and-tail cutting, cleaning, and grading there were 74 per cent women. The information in Table 5.1 is visualised in Figure 5.2.

Figure 5.2: Women in paid roles in post-production, Rong (2018)

Source: Field Survey (2018)

In summary, the gender division of roles are less clearly defined in large cardamom production than in post-production. The proportionate participation of women in traditional men's jobs such as nursery and harvesting (as described a decade ago) is growing. Likewise, men's participation in traditional women's jobs such as weeding, cleaning, fertilising, separation of pods is also growing. This suggests division of roles are less gendered. Increasing women's proportionate participation in paid roles (46 per cent) indicates a reducing gender gap in paid employment in agriculture. Women are taking managerial roles in production, expanding their role as intermediaries and traders. However, women are less preferred in official roles like supervisor and accountant. It is argued that women lack additional capacities like mobility, driving and bank-related skills. This shows capabilities are closely linked with division of roles. The section examines the links between the division of roles and capabilities in large cardamom production and post-production.

5.2 Links among Division of Roles and Capabilities

This section analyses the links between the division of roles and capabilities in the large cardamom value chain. Roles are assessed in terms of capabilities sets:

knowledge and skills, access to assets, access to information and services, physical strength, role related to mobility and health and physical injuries.

5.2.1 Knowledge and skills

Certain roles in the large cardamom value chain require specific knowledge and certain roles require skills. In the large cardamom value chain, seedling production, harvesting, drying, and head-and-tail cutting require special skills, i.e., without having technical knowledge and sufficient practice, farmers cannot take these roles. Likewise, large cardamom production, value addition and trading require skills related to communication, negotiation, and risks. Risk taking capability is specifically related to the trading role. Large cardamom trading also requires access to market information, such as production and supply situation, trend of market price and decision making. This study finds knowledge and skills dominant in division of roles.

Large cardamom seedlings production requires special nursery skills. These skills are related to the establishment of nursery bed, soil preparation, and seed sowing in nursery bed or poly pots, separation of stocks from the mother plant, transplanting, irrigation, and post plantation care. These nursery skills were first transferred by the CDC to the chosen nursery growers in the study site. Other farmers then learned from these trained farmers in the village. While gaining nursery skills from the CDC, both men and women took part and later established nurseries.

Likewise, large cardamom harvesting demands special skills in running the knife while picking fruits. Until a few years ago, the harvesting role was assigned to men. Farmers believed that only men could perform this role and women were not trusted at the start. For years, there were only men in this role as women did not possess harvesting skills. There was also no environment where women could learn this skill, while women had no interest in gaining harvesting skills on their own. Gradually, a few women started practising large cardamom harvesting in their own farms. They showed they can harvest large cardamom as efficiently as men. As a result, they were called for wage labour. This motivated other women too because they were getting higher wages and this role was more recognised. By 2018, the share of women in paid harvesting roles has reached 37 per cent and farmers said this trend is increasing fast.

There were only men in drying fresh large cardamom. When drying large cardamom in fire burn drier, the role requires a uniform blow of fire and skills at judging moisture levels in order to maintain uniform quality of large cardamom. In general, it is assumed that skilled jobs are men's jobs. However, in the head-and-tail cutting role, there were only women. As to why there were only women in this skill-based role, field observation found that men have no interest in it. This role is linked with mobility (almost no mobility is required to do it), a high degree of patience and efficiency. Women's wages were based on the volume of work they do. This relies on excellent use of scissors and working many hours. Women on an average earn around NPR 300 per day from head-and-tail cutting. No men were found in this role because men have opportunities to get high-paid, highly mobile roles in non-farm sector. This includes for example, in transportation, construction and manufacturing where they could earn around NPR 500 to 1,000 per day.

There were no women in the large cardamom village intermediary role. The spouses of male intermediaries said they were not interested in doing it because this role requires frequent communication with farmers and traders, management of vehicle and logistics for transportation, financial management and trading. It also requires weighing large cardamom, making individual records of buying and selling and making payments. Though they weren't involved directly, these women did assist their spouses in this role. Women were also not attracted to this role as they were not confident that they could maintain accounts properly.

As mapped earlier, only a few women (15 per cent) were involved in large cardamom trading from Rong to Birtamod. This is also linked to capability. Women usually go for large cardamom trading in cases where men are absent. It is a role that men prefer, and women do not. Men assume that when women go for trading large cardamom, they will be paid less because they lack negotiation skills with traders. Women who used to go for trading large cardamom disagree with this view and claim that they could negotiate on price with traders. Traders also supported the women's view that if traders discriminate on price based on gender, age, ethnicity, or other social parameters, they could not sustain it because it is based on relationships. Behaving in this way, would be counterproductive and risk damaging their reputation.

In large cardamom trading role, men lack belief that women could handle this role independently. Traders think, unlike in other agri-business, that large cardamom business is risky. One wrong decision could lead to a huge loss in business. Large cardamom business requires a thorough understanding of global trading, price projection, export procedures and more. In addition, this necessitates good communication and negotiation skills with farmers, intermediaries at different layers, international buyers, competing farms, financial institutions and with different stakeholders. They must focus every day on sales, stock and price. In addition, financial management, investment, taking loans from banks and repayment are vital in trading. This requires decades of experience which women could not develop within a short time.

However, women intermediaries and traders refute men's claims, although they do accept that large cardamom trading is a risky and complex business. They required support from husband and family members who were in the large cardamom business for a long time. The sole female trader active in the large cardamom business in Birtamod opined that education, leadership and exposure are key to developing business skills. Her overall emphasis was on the higher education of women to build confidence in business and expand the space for social and personal life. She reflected it is important to educate daughters to take roles in future as:

> *"I was born and got secondary education in a remote village in Taplejung district. I passed SLC (School Leaving Certificate) in 2045 BS (i.e., 1988). In my class, there were 45 students where only 2 were girls. Out of 45 students, 22 passed SLC and I was only girl to pass. I feel proud of my parents that they sent me in school in those days where rest of the village does not believe on educating daughters. As I am educated, I got role to support husband and father-in-law who were in this business since long. Gradually, I learned large cardamom trade dynamics and am confident that I can handle this business independently." [IDI, Female Participant, 51, Birtamod, March, 2019]*

The importance of education was also observed in large cardamom seedling production. Female nursery growers were only literate, while male nursery growers have higher education degrees. One male nursery grower, who was also the largest seedling producer in the study site holds a Master's degree. After this finished, he

worked for an NGO in Kathmandu. He later quit this job and came to large cardamom farming realising that he could earn a lot and live a decent life from this. In addition to large cardamom, he has promoted avocado, coffee and other HVA crops in the village. In 2020, he established the Banana Restaurant and aims to promote agro tourism in the village. Women nursery growers viewed that education matters in access to market information, pricing, approach to service providers and in trading seedlings.

5.2.2 Access to resources

Access to physical and financial resources were important capabilities in the choice of certain roles in the large cardamom value chain. Farmers who have higher land holding size also have access to irrigation, produce more large cardamom and earn more. Having higher earnings means accumulating assets that support building other capabilities. This includes purchasing of land, agricultural equipment, means of transportation, for example: motorbikes and pickup vans. They also invest in business expansion and diversifying their businesses.

However, access to valuable assets differs among men and women. Men hold ownership of house, land, and gold. This means men can access more finance from banks or MFIs when they require funds for investment. They can also use these assets as collateral. Women have less access to valuable assets. This means they are less able to make their own decisions related to investment on irrigation, farm expansion or plan for adaption, when faced with economic or environmental risks.

Access to land and water defines the income level of farmers and in turn influences access to other capabilities. While producing large cardamom, it is mostly women farmers who struggle to access supportive resources: they lack sufficient land for production, lack market information, lack access to irrigation, finance for investment, and poor networking with stakeholders. Giving the example of irrigation, one small woman farmer expressed how her family is losing income from large cardamom as:

> *"I have planted large cardamom in one ropani of land and produced around 5 maunds of fresh large cardamom. By selling fresh large cardamom, I earned NPR 24,000. If I had irrigation, I could expand large cardamom farming in another 5 ropani of land and produce 6-7 maunds of (dry) large cardamom from*

which I could earn more than NPR 150,000." [IDI, Female Participant, 34, Jirmale, December, 2018]

5.2.3 Access to information and services

Access to information and services are important capabilities linked to efficiency in the performance of certain roles. For example, due to lack of market information, i.e., to whom to sell large cardamom seedlings, women nursery growers depended on large nursery growers. When demand of seedlings was high, large nursery growers linked them with buyers or bought seedlings from women nursery growers, add the price level, and sell. But when demand for seedlings dropped, large nursery growers were worried about selling their own seedlings. They did not care for small women nursery growers. That is why women nursery growers could not sell their seedlings. In response, many of them switched to vegetable farming. In the same context, large nursery growers scaled down seedling production. This shows that large nursery growers have capabilities to face risks for a longer period and can afford to bide their time. But small women nursery growers are unable to wait because they have limited choice for their livelihoods.

Another example of women farmers' limited access to market can be drawn from the market price of large cardamom. FLCEN has started an SMS system for the daily price information of large cardamom. But most women farmers (apart from some lead farmers) have not heard about this, while those who are aware have not practised. So, women farmers depend on men or local elites for the market price of large cardamom. Women usually do not phone traders and ask or negotiate the price in advance. However, these women actively participate in buying and selling at a local market called haat bazaar.

Likewise, women farmers have less contact with government and NGOs for technical inputs. Many women were not even aware of the services that stakeholders provide, many of which were free of cost. The farmers' cooperatives- SUMADUA and JWAC have arranged technical support to farmers in general. When any farmers needed specific support, women farmers usually lack contacts. Again, taking the example of large cardamom nursery, some men nursery growers got financial support and seedlings purchase contract from organisations (UNDP and UNNATI-Inclusive Growth

Program) but women nursery growers have not. They were not aware about the services such organisations provide and how to access the service. It seems that women are less networked and thus lack critical knowledge and information.

5.2.4 Physical strength

Physical strength was one of the most influential criteria in the choice of certain roles. Among roles in large cardamom value chain, irrigation, management of firewood, transportation, processing (drying), weighting in 50 kg sacks, and loading and unloading of large cardamom are directly linked to physical strength. Farmers hire only men in specific roles, for example: transportation of large cardamom from farm to home. In local language these strong men are called lathe, meaning physically strong. One participant highlighted the importance of these strong men as:

> *"Yata tira ta mahila ra purush dubai le alainchi ko kaam garchha tara aalo alainchi lathe harule matra bokchha (meaning, men and women share many roles in large cardamom production but transportation of fresh large cardamom is only done by the strongest men)." [IDI, Female Participant, 45, Jirmale, December, 2018]*

Transportation of fresh harvested large cardamom is perceived as a hard job because it is wet, heavy, and done in the rainy season. Lathes were highly paid, NPR 1,000 per day (as of August 2018), which was two to three times more than for other roles. In addition, lathes are served with meat or eggs, and local wine in the evening. These lathes mostly suffered from common cold diseases and back pain after transportation. One lathe said though they get high wages, most of their earnings are spent in health treatment. Physical strength was one of the main reasons why women did not want to go large cardamom trading when taking the public bus. Transporting large cardamom in this way means having to load and unload large cardamom filled sacks several times, which women prefer not to do.

5.2.5 Role related mobility

Role related mobility influences women not only in choice of roles but also in role performance. Mobility related roles influence women's participation in irrigation, wage labour outside the village, trading of large cardamom in the market, going to

financial institutions for credit, approaching stakeholders and asking for technical services. Access to mobility was not only linked to large cardamom related roles but also other roles that support the livelihoods of small farmers.

While choosing roles in large cardamom or other farm positions, men often opt for roles that require high mobility, while women choose roles that require less mobility. Women farmers argue that culture plays an important role in shaping people's perception towards women's mobility. Mobility was an influential constraint in the past but is becoming less so today. For example, one woman who came to Salakpur from Rambheng for large cardamom harvesting said she can go for paid work in other villages. She was a member of a group of wage labourers comprised of family members and neighbours. However, the ratio of women who go outside of their village for waged labour work is only around 20 per cent.

The manager of the local cooperative said that thinking on women's mobility had changed in recent decades. She runs the Home Stay grocery shop, and her husband sells furniture and works in resources for bee farming. She independently travels to Kakarbhitta or Pani Tyanki (border town) of India to buy goods for Home Stay. Yet, sometimes her mobility is limited due to how own skills (she can't ride a motorbike). Her case is like that of many other women in the village. See Case 5.1 for more.

Case 5.1: Husband attended the event where I was invited

"I am an active woman in the village. Apart from large cardamom farming, I run a small grocery shop and carpentry enterprise. In February 2018, Rong invited me to participate in enterprise development orientation. It was a one-day event, and I was interested in taking part. But due to difficulty in transportation, I asked my husband to attend the event instead.

"The event was organised in Rong Municipal Office. I could reach there by taking a public bus from Salakpur to Birtamod. From the place called Chaar-aali I have to change the bus to Rong. Public bus leaves from Salakpur to Birtamod at 6:00 am and at 8:00 am in the morning and could take 3-4 hours to reach Chaar-aali or Birtamod. From Chaar-aali, I have to travel for another 1-1.5 hours to reach Rong. So, I could not get there on the event day. The same applies to the return trip. On the

other hand, my husband made it on the same day. He left Salakpur early in the morning on a motorbike. He took a newly opened motor track from Salakpur to Rong which offers a short-cut.

"In the evening my husband told me the details of the event. But I worried that I could not make it by myself. If I were there, I could meet new people, and exchange experiences. From this event, I realised that I should train my daughter (her 20-year daughter studies Bachelor degree in Kathmandu) to drive a motorbike so that she would not miss any opportunities because of lacking these skills."

In general, women get far fewer opportunities than men. This case shows that even when women get the opportunities not all of them can take them. This also shows the casual links between women's capabilities and their choice of roles.

5.2.6 Health and physical injury

In division of roles in the large cardamom value chain, farmers consider the risk of health, physical injuries and safety while assigning roles. In large cardamom production roles, farmers have experienced various health problems. This includes stomach pain, gastritis, colds, and back pain, joint pain, swelling in eyes, fever, and other respiratory diseases. These problems are more common in harvesting, manual transportation of large cardamom from farm to home and when doing irrigation.

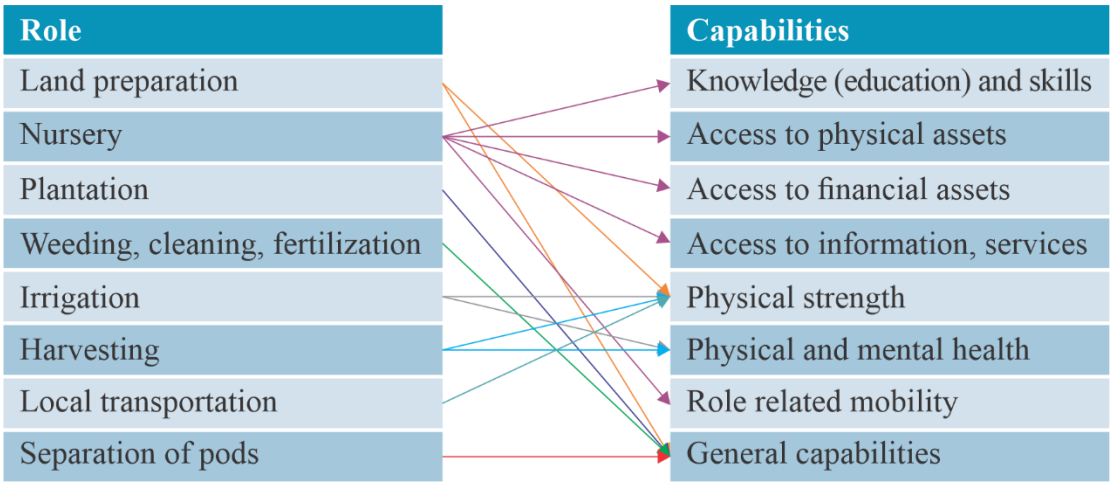
Similarly, in drying of large cardamom, there is a high-risk of fire burn injuries. If proper attention is not paid, there is a risk that the drying place may catch fire. Some households reported incidences of fire while drying in the past. Using a saw and axe to fell trees was also considered a risky role. Men farmers claimed that families do not let women take such risky jobs. Women preferred not to work in drying large cardamom due to safety reasons. The drying process takes at least 24 hours, and the large cardamom drying place is separated from the home. This requires workers to stay outside at night and women did not feel safe doing this. Thus, when there were no male members in the family, women hire men to dry large cardamom or sell fresh large cardamom.

Women working in head-and-tail cutting often suffer from respiratory diseases. While working, they inhale dusts of large cardamom which causes them severe sneezing,

common flu, fever, and headache. So, almost all waged workers want to avoid this role in summer. However, the limited choices on how to earn a daily living mean that some had to do this job. Likewise, many farmers did not let women enter the large cardamom field while they were menstruating, pregnant or had just given birth. The reason for this was that if women did so during this time it would weaken their health. Women farmers accept this too. Such beliefs are also linked to social norms.

The linkage between gender division of roles and capabilities is summed up in Figure 5.3 for production. Land preparation requires physical strength and general capabilities. Nursery requires special skills, access to physical assets, financial assets, and mobility. Likewise, plantation, weeding, cleaning, fertilisation requires general capabilities. Irrigation requires physical strength, mobility, and health. The harvesting role requires skills, physical strength, health, and mobility. The local transportation requires physical strength, health, and mobility. The separation of pods requires general capabilities, i.e., not specific capabilities.

Figure 5.3: Linkage between roles and capabilities in large cardamom production

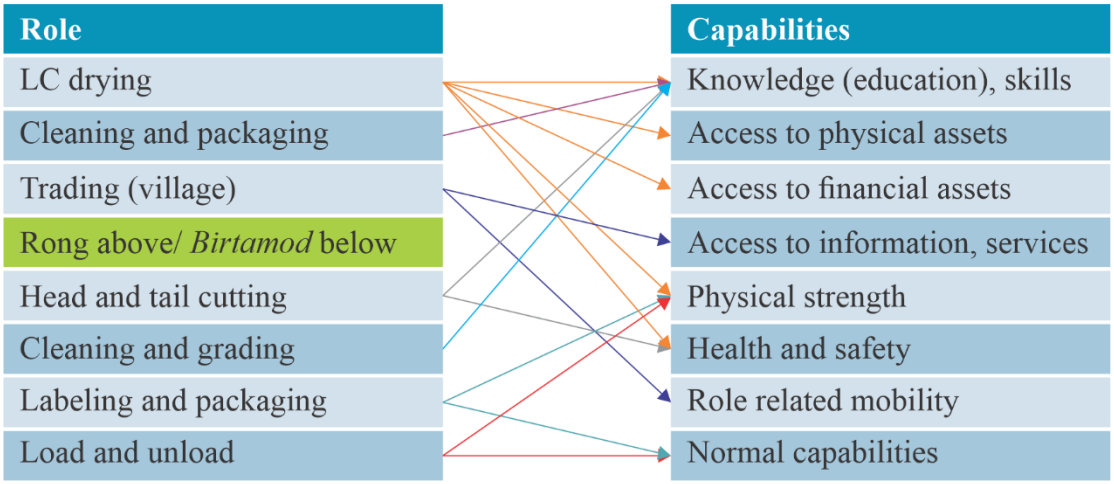


Source: Author (2021)

Similarly, Figure 5.4 demonstrates linkages between roles and capabilities in post-production value chain of large cardamom. Large cardamom drying requires capabilities- access to physical assets, physical strength, mobility, health and safety and knowledge and skills. Large cardamom cleaning, sun drying, and packaging requires general capabilities. In post-production roles executed in Birtamod, head-and-tail

cutting, and cleaning and grading requires special skills. The weighing, packaging and load and unload requires physical strength as the most required capability.

Figure 5.4: Linkage between roles and capabilities in large cardamom post-production



Source: Author (2021)

In sum, capabilities are important in terms of the division of roles. The capabilities analysis revealed that there is a high chance of overlap in roles among men and women when they possess similar capabilities. When capabilities are distinct, roles also seemed distinct. In large cardamom production, there is a narrow gap among men and women in proportionate participation, as both possess similar capabilities. When women take roles previously assigned to men it means they developed 'male' capabilities. Men's presence in roles that were supposed to be women's jobs, shows men's changing perceptions towards gendered roles. Women's lower presence in some roles, transportation, irrigation, large cardamom drying etc., does not mean they cannot not do these roles. Women prefer not to do these roles not only because these require physical strength, mobility, and skills, but more importantly for safety reasons.

Men and women perform distinct roles in post-production as they possess distinct capabilities. Men's roles require capabilities of physical strength, frequent mobility, work in small groups, whereas women's roles require different capabilities, such as less mobile, less physical, flexible working hours etc. Though roles like head-and-tail cutting, cleaning, and grading are skill and efficiency-based, men consider this work tedious and don't want to do it. Wages are fixed so men and women cannot

bargain. However, men also have opportunities in non-farm roles. In addition, there are some other factors which influence both women's capabilities and the division of roles.

5.3 Factors Influencing Women's Capabilities

This section analyses the factors that influence women's capabilities, where influence can be positive or negative. This study finds these factors are out-migration of working men, access associated with resources, employment conditions, health and physical injuries, and social norms.

5.3.1 Out-migration of working men

Out-migration of working men from villages means there is a shortage of labour for agricultural work. This can have both a positive and negative influence on women's capabilities. The common negative influence of men out-migration in agriculture is that it increases the workload of women. Within the value chain, men out-migration has a higher influence in production and value addition at Rong than in post-production in Birtamod. Men's absence has increased women's workload. Yet, at the same time it has also created space for women to develop capabilities and take roles that were previously assigned to men. Women's increasing presence in large cardamom harvesting is one such example. Moreover, society now accepts women in this role. Likewise, in the absence of men, women are developing managerial and leadership skills in farming and local trading.

Shortage of labour has also influenced the division of roles in separation of large cardamom pods. Earlier, it was believed to be a job for women. In peak season, mid-July to mid-September in Rong, harvesting, transportation, separation and drying of large cardamom is done sequentially. Since harvesting require skills, transportation requires physical strength and drying require skills and physical strength, most labourers who were fit to do these roles were already busy. To make up the labour shortage, farmers have changed the work and payment conditions for separation of pods. This is discussed in detail in section 5.3.3.

Women got the opportunity to go and sell large cardamom in Birtamod. Though women account for just 15 per cent of large cardamom trading roles, this does show that women can do these roles when required. Men's absence has also increased

women's role in public life. In taking on public roles, women developed communication and leadership skills. Women who used to be silent in public platforms, for example, in the meeting of Community Forest User Groups (CFUGs) a few years before, now actively join in discussions. Through this, women were gradually weakening traditional boundaries that limit them from entering the public sphere. One reason for the increased participation of women in paid jobs is men's out-migration.

5.3.2 Access to associated resources

The results of this study have also demonstrated the importance of access to associated resources in performing roles of their choice for both men and women. The access to associated resources here means resources that are instrumental in the conversion of capabilities into functionings to a higher level. During field observation, it was noted that two farmers with an equal piece of land have not produced an equal volume of large cardamom. This is because a farmer with an irrigation facility can produce double that of the farmer who lacks such a facility. Having no irrigation facility coupled with untimely rainfall leads to a difference of almost 100 per cent in production despite the other inputs being the same. This lowers the income of farmers by almost half. Similar conditions were observed in the case of large cardamom nursery growers. Case 5.2 explains this in detail.

Case 5.2: Equal opportunity lifts women up but not to the level of men

This is the short story of Rammaya and Hariram[19], large cardamom farmers and nursery growers of Rong. Hariram has large piece of land and Rammaya has small, and both were cultivating large cardamom for their livelihoods. In 2009, the two of them got an opportunity to take part in large cardamom nursery training at Fikkal of Ilam. After a week of training, they set up large cardamom nurseries on their own land. Rammaya established nursery of capacity around 50,000 seedlings per annum. From the sale of large cardamom seedlings, she earned around NPR 150,000 to 200,000.

At that time, there was high demand for large cardamom seedlings both in Ilam and outside districts. Seedlings she produced reached different districts of Nepal, and she gained fame in the village and beyond. Gradually, she expanded her roles in public,

[19] Pseudo names are used for research participants through-out the text.

i.e., executive committee member in women agriculture cooperative and in many other women groups, micro-financial institutions. As a lead woman farmer, she got opportunities to participate in exposure visits to share her skills as well as gain new skills. Large cardamom nursery provided her with a good income, physical assets, and she developed leadership and satisfaction from her own work.

Like Rammaya, Hariram also established a large cardamom nursery. In the beginning, he established a nursery with capacity for 100,000 seedlings. With increased demand for seedlings, he expanded the nursery's capacity and set up satellite nurseries in other districts. In 2017, he produced 1.5 million large cardamom seedlings worth more than NPR 6 million. He has close links with stakeholders and from such links he has received financial, technical, market related support. He also supported Rammaya and other producers to sell their seedlings by linking them with buyers.

From large cardamom seedlings production, both have increased their income, assets, social networking, family, and public recognition. Both have drastically improved their living standards compared with their lives in the past. But due to differential access to other capabilities, they differ in the number of large cardamom seedlings the produce and trade. Rammaya owned a small piece of land, depended on shared water for irrigation, lacked finance to expand her nursery and depended on Hariram to sell seedlings.

Likewise, Rammaya and Hariram have differing capabilities to respond to risks in seedling production. The demand for large cardamom seedlings has dropped sharply since 2017. In response, Rammaya stopped seedlings production whereas Hariram continued at a reduced scale. For this success, Hariram holds capabilities like good education, work experience in an NGO in Kathmandu, and linkages with politicians, government officials, and traders. He is also eager to do something new in agriculture. Thus, from the combination of diverse capabilities, Hariram became a high-income farmer and from her limited capabilities, Rammaya remained a low-income farmer with low adaptive capacity at times of risk.

Case 5.2 provides an example of how men and women differ in conversion of capabilities into functionings. When men and women possess differing capabilities, the

conversion outputs are clearly different. The current social structure privileges men in capabilities such as better education, access to physical assets, exposure, and mobility.

5.3.3 Employment conditions

Employment conditions can facilitate or constrain women's likelihood of taking certain roles in the large cardamom value chain. The roles- separation of pods in production node, and head-and-tail cutting in post-production node are hugely influenced by employment conditions. To respond to labour scarcity in the peak season, farmers switched from fixed-hour daily wages to a flexible-hourly performance-based payment. In this condition, wage labours were paid NPR 50 per *tina* (around 20 kg) for separation of pods, and it is easy to separate one *tina* of large cardamom in one hour. This gave an opportunity to older male family members. School summer holidays also give secondary students the chance to work in pod separation.

Field observation showed that workers were engaged in separating pods from 7 am in the morning to 11 pm at night. This means a worker can join and leave this work at a time that is convenient to them. From this, some efficient workers could earn more than NPR 500 for working an eight-hour day. This was the same wages as one can get from harvesting large cardamom. Wage labourers when paid daily, earn only NPR 300 a day.

Flexible working conditions in head-and-tail cutting have provided an employment opportunity for many women who need cash for living but could not work full-time. Traders have fixed the working hours as 9 am to 5 pm and they were flexible so that workers can come and go at a convenient time for them. As a result, around half choose to work flexibly. Many part-time wage labourers come after dropping children at school and leave before school ends. Some college students come to work at around 11 am after taking classes in the morning. Some women come to work with small children because there is no-one else to care for them.

5.3.4 Role of social norms

Social norms influence women's capabilities and choice of roles in various ways and these norms vary among caste and cultural groups. In the *Janajati* and *Lepcha* indigenous community, women are relatively respected, and their voices are heard.

Traditionally they are influential in family and farm decisions. Social norms are now more flexible and inter caste marriage is acceptable (it wasn't before). They also face fewer restrictions in role related mobility now.

But in the *Bramhin-Chhetri* caste group, men are culturally in a privileged position. In the past, men were usually dominant in decision-making related to farming, sales of large cardamom and mobilisation of family income. Women were considered as mere household labour. Women from this caste group face certain limitations in leaving the village for waged work, although this is gradually changing.

In *Dalit* caste group, women face limited restrictions in waged work and in mobility. This was because both spouses must do wage labour as they possess very small land and must make their living from wage work. This could be at others within their village or outside. In this caste, men often do skill-based non-farm jobs and women do farm jobs. Dalits are the so-called untouchable caste groups and still exist in the study area. This practice has limited *Dalits* in feelings of equality, in their confidence and leadership.

In the *Marwari* community, women are not welcomed in business. *Marwari* men feel proud that they provide a luxurious life to women. One respondent questioned, 'when women are living a luxurious life why do they need to come to business or in other public roles?' Though *Marwaris* provide good education to daughters, they are reluctant to bring women into work life or into public life.

In addition, farmers do not like pregnant women, women with new babies and women who are menstruating entering the large cardamom field. Culturally, they believe that such women are impure, and if they touch crops, the crops will die, or be attacked by pests and diseases, reducing production. Local intellectuals, mostly men, interpret that such practice should not be thought negative. Without such beliefs, households would insist that women engage in farm work which would affect their health. Women farmers also agreed that they feel physically weak during such times and vulnerable to cold-related illnesses.

Likewise, during mourning, farmers consider entire family members impure and neighbours provide free help in activities related to farming. The family members and relatives are in a weak physical and mental state, so this support helps them to

recover quickly. In summary, men out-migration, employment conditions, health, physical injuries, and safety issues influence positively in enhancing women's capabilities. Conversely, the influence of social norms and values has a differential effect on women based on their caste/cultural group.

In the past, social norms have played a profound role in the gender division of roles. Social norms have a higher influence on women's mobility, their participation in public roles and in multiple aspects of women's daily life. Strict traditional roles are now becoming more liberal towards women. Farmers who did not believe women could be large cardamom harvesters, now encourage women to do this role and pay them the same wages as men. Earlier, men were the recognised breadwinner, security provider for the family with a multitude of skills. That perception has now reversed.

In the study site, there was one popular traditional saying, *"logne manchhe bhaneko ghar wari pari lagayako baar ko ghocha ho"* (meaning: like fence, men protect house from the attack by outsiders). Another local saying is: *"to become a man, he should demonstrate an art of communicating in 36 styles"*. These sayings reflect how men were seen in the community until 10-15 years ago. Unlike the general trend of men leaving farming, there were a significant proportion of men farming in the study site. Families have changed their perception towards equal education and opportunities for boys and girls. In the past, boys were more likely to get a good education. Another noticeable observation was that some male farmers have sent their wife and daughters to higher education, doing the household work and farm work themselves. The perception of the community that women are more risk averse, less competitive and dislike challenges is changing.

5.3.5 Women's group/cooperatives

Women have organised themselves in groups and cooperatives of various kinds. These provide collective strength which enables them to access assets and gain confidence in their choice of roles. Such groups are mothers' (women's) groups, women's agricultural cooperatives, informal wage groups, indigenous/minority groups, product-based groups (vegetable farmers group). Being in such a group gives women increased access to finance, labour exchange and labour management, the ability to hire a vehicle for transportation of HVA products including large cardamom on a cost-

sharing basis, and opportunities to take part in training. As a member of a cooperative, many women farmers now have their own bank account, and get monetary or non-monetary support when required. Women's groups also support members when they fall victim to gender-based violence.

Women in these groups feel confident and trust each other. Such collectiveness provides them with strength so that they no longer feel second best. Women actively participate in meetings, events and started to claim for public roles. A female village leader explained the change in women after joining a group as:

> *"Women who could not even introduce themselves in public 10 years before, take part in discussions, put their views openly and take stand on their views. This is a big change. Looking at this change, the cooperative has now focused on increasing income of women and making the community free from gender-based violence." [IDI, Female Participant, 38, Salakpur, August, 2018]*

There were more women participating in groups than men. In 62 per cent of households at least one woman participated in at least one group. However, only 25 per cent of men took part in groups. Women's higher per centage of participation in groups is due to women only groups. Where mixed groups were concerned, such as community forestry, drinking water, school management, and other groups, women's participation is below 40 per cent. This shows that women are still behind men in the mix-type of groups. However, women's organising in groups has contributed to building women's agency.

In summary, in the division and choice of roles, some factors facilitate women, and others constrain women. Men out-migration on the one hand has created a labour shortage and increased the role and workload of women. Conversely, this has provided an opportunity for women to enhance their capabilities related to mobility, skills, taking roles in public, networking, exposure, and others. Out-migration has helped to reshape labour conditions, which has created space for women.

Women possess differential access to productive resources to apply their core capabilities. This leads to differing conversion capabilities between men and women. Large cardamom nurseries established by male and female farmer are a good example of this. Social norms negatively influence women's roles in terms of related mobility,

buying valuable resources in women's ownership and believing in gendered roles. Social norms also constrain women in farm work during pregnancy, menstruation, and mourning for reasons of impurity. Women think that although impurity is not acceptable, it is good for women's health. Women organising in different groups and taking on new roles has helped them to build their collective capabilities. Women are now using this capability to increase access to finance, labour exchange, trading and more. This has also increased their reach to service providers, and provides a platform where women share their issues and work collectively to address them.

5.4 Recapitulation

The division of roles is less gendered in large cardamom production, than in post-production. In production, men and women do all roles with various levels of participation. Roles such as nursery, harvesting are no longer just for men, while separation of pods is no longer job for women. In production, women are trusted to be a farm manager. However, they are less trusted as intermediaries, traders, accountant, or supervisor in post-production. The fact that men and women overlap in roles means they possess similar capabilities, while gaps suggest an area for capabilities strengthening. Individual preferences also shape the choice of roles. For example, women are not keen on irrigation and drying, while men dislike head-and-tail-cutting. Men out-migration strengthens women's capabilities in mobility, leadership, and decision-making. This also increases women's workload. Men and women have differential access to productive resources, and this impacts their conversion of capabilities. Social norms constrain women in mobility, access to resources and in taking certain roles. On the other hand, women's groups facilitate to resolve women's constraints at different nodes of the large cardamom value chain.

CHAPTER SIX

LARGE CARDAMOM FARMING AND CHANGING ON GENDER RELATIONS

Building on Chapter Five, in this chapter, I analyse how large cardamom and other HVA crops contribute to changing gender relations in the study site. Changes in gender relations are assessed in the division of roles, wage rate and workload, and contribution to family finance; and observed in women's role in decision-making, in public roles, in intra-household relations, and their feeling of satisfaction with life. In this chapter, I also examine the role of organisations in shaping gender relations.

6.1 Emerging Changes in Gender Relations

6.1.1 Division of roles are less gendered

The division of roles between men and women discussed in Chapter Five shows that women are increasingly participating in traditionally male roles, and men are increasingly participating in traditionally female roles. This indicates that farmers have changed their minds on gendered roles in the large cardamom value chain. This has not happened overnight. Rather, it is rooted in women's capabilities that they acquired, expanded and demonstrated from engaging in the large cardamom value chain, and the community trusted their capabilities. Women proved successful as nursery growers, harvesters, traders, and farm managers. As farm manager, they played the main role in managing inputs, labours and they followed a calendar for large cardamom production. Households have also accepted women taking roles that were considered men's roles before.

Specific examples that illustrate the change in gender division of roles can be drawn from women's paid participation in large cardamom harvesting. In 2018, women's share in large cardamom harvesting was 37 per cent. This was a noticeable change, and it was due both to scarcity of labour and women's capability for taking on these roles. This was possible because of households' perception and trust towards

women in their new role. Farmers recognise that women are sincere in harvesting and take extra care of the mother plant while picking fruits using a knife. This acceptance of women in harvesting has increased their confidence. Now only a few households do not accept women in harvesting. They believe that if women enter a large cardamom farm, they may bring bad luck in the form of fewer fruits, lower prices or damage from evil spirits.

Men's increasing participation in separation of pods is an example of a change in the gender-based division of roles. The labour use strategy adopted by the farmers has a key role in this. The shift in wage labour modality from daily work basis to performance-based pay has created an environment to attract men to this role. In 2018, men's participation in the separation of pods as paid labourers had reached to 36 per cent. With men's involvement, this role is no longer seen as strictly for women.

Unlike in production, the division of roles in the post-production node were gendered. The labour use context in the post-production nodes in Birtamod has created one such situation. This is also linked with nature of work, work conditions and role preference. Women are less keen on the drying of large cardamom, transportation, load and unload, weighing and packaging whereas men are less keen on head-and-tail cutting, cleaning and grading. Roles that were preferred by men were call-on based, irregular and require physical strength. The city context of Birtamod offers them labour opportunities outside agriculture and high pay rates.

Moreover, a positive change that was happening in both study sites was less discrimination between girls and boys in food, clothing, and education. I note that in many households, boys, and girls both took part in kitchen work, livestock care, and farm work. This indicates that when children grew up, they did not perceive such roles to be either male or female. One Lepcha farmer discussed the work skills of her son, daughter and daughter-in-law as follows:

> *"At my home, son, daughter and daughter-in-law all have large cardamom harvesting skills. All of them do kitchen work, cleaning, washing and take care of livestock. Now, son and daughter are studying hotel management in scholarship in Lete of Mustang and daughter-in-law who has passed +2 grade*

is a teacher in local primary school." [IDI, Female Participant, 41, Jirmale, December, 2018]

6.1.2 Increasing men's share in household and care work

In the past, the workload of men and women was based on their roles in farm work. But when it comes to household and care roles, it is women who bear most responsibility. With the cultivation of large cardamom and other HVA crops, men have started to share the workload both on the farm and in the household. This has reduced women's workload compared to previously. Moreover, due to farming large cardamom and other HVA, the overall workload of both men and women has increased. This is because these crops demand high labour all year round, where subsistence farming is seasonal and less labour-intensive.

With increased workload and sharing workload in the farm, men began to feel comfortable sharing so called women's role in the kitchen. In the past, women did not like men doing kitchen work saying that they were less accustomed to such work, they take longer time, are poor at using kitchen utensils, or maintaining cleanliness like women. These women are now happy for men to support them in kitchen work and cowshed. This family situation has created an environment for women to take roles outside. For many small farmers, who often go for labour exchange or for wage labour, they do discuss and decide who should go. I have documented one case on change in decision making process in the division of farm roles and household roles in large cardamom farming in Salakpur. Please see Case 6.1.

Case 6.1: Who goes for wage labour? We decide together

This brief case of Susan (wife) and Maan (husband), small farmers of large cardamom of Salakpur highlight how spouses take decisions regarding farm work and household and care work. Susan and Maan work on their own farm most of the time and they also do waged labour and exchange-labour at another farm. In farm related capabilities, Maan is skilled in harvesting and Susan efficient in separation of pods. When they do waged labour, Susan goes for separation and Maan for harvesting. However, both could not do this labour at the same time as one of them had to care for their two-year old daughter.

When I met Maan for the first time in March 2018, he was weeding in a large cardamom farm. At our second meeting in August 2018, he was taking care of his daughter. Susan was separating large cardamom pods at a neighbour's home. I joined Susan and her friends for a half-day to separate pods, and share food and drink with them. In the meantime, her friend Suja was called for harvesting. Suja was called by farmers for harvesting and separation of pods. Suja leads a group of harvesters where Maan is a member. After talking to Susan, Suja confirmed the date for large cardamom harvesting. Susan said she would take care of her daughter and Maan will go for harvesting. In this way, farmers manage labour in the village.

Case 6.1 provides four clear messages. First, spouses are equally ready for both household and care work, and farm work. Second, who does the farm work depends on who is best suited to it, and they decide this jointly. Third, women not only have harvesting skills, but they also have group leadership skills. Fourth, men accept the leadership of women. Maan himself was a manager of one cooperative in Rong and was happy to accept women's leadership and mobilisation under her management of labour.

Women farmers think that sharing the workload does not mean dividing the same work. Rather, they think sharing workload means balancing the workload, particularly the physical workload. Sharing workload matters when they mobilise for one another's convenience, understand one-another's difficulties, and recognise one-another's work. One female farmer said:

> *"I do household work and run grocery. My husband takes care of large cardamom and betel nut farms. He does all the farm work - management of inputs, mobilisation of labour in farm activities and trading farm products. While my husband is on the farm, I cook meals for labourers and take care of the labourers working at home. I go to Birtamod and Kakarbhitta to buy groceries. Both of us can take each other's role when needed. So, I don't think I have to go for farm work and my husband should care for grocery." [IDI, Female Participant, 39, Salakpur, August, 2018]*

Her statement says that rather than focusing on who is doing which role, or a mechanical 50-50 division, the focus should be on whether division of roles is fair in terms of workload, capability, and choice.

6.1.3 Practice of equality in wage rates

Equality in wages paid for the same work is now standard practice in the study area. Farmers decide wage rates based on the nature of work, working hours and skills required. In labour-exchange (*parma*) among farmers, wages are not paid if this exchange is equal. However, they do pay for surplus wages. This means if the first farmer is called for wage exchange for 25 days, and then exchanges 30 days for the second farmer, the second farmer compensates the first farmer with 5 days based on the daily wage rate. For specific roles, farmers pay higher wage rates. As mentioned earlier, local lathes (strongest men) who transport fresh large cardamom earn two to three times higher compared to other roles. Regarding, wage payment one middle-aged female farmer (household head) said:

> *"Timi mahila ra timi purush bhanera timilai dherai ra timilai thorai bhannu bhayana. Maile alainchi tipne lai NPR 400 le diya. Bot banaune, sapha garne ra mal rakhne lai NPR 300 le diya (Meaning- I could not differentiate in wages just saying you are women and you are men. I provided wages NPR 400 per person per day for harvesting, and NPR 300 per person per day for weeding, cleaning, and fertilising of large cardamom)." [IDI, Female Participant, 55, Jirmale, December, 2018]*

Moreover, wage rates for the same work were different within three clusters of the study site - Salakpur, Rambheng and Jirmale. Labourers in Salakpur were paid less than in Jirmale and Rambheng. Table 6.1 compares wage rates for large cardamom related roles in three clusters, Salakpur, Rambheng and Jirmale of Rong.

Table 6.1: Comparison of wage rates in large cardamom production, Rong (2017/18)

Activity	Participation	Wage rates in NPR		
		Salakpur	Rambheng	Jirmale
Weeding, cleaning, fertilising	Men and women	250	250	300
Harvesting	Men and women	300	350	400
Transportation	Mostly men	1,000	1,000	1,000
Separation of pods	Mostly women	50/*tina*	50/*tina*	50/*tina*

Source: Fieldwork (2018)

In Birtamod, roles were segregated among men and women. Traders have adopted performance-based payment for each role. Traders provide the wage rates fixed by the union of wage-labour in Birtamod. As men and women do different roles and rates for the roles are fixed, it was impossible to account for the difference in wage rates based on gender. Table 6.2 summarises the wage rates paid to labourers.

Table 6.2: Wage-rates for large cardamom value-addition activities, Birtamod (2019)

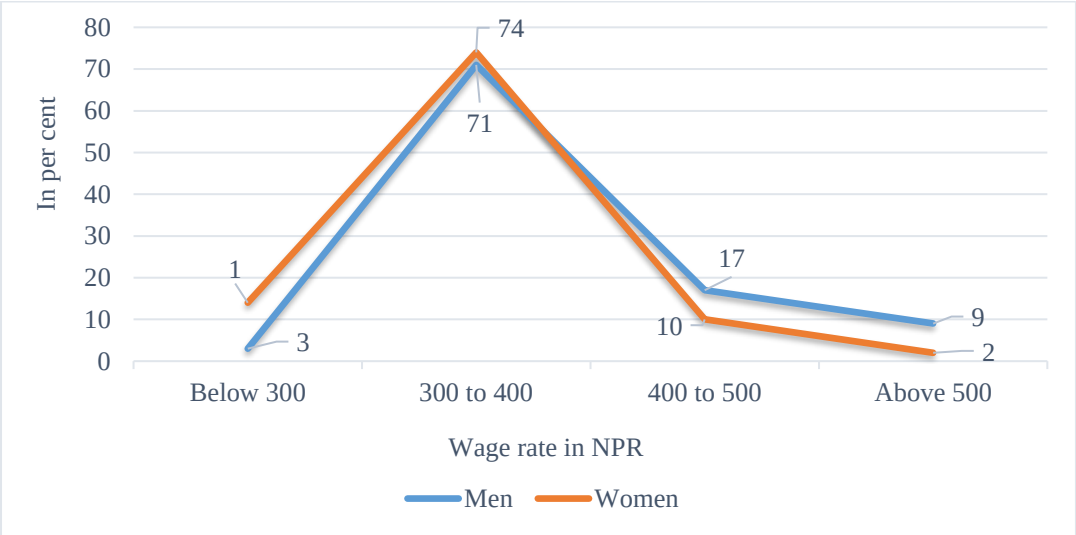
Role	Participation	Wages (performance-based)
Head and tail cutting	All women	NPR 10 per kg
Load and unload	All men	NPR 10 per 50 kg pack.
Labelling and packaging	All men	Wages varies by size of pack, i.e., NPR 25 for 50 kg pack, NPR 15 for 25 kg pack, NPR 9 for 10 kg pack, and NPR 5 for 5 kg pack.

Source: Fieldwork (2019)

During the survey (2018), men (297) and women (267) were asked in which wage group they mostly fall. Survey results revealed that in high wage rate categories, the proportion of women was low and the situation was reversed in the lower wage category. Figure 6.1 demonstrates that more than two-thirds of men and women fall within the wage rate category group NPR 300 to 400 per day. As the wage rate category moves upward, women's participation reduces gradually, and men's increases in the same proportion. There were only 2 per cent of women in the wage rate category above NPR 500 per day whereas men's participation was 9 per cent.

Figure 6.1: Women participation in wage rate categories in large cardamom, Rong (2017/18)

N = Men: 297; and Women: 267



Source: Field Survey (2018)

The positive point to note from Figure 6.1 is that wage rates are increasing over the years. Although men and women differ in proportionate participation in different wage-rate categories, the difference is small.

6.1.4 Recognition of financial contribution of women

In the past, men were considered as cash earners or breadwinners for the family. Women's role bas family breadwinners were not considered as they did not earn money directly. Instead, their time was spent on household work and farm work. With the introduction of large cardamom and other HVA crops in Rong, women got involved in farming in other roles which gave them an opportunity to earn cash. In addition to farming, women were also earning from grocery shops, home stay and other non-farm small scale enterprises. Many women farmers expressed realisation that self-earning is vital for the recognition of work at household and community level. In the indigenous Lepcha group, women were earning more cash than men from farming vegetables, wage labour in large cardamom and other HVA farm works. One Lepcha farmer acknowledged the contribution of his wife to household income saying,

> *"My wife earns more than me. We work together at our farm but when it comes to go for wage labour, she goes for more days than me and automatically earns*

more. We do not say it's my earning and it's yours. This builds a good family environment, with no quarrel between spouses." [IDI, Male Participant, 42, Jirmale, December, 2018]

Women's own earnings have expanded their horizons in choosing what they spend money on. Households spend money buying food, on children's education, on health treatment and medicine and for social and cultural events they take part in. Women's own income enables them to buy food items of their choice, for example: meat, vegetables from local market, and choosing clothes. Women from high- and middle-income farmers have added valuable assets like gold rings for personal use. More importantly, they have a strong stake in sharing the family's financial responsibilities.

Women farmers reflect that having their own income makes for good family relations and increases their confidence in public. As they no longer depend on their husband or other family members for money when required, for example, daily expenses to run the household, they feel empowered. Such power encourages them to take part in decision-making related to big investments. For example, providing technical education to children, buying a piece of land, or adding a separate room for kitchen, buying new furniture, television, and other assets.

In the survey (2018), I asked spouses about their perception of who contributes and by how much to family finance. They were given the following options - more than him/her, both contribute equally, and less than him/her. The results revealed that 54 per cent of men and 50 per cent of women believe that both spouses contribute equally, whereas 25 per cent of men and 6 per cent of women believe that they earn more than their spouses. This indicates that more than half of men recognise women as equal financial contributors to the family income. In similar questions, spouses were asked who holds family income and were given the following options – the male spouse has it, the female space has it, or both spouses hold it. The results showed that more than 75 per cent of men and women said that both spouses hold money. Both spouses have equal access to money. Regarding each spouse's ability to spend money on things they choose, 92 per cent of men and 78 per cent of women said they could spend some money on things of their choice.

But women wage labourers working in large cardamom value addition activities in Birtamod contributed less to family finances than men. This was because men perform high-income roles and women perform low-income roles. When women were earning only NPR 300, men were earning over NPR 500 per day. The reason was that men do physically hard-labour and short-term work related to large cardamom. Then, men go for wage work in construction, transportation, and other non-farm works. But when it comes to spending this income, women spend wages buying food and other family expenses whereas men often make extra expenses in gatherings, buying alcohol, and contribute less to the family. Women labourers said if they did not earn, they could not survive on a single person's income in Birtamod, one of the most expensive cities in Nepal. Likewise, earning from large cardamom provided an opportunity for higher education to many young students. Thus, women's own earnings have given them recognition and enabled them to reveal their power.

In most families, women manage the family accounts. This was not believed just 15 years ago. At that time, women were not even aware of the family income and expenditure thinking it wasn't their role. They had to ask their husband even for a very small sum of money. When doing this, they were fearful of how their husband would react. One female participant shared how her husband replied to her when she asked about the income from large cardamom: *"I have given you enough food and clothing then why do you ask for income and expenses?"* This hit her hard and so she decided to make own income. Today, most household family accounting is done by women. Spouses believe that women make rationale choices while making expenses, but men spend unnecessarily. Men often spend frivolously during gatherings. One elderly farmer who used to do the family accounting later handed over this responsibility to his wife. He said:

> *"Ghar aamalai paisa diya pachhi kaam garna sajilo hunchha. Unile paisa jogayara kharchha garchhin ra aamdani kharchha ko hisab pani ramrari rakhchhin. Logne manchhe ko swabhab ali badhtai kharcha garne huncha" (I feel relaxed after handing over responsibility for family finances to my wife. She is economical while making expenses and keeps a record of income and expenses. Men have an attitude of making unnecessary expenses)." [IDI, Male Participant, 64, Salakpur, March, 2018]*

6.1.5 Women's role in family decision-making

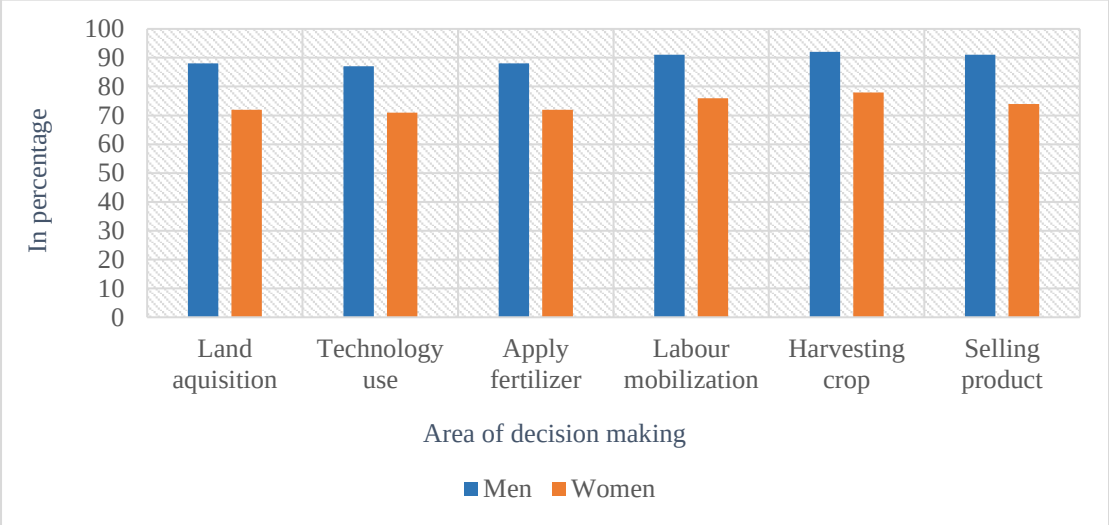
Women's role in decision-making on both farm and household has increased over time. In the recent past, men used to make decisions on their own. This has now switched to joint decision-making. They usually make joint decisions on education, health treatment, taking loans, and purchasing land and valuable assets. Women also make independent decisions on things like buying food items, paying school fees, paying loan instalments, sale of farm and livestock products, i.e., sale of honey, vegetables, ghee, poultry, goats, and others. Women who worked as intermediaries and traders could make decisions without interference from their husbands. Such decisions are mostly related to buying large cardamom from farmers and making payments to them. They were independent of making family related and personal expenses without asking their husband. One female intermediary explained:

> *"I look after daily buying of large cardamom and food supply business from our store whereas my husband looks after management part, i.e., making contacts with farmers and traders, payments, participating in meetings and social activities. I handle family finance and keep account of daily business." [IDI, Female Participant, 36, Birtamod, March, 2019]*

In the survey (2018), men (351) and women (427) were asked about their role in farm decision-making specifically around land acquisition, use of technology, application of fertiliser, labour mobilisation, harvesting large cardamom and trading in the local market. Their responses were measured in the Likert Scale 1-5. Their responses in options-inputs in some decisions, inputs in most decisions and inputs in all decisions were considered influential in decision-making. Results showed that men have more influence on farm related decisions than women in every aspect of questions asked. Moreover, it is important to note that the influence of women in farm decision-making has crossed 70 per cent in each area of decision-making surveyed. Figure 6.2 provides a clear picture of this.

Figure 6.2: Women's participation in farm decision-making, Rong (2018)

N = Men – 351; Women - 427

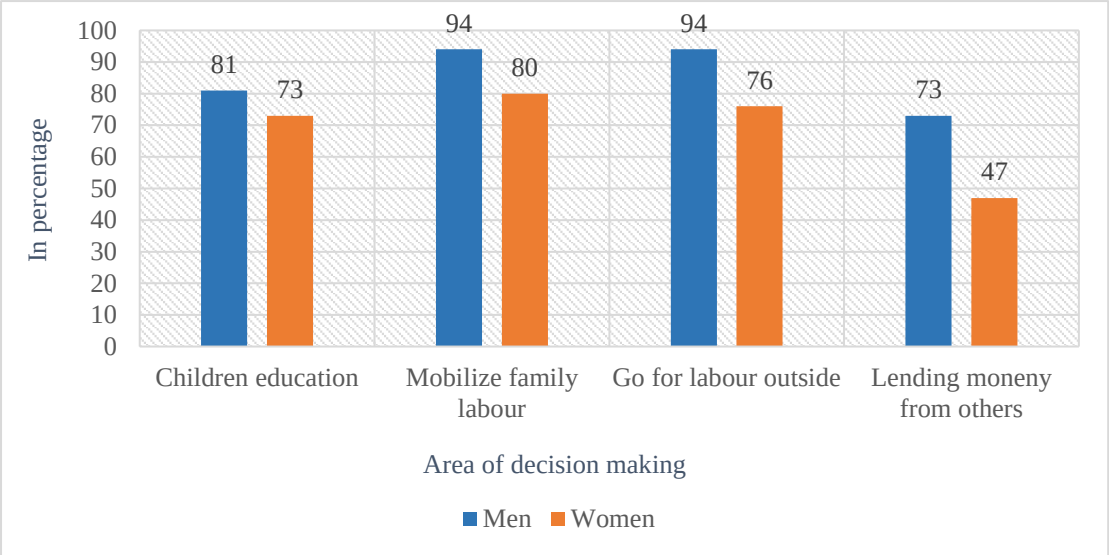


Source: Field Survey (2018)

In the survey (2018), 351 men and 427 women were asked about their role in family decision-making. This was specifically around children's education, mobilisation of family labour, going for labour outside and access to credits. Their answers were measured using Likert Scale 1-5. Their responses in options- inputs in some decisions, inputs in most decisions and inputs in all decisions were considered an influence in decision-making. Survey results showed that in all family related decisions, women have less say than men. Women have little influencer in family decision-making with regard to lending money to others. This shows that women's influence in finance related decisions is still weak. But women have more say in mobilisation of family labour and children education. Figure 6.3 makes this clear.

Figure 6.3: Participation of women in family decision-making, Rong (2018)

N = Men- 351; Women- 427



Source: Field Survey (2018)

During field observation, I noticed that spouses prioritise children's education. They want their children to go to good schools, i.e., expensive fee paying private English language-based schools. Based on income level, some go to a private school in a village, some to Ilam and Jhapa. Some high-earning farmers send children to Kathmandu, Darjeeling in India and elsewhere. The head of the local secondary school said that students' numbers in his school had fallen from more than 450 students in 2008/9 to around 100-125 students in 2018. For higher education, farmers have sent their children to study - engineering, nursing, chartered accountancy, agriculture, livestock, hotel and hospitality management.

6.1.6 Increasing women's public participation

Women were more confined to household work a decade ago. Now, more women are taking an active role in public. They have a considerable presence in CFUGs, drinking water groups, and other local associations, which were dominated by men just a decade ago. Now, women's participation in these groups has increased and had reached 35 per cent by 2018. Women have started to claim lead roles in such groups though it is still hard for them to get and perform these roles. When women take public roles, they also have to do their routine work. This adds to both their time pressures and

workload. But women are managing this by getting some support from family members. A women's cooperative manager explained the change she witnessed in her village in Salakpur in the past one decade. Based on her explanation of change, I have developed a case, please see Case 6.2.

Case 6.2: From household into public life: She saw a big change in a decade

Back then, women faced obstacles at all stages in taking public roles. First, it was difficult for most women to take public roles because families create barriers. Women in public roles were not seen as good in society. Some women who show interest also lack confidence and need the consent of their husband/family. Many women lack the self-motivation for public roles.

Second, even if some women get the public roles, for example, an executive member of the SUMADUA cooperative, it is mostly women who listen and go. Though they have a different view, they could not express these views in a formal meeting. Behind this, women lack adequate information on the issue, so cannot articulate and present the issue in the meeting. Third, when women have to courage to voice their opinion, it was hard for them to take decisions. Fourth, even when it was decided, it would be a challenge in implementation. I have observed that men do not say publicly that they are not ready to accept women in key positions in the group as chairperson, secretary, or treasurer. However, they create a situation that is not welcoming for women. When women struggle and take these roles, men often do not cooperate. Over time, however, the perception of farmers has changed.

At present, most families support women in taking public roles. Women take such roles in their own interest, motivation, capacities, and they get support from family, specifically from their husband for these roles. Time has changed that many families now feel proud when a female member gets a public role. Some women have created their own image as women leaders and social leaders in the community. She explained that being the founder and manager of the cooperative, she feels proud to see these positive changes in short period of time.

Some women have performed challenging roles in their leadership. One such challenging role taken by women was the construction of a new road from Nanda Siran in Jhapa to Salakpur in Ilam. There was already a road construction committee which

was heading for failure after half the road had been constructed. The road construction committee led by men had opened a track along the public land. But when the road approached private land, these private landowners created conflict. The road construction committee was unable to resolve this conflict. Then the village meeting formed another committee led by a woman. As the new committee chair, she took on this role in a time of intense conflict.

She approached each household whose land fell along the road alignment. She heard their views, and sought their support and suggestions for what could work. Through these interactions, she learned that they were not against road construction. After hearing the concerns of possible affected households, her team had discussions to find a compromise solution. This was a slight change in road alignment to cause the least damage to private land. Later, her team's work was recognised by the villagers.

Another woman's case tells how women sacrifice their own opportunities for growth for the sake of their husbands. She was an executive committee member of FLCEN. During her tenure, she brought new women large cardamom intermediaries as members in FLCEN. She had hoped to become Treasurer of FLCEN in the new term. However, her husband showed interest in the post of chairperson. As it was not possible for both spouses to contest this role, she paved the way for her husband.

For certain groups of women, cultural practice is an unbreakable barrier to taking public roles. One such example is from the Marwari group. Women were not involved either in business or public roles. In the case of the *Bramhin/Chhetri* caste group, women face restrictions to mobility and participation in public, whereas women from Rai, Tamang, Lepcha groups are less restricted in taking public roles.

6.1.7 Intra-household relations

In intra-household relations, the power relations among members of the family differs regarding gender and age of the family members. In the traditional family, the power dynamics among women members, the youngest daughter-in-law holds the least power. In the study site, this traditional form of power dynamics has changed with the education, skills and earning capacity of women and specifically the daughter-in-law. This change in intra-household power relations has implication for the division of roles, family finance management, decision making and many other aspects. Family members

do acknowledge each other's role and women have more say now and relations among family members are improving.

For example, in one Lepcha family, the mother-in-law was doing farm work and household work. Meanwhile, her daughter-in-law was a teacher in a local primary school and her salary was the main source of family income. If her daughter-in-law was not a teacher, she would be performing household and farm roles being carried out by her mother-in-law. The daughter-in-law felt uncomfortable talking directly with her father-in-law and mother-in-law or even with her husband in the past. Now all can talk openly. Large cardamom and other HVA crops in the community have created space for spouses to work together at home. This has also helped to reshape relations among family members.

This positive change in power relations within households has improved family relations. This has reduced gender-related domestic violence in the family. The number of domestic violence cases reported has fallen significantly over recent years. Women who tolerated domestic violence earlier started sharing this in women's groups and or in cooperatives. These groups support victimised women immediately and act according to the level of violence. In cases of severe domestic violence, women file cases to police, or in court. As a result, women no longer felt isolated when they were experiencing these issues.

6.1.8 Feeling of satisfaction

Household wellbeing is considered in terms of how satisfied men and women are with their lives. Women farmers have a feeling of satisfaction from large cardamom as it has given them good livelihoods. Boys and girls are getting similar education, clothing and training in both household work and farm work. Many farmers are happy they can send their children to private schools in cities, dreaming they will later be able to take a well-paid job in government service. A women's agri-cooperative was building awareness among people in the village so they could declare their village as a place of zero domestic violence.

Women have more freedom in mobility and women had confidence in travelling independently. They go to local market centres, sell their agri-products, and buy goods of their choice. Farmers and family members share and care for each other. Some

farmers opine that satisfaction isn't just from equal division of roles. One Dalit female farmer said during our interview that:

> *"Men in my family do not prefer kitchen work, cleaning, and take care of children. My husband is a carpenter. He works hard in making furniture from morning to evening. I do kitchen work, household work and farm work. Both of us are doing hard labour and we are happy from our roles. When we are satisfied from our roles why do you ask why men were not doing kitchen work? When you are happy in doing your role then what do you need?" [IDI, Female Participant, 57, Salakpur, March, 2018]*

Her opinion shows the importance of being satisfied in your own role. Satisfaction does not come doing a male role, rather it comes from a fair division of labour and role recognition. Men and women farmers were asked how they perceive satisfaction in their lives. Two-thirds of men and women were satisfied from their engagement in large cardamom farming and only a quarter dissatisfied. The reasons for the latter are linked to the price fall of large cardamom which made their livelihoods harder. As a result, family members have chosen out-migration or non-farm jobs to maintain their livelihoods.

In the Survey (2018), 351 men and 427 women were asked if they were satisfied from their life based on large cardamom and other HVA crops farming. Two-thirds of men and women expressed satisfaction with their farm-based lives. Table 6.3 shows the overall perception of farmers regarding their satisfaction with farming.

Table 6.3: Satisfaction of women from farm-based life, Rong (2018)

N = Men- 351; Women- 427

Wellbeing status (in%)	Men	Women
Not very satisfied	27	29
Satisfied	66	66
Very satisfied	7	5

Source: Field Survey (2018)

Many young, large cardamom farmers who have higher education, and do non-farm jobs in cities, or overseas jobs, also show enthusiasm and commitment to farming.

They are motivated to do other jobs only when income from large cardamom or other HVA crops cannot meet their basic livelihoods needs. The reason is that farm-jobs allow household members to stay together with family, spend time with friends and join cultural events. One returnee farmer said:

> *"I came to Nepal 1.5 years ago after leaving a job in Saudi Arabia. I could not become happy there because I got less salary than promised and had to do hard work. I decided to return to Nepal and expand the large cardamom farm. Now, my large cardamom farm is of 30 ropani (1.5 ha). I do hope that I could earn about NPR 600,000 per annum in the next 2-3 years". [IDI, Male Participant, 28, Rambheng, November, 2018]*

Another returnee had come back from Malaysia for two months' leave. He saw that his childhood friends were earning a good income from large cardamom. So, he cancelled his return ticket to Malaysia and took up large cardamom farming instead. He feels happy when he is with his wife and two children and wife taking food together. Some young people have abandoned the idea of going abroad. One young, large cardamom farmer from Jirmale got a visa for Malaysia but decided not to go. He was already earning over NPR 600,000 a year from large cardamom. He saw he could not earn that much in Malaysia, and this changed his mind. This shows that farmers who have established large cardamom farms, with enough land for farm expansion, and able to make investments no longer prefer jobs abroad. Just a decade ago, this was unthinkable. Farmers feel satisfaction when they have enough money to run a family and live together.

6.2 Role of Organisations

Policies, strategies, and programmes of government, non-government and private sector organisations have an influential role in changing women's conditions and position in the study sites. They supported women to develop capacity related to account keeping, leadership development, gender awareness, entrepreneurship development and more. Women farmers knew about saving and credit, the importance of involvement in groups, collective work, and mutual support.

Local cooperatives, JWAC and SUMADUA (discussed in Chapter Four) are the main local organisations in Rong. The formation, strengthening and service delivery of

these cooperatives was closely supported by WDO and Nari Jagaran Sangh (NJS), a district-based NGO. A decade ago, staff from WDO and NJS started women organising in groups. For this, they met with farmers, men members of the family, and convinced women to participate in groups. Before forming JWAC, they created women's group at each settlement (settlement size 25-20 households). These women's groups were support to practice saving and credit. They started social work by providing chairs, cooking sets and tents for the social events. Later, the women's groups formed at settlement organized and formed a larger cooperative called the JWAC.

WDO and NJS supported JWAC to conduct skill and capacity growth events for cooperative members. These include home stay training, basic veterinary training, account-keeping, cooperative management training, gender training and more. This training was intended to empower women socially and economically. A JWAC manager reflected that just 15 years ago women could not introduce themselves by saying their own name at JWAC meetings and assembly. Now, they participate actively in other group meetings like community forestry, drinking water, school management and more.

Government of Nepal has subsidised tax rates from 4.5 per cent to 3.5 per cent if land and house is bought by women. This policy encouraged farmers to buy such assets for women's ownership. Likewise, MFIs have increased women's access to finance, although some said this had been a cause of harm. Almost 80 per cent of households had at least one female member in MFIs. These MFIs provide loans up to NPR 100,000 based on collateral. But interest rates of MFIs were as high as 24 per cent a year. Many women who needed money took loans from MFIs without a repayment plan. When it was difficult to pay monthly instalments for the first MFI, women took a loan from the second MFI, and for the second MFI, they took a loan from the third MFI. There were six MFIs actively involved in the study area. This situation forced them into a vicious circle of debt. Women small farmers who had taken loans lost parental property to pay them back. This created conflict in the family. Those who were unable to manage these conflicts or pay back loans had left the village.

In some contexts, organisational policy can create a barrier to women in taking public roles. For example: FLCEN Constitution provisioned three quotas for women in a 25-member executive committee. The Constitution also stated that large cardamom

firms had to register in a women's name to join FLCEN. Since large cardamom firms were already registered to men, current FLCEN members have had to register additional firms in their own names. This has increased their workload in record-keeping and accounts.

Likewise, the market has provided a platform for women for mobility and buying and trading skills. In Birtamod, many women come to sell large cardamom and buy products to bring home. They sell broom, oranges, vegetables, milk, betel nut, honey, and other products in Mechinagar, Dhulabari, Damak markets of Jhapa. Women also have more access to market information and can build negotiation skills and communication skills. This was not possible a few years before. As a result, women are now more confident in trading, although their participation is still low at present.

In summary, the entire community has changed their perception towards the gendered division of roles. This has given both men and women space to participate in roles of their choice regardless of their gender. In such a context, men share the workload with women in farming, as well as in household and care work. This has enabled farmers to practice equality in wages for men and women who do the same role. Women who earn a wage from large cardamom and other HVA mostly spend it on family food and children's education. This has increased their say in the family and expanded their role in family decisions. The family decision-making system has shifted from men or household head to joint, where women now have a stake in major farm and family decisions. This has helped change the narrative that men are the breadwinners. This has also created space for women to act as family finance managers in many households.

Through organising in groups, women have gained social and economic power which has built their confidence and freedom of mobility. As women have expanded their space in the farm, family, and public spheres, this has helped to redefine social norms which limited women in the past. Women members of the family now have space to take part in family decisions. The relations among household members have improved and every member has space to say. As a combined effect of all these changes, farmers are feeling a sense of satisfaction from their farming life. In this process, government, non-government, and private sector have played an influential

role in the form of awareness raising, skills training, leadership building, formulation, and implementation of conducive policies for women.

6.3 Recapitulation

Large cardamom and other HVA crops contribute to the social and economic empowerment of women. This power has become visible in the form of division of roles, distribution of workload, getting wages, supporting the family etc. These aspects have all narrowed across the entire value chain of large cardamom. Patriarchal sentiments regarding non-recognition of women's role in family and public sphere are waning. Likewise, women are recognised in the family as decision maker, bread earner and finance manager. Women can lead and take public roles when they get opportunity. These have all led social norms to become more relaxed towards gender issues. This can bring positive change in intra-household relations and increase the feeling of satisfaction of all household members.

CHAPTER SEVEN

CHALLENGES OF LARGE CARDAMOM MARKET DIVERSIFICATION

This chapter analyses the scope of the domestic market for large cardamom and scope for large cardamom export-market diversification. It then examines the market access constraints of Nepali large cardamom in the Indian market and in the world market. In this chapter, I also explain how large cardamom export constraints have created a dilemma among large cardamom traders and other stakeholders. The export constraints considered for analysis are competitive capacity, export compliances and procedures, market infrastructure and institutional context.

7.1 Dilemma in Prioritisation of Large Cardamom Market

7.1.1 Scope of large cardamom in domestic market

Value chain actors and stakeholders perceive large cardamom to be an export product of Nepal. For this reason, farmers do not keep even a small fraction of their production for household consumption. Data showed that farmers did not keep even 1 per cent of total production of large cardamom for themselves. Though large cardamom is a popular spice product, farmers do not use it to flavour their own daily food. Farmers perceive large cardamom as a cash generating high-value product. If the household consumed 1 kg of large cardamom, that would be equivalent to a loss of 10 kg of rice and more of other food products, like wheat, maize and cereals. For many small farmers, consumption of large cardamom means a reduction in access to food.

Intermediaries and traders believe that large cardamom has very limited scope in the domestic market. They supply below 1 per cent of large cardamom to this market. In their views, large cardamom is not a popular spice product in Nepal, even though it is extensively farmed in almost all hill districts of eastern Nepal. As spices, only high-income people, large hotels, and restaurants are interested in large cardamom. Likewise, small spice enterprises process large cardamom as tea masala, meat, curry, and other masala eaten in daily food.

But farmers and traders ignore this as they have been happy exporting large cardamom to the Indian market for decades. Nepali large cardamom was getting a good price in the Indian market and there was no reason to think about the domestic market or market outside India. Nepali traders were shocked from the consistent fall in the price of large cardamom since 2014/15. The price of large cardamom was around NPR 2500 per kg in 2014/15 and had dropped to around 700 per kg in 2019/20. Traders believed the huge production of large cardamom in different states of India and Bhutan played a role in this price fall. They also sense that expansion of large cardamom in Nepal, India and Bhutan could further reduce the price in future. Realising this situation, traders have emphasised the importance of domestic market promotion and export market diversification.

Since 2017, FLCEN started promotional activities in the domestic market through awareness raising of using large cardamom to spice food. It is aimed at master chefs of star hotels in major cities of Nepal on different ways of using large cardamom in recipes. Likewise, traders started to supply large cardamom in consumer-friendly packages, i.e., packaged in amounts of 100 g and 200 g. They supplied such large cardamom in the superstores like Saleways, Bhatbhateni, Gurkha etc. In wholesale markets, large cardamom is supplied in packages of 10 kg, 25 kg and 50 kg. One such wholesale markets is Kalimati vegetables market in Kathmandu. From this market, small spice entrepreneurs buy and use this as an ingredient in tea masala. Local spice entrepreneurs said consumers know the green cardamom but not the large cardamom.

It is paradoxical that Nepali large cardamom has only a 1 per cent share of the domestic market yet people from all walks of life use green cardamom (*Sukumel*). They were using green cardamom as a mouth refresher, and as spice in tea masala, in meat and in other dishes. Green cardamom is used widely at homes, hotels, restaurants and in social functions. It is widely available both in supermarkets and small grocery stores throughout Nepal. However, most green cardamom consumers were not aware that large cardamom serves the same purpose, and is cheaper. Green cardamom can be bought in groceries and even in meat shops in small packets costing just NPR 20. More importantly, Nepal does not produce green cardamom.

Traders said that green cardamom came to Nepali kitchens alongside other spices imported from India. They have realised too that it can be sold in the Nepali

market as a ready to use spice. As a result, some investors have set up a large cardamom-based spice company. It produces large cardamom flavoured mouth refreshers, tea masala, dish masala, and mixed-spices of different types to sell both in the domestic and Indian markets. One investor claimed that their company will consume 15 per cent of large cardamom produced in the country by 2024/25. They have targeted existing users of green cardamom to switch to Nepali large cardamom.

Data from ITC (2019) shows that Nepal imported green cardamom (Harmonized Standard [HS] Code: 09083120) worth USD 9,008,000 from the world markets in 2018. In the same year, Nepal exported large cardamom (HS Code: 09083110) valued USD 36,220,000 in the world markets. This shows that the total value of imported green cardamom on the Nepali large cardamom market is around a quarter of the total export value of large cardamom. Since, large cardamom has a similar taste and properties to green cardamom and is also cheaper (Spices Board of India [SBI], 2019), there is a good opportunity that current consumers of green cardamom will switch to Nepali large cardamom instead. Likewise, FLCEN initiatives to promote the domestic market and recently established large cardamom-based spice company in Birtamod have raised hopes of expanding large cardamom in the domestic market.

7.1.2 Nepali large cardamom market in India and beyond

As mentioned earlier, Nepali large cardamom has not yet reached regional markets and world markets. There were many reasons for this. Most important was that traders consider India the largest market for Nepali large cardamom, and it also fetches a reasonable price. India consumes large cardamom as pods or in the form of crushed spices. Spice companies in India, *Century, Mahashian Di Hatti (popularly known as MDH), Everest* and others consume huge amounts of cardamom as one ingredient in the production of spices. Another reason is market accessibility. Physically, Birtamod, the Nepali large cardamom trading hub in Nepal, and Siliguri, the regional large cardamom hub of India, are just an hour's drive away. In addition, traders of Siliguri have placed agents in Birtamod to facilitate logistics for large cardamom export.

Cultural connections between Nepali and Indian traders also have a role in large cardamom export to India. The *Marwari* community is involved in many businesses in Nepal including large cardamom and this community has strong trading roots in India.

The *Marwari* community plays an influential role in linking Nepali large cardamom with the Indian market. Another reason was easy communication, i.e., Nepali and Indian traders use the same language which facilitates trading.

Nepali large cardamom has reached the markets of Pakistan, Bangladesh, the United Arab Emirates (UAE) and other countries but in very small quantity. Markets in Bangladesh and Pakistan are physically nearer than those of other countries. Furthermore, Nepal, Pakistan and Bangladesh share a regional forum, the South Asian Association for Regional Cooperation (SAARC). This has adopted the SAFTA to facilitate trade among member countries by subsidising tariffs and export provisions. Despite this, there was little export of large cardamom to these countries (SAARC Secretariat, 2004).

Nepali traders have understood that China could be one potential market for Nepali large cardamom as they know that the country consumes a huge amount of cardamom[20] to produce traditional herbal medicine and cosmetics. For this, China imports cardamom from Indonesia, Laos, and Vietnam. To explore the possibility of cardamom export to the Chinese market, two donors ICIMOD and the UNNATI inclusive growth programme organised a high-level visit to Nepal. In 2018, the team of delegates visited the field, and met with traders and senior government officials in Kathmandu. However, the cardamom Chinese use in medicine and cosmetics was different to Nepali large cardamom. Chinese were also concerned with the phytosanitary standard and whether Nepal could meet trade compliances while exporting large cardamom to China.

The food quality and trade compliance issues also applied to export large cardamom in the European, American, Australian and the markets of other countries. In addition, the large cardamom market in these countries was small, quality compliances strict, and procedures are difficult. Traders expressed much interest in exporting large cardamom to those markets hoping that they could fetch higher prices. However, the main constraints they faced were transportation, food quality standards,

[20] Cardamom here denotes all types of cardamom traded in the market, white cardamom, green cardamom, and large cardamoms.

tariffs, procedural difficulties, and others. This is explained in more detail in Section 7.3 of this chapter.

During the researcher's visit to Germany in 2019, he bought small packets (200 gram) of cardamom in a German grocery shop. The show owner was Vietnamese, and he sells Vietnamese cardamom which is different to Nepali large cardamom. This cardamom was exported and imported by two Vietnamese companies. Gia Bao Pei Co. a limited company registered in Ho Chi Minh City of Vietnam exports cardamom from Vietnam and Asia, while cardamom is imported by Viet Duc Imund, a company in Germany. This highlights that Nepal also requires these sorts of companies to facilitate export of cardamom from Nepal and import in the destination country. However, this needs to be further explored.

In summary, Nepali traders raised the issue of large cardamom market diversification at a time when Nepal had been trading large cardamom to India for over 100 years. Market diversification was brought into focus after the abrupt fall in price of large cardamom on the global market since 2014/15. The Nepal government strategy on large cardamom created a market-related dilemma that there is a huge market of large cardamom in the Middle East. Because of smooth trading of large cardamom with India, Nepali traders have never considered the domestic market and/or made the effort to explore and export large cardamom in the markets of the Middle East and beyond. They were unaware of the fact that Nepali consumers consume a significant value of green cardamom (more than 25 per cent of the total export value of Nepali large cardamom) which can be substituted by Nepali large cardamom. Nepali traders have been leading initiatives to increase sales of large cardamom at home. However, it is questionable whether these initiatives would carry on if the price of large cardamom were to increase again on the world markets.

Conversely, with such a long history, Nepali traders are confident in trading large cardamom with India. They believe India provides a sustainable market, reasonable price, easy market access, easy communication, and deep-rooted cultural ties. Though Nepali traders claim there is a market for Nepali large cardamom in Pakistan, Bangladesh, in Middle Eastern countries and others, they do not have a clear idea of its size. The section below analyses global production and supply of cardamom

including large cardamom and presents how traders faced a dilemma given these figures.

7.2 Dilemma due to Different Cardamoms in the Market

Nepal is the largest producer of large cardamom (Bhutia et al., 2017), with production volume 6,000 MT per annum on an average (MoALD, 2019). Likewise, large cardamom export data shows an export of average 3402 MT per annum. But secondary data confirms that Nepal trades 99 per cent of its large cardamom with India and only a small fraction was exported to France, China, Germany, Qatar, and the UAE (MoICS, 2019). Even the export of large cardamom outside India was small in volume and infrequent. Table 7.1 provides information about the production and export of large cardamom from Nepal.

Table 7.1: Production and export scenario of large cardamom from Nepal (2013-2018)

Year	Production*(MT)	Documented export**(MT)		
		India	Others	Total
2013	5,753	2,686	1.5	2,687
2014	5,225	3,501	1	3,502
2015	5,170	3,217	0	3,217
2016	6,440	3,506	0	3,006
2017	6,528	4,652	3	4,655
2018	6,849	3,349	2	3,351

*Sources: *MoALD (2019); **MoICS (2019b)*

Table 7.1 reveals the huge gap between large cardamom production and export in Nepal. Primary data collected from farmers and traders, and secondary data (for example, MoC, 2017) confirm that the domestic market of large cardamom is around 1 per cent. But average large cardamom production data for the last six years comes in at 5,994 MT (MoALD, 2019) whereas Nepali large cardamom export data shows only 3,404 MT (MoICS, 2019b). This shows that there is a gap between production and export of over 40 per cent. It appears that a large volume of Nepali large cardamom trading has not appeared under the government accounting system.

It is difficult to segregate trading of large cardamom and other cardamoms in the global market as all cardamoms are traded by the same HS code at a six-digit level:

090831 (ITC, 2019). Thus, import and export data of cardamom by countries is based on the same HS code. The global import data of cardamom showed an average of 48,000 MT per annum where the top importing countries were Saudi Arabia-19.5 per cent and the UAE-18.4 per cent followed by India-10.3 per cent, Pakistan- 7 per cent and Bangladesh-6.6 per cent. There are no countries in the Global North within this data as they are not high importers of large cardamom. Table 7.2 shows the global import of cardamom in detail.

Table 7.2: Major cardamom importing countries (2014-2018)

Importing countries	Annual imports (MT)					Avg. imports (MT)	Avg. imports (%)
	2014	2015	2016	2017	2018		
Saudi Arabia	11,513	11,005	9,590	8,135	6,198	9,288	19.5
UAE	10,872	12,802	5,937	7,315	6,949	8,775	18.4
India	4,626	4,485	4,399	6,178	4,885	4,915	10.3
Pakistan	2,717	3,253	4,025	3,340	3,357	3,338	7.0
Bangladesh	0	3,981	3,459	3,823	4,382	3,129	6.6
Jordan	1,035	1,161	1,322	1,348	1,933	1,360	2.9
Syria	2,054	2,153	1,661	1,066	1,610	1,709	3.6
Kuwait	915	906	992	1,084	1,477	1,075	2.3
Egypt	1,312	915	925	874	1,231	1,051	2.2
Others	15,353	9,998	13,562	12,864	13,673	13,090	27.4
World total	50,397	50,659	45,872	46,027	45,695	47,730	100

Source: ITC (2019)

Likewise, global export data of cardamom shows an average annual export of 61,000 MT where Guatemala was the largest exporting country-59.4 per cent followed by Indonesia-8.5 per cent, India-8.3 per cent, the UAE- 7.1 per cent, Nepal- 6.1 per cent, Myanmar- 4 per cent and a small amount in other countries. Nepal is the fifth largest cardamom exporting country in the world. Table 7.3 shows the global export situation of cardamom.

Table 7.3: Major cardamom exporting countries (2014-2018)

Exporting countries	Annual exports (MT)					Avg. exports (MT)	Avg. exports (%)
	2014	2015	2016	2017	2018		
Guatemala	38,989	33,327	35,645	35,695	36,702	36072	59.4
Indonesia	7,737	6,246	4,034	0	7,842	5,172	8.5
India	4,230	5,308	4,829	5,776	4,942	5,017	8.3
UAE	4,033	6,064	3,392	3,094	4,946	4,306	7.1
Nepal	3,516	2,996	3,011	4,690	4,323	3,707	6.1
Myanmar	2,984	2,676	1,802	2,024	2,740	2,445	4.0
Singapore	1,425	1,638	736	961	932	1,138	1.9
Others	1,836	2,708	3,521	3,802	2,555	2,884	4.7
World total	64,750	60,963	56,970	56,042	64,982	60,742	100

Source: ITC (2019)

Analysis of Tables 7.2 and 7.3 further reveals that some countries produce, import and export cardamom. India is the largest producer, importer, and exporter of cardamom in the world. The Spices Board of India shows the country produced 26,070 MT cardamom, imported 8,057 MT, and exported around 9,000 MT in 2017. India's main cardamom exporting countries were Saudi Arabia, Pakistan, the UAE, Afghanistan and others (SBI, 2018). Countries like the UAE and Singapore did not produce cardamom but are involved in export by importing.

In summary, Nepal is one of the major large cardamom exporting countries even when all cardamoms are combined. Nepal's contribution to global exports could be higher if missing trade data were accounted for properly. India is the top cardamom producer, importer, and consumer country; thus, India can influence the global market for cardamom. Global import and export data showed that cardamom has markets in South Asia, the Middle East, Europe, and many other countries. However, current trading information does not provide information for the specific type of cardamom, i.e., large cardamom, green cardamom, white cardamom, or others. This is because all cardamoms are combined under the same Harmonized Standard code at six-digit level.

7.3 Constraints in Export of Nepali Large Cardamom

In large cardamom trading, some factors were facilitating whereas many others were constraining. This section explains these factors and their nature of influence in the export trade of Nepali large cardamom to the Indian and world market.

7.3.1 Weakened competitive capacity

In large cardamom trading, competitive capacity means the ability of a firm to supply large cardamom as per quantity and quality demanded at a price and delivery time offered by their competitors (adapted from Baum, 2013). Keeping this definition in mind, Nepali large cardamom is competent to supply in the Indian market. However, it is less competent to supply in the markets beyond India regarding delivery time. Traders of Nepali large cardamom are aware that they could supply 10 MT or more of large cardamom without any difficulty to deliver in the Indian market. But when they get an order of a smaller quantity, for example: 4-5 MT, they hesitate because logistics, costs and procedural factors are still the same. Nepali large cardamom was also considered better quality than large cardamom produced in the Indian states of Assam, Arunanchal and West Bengal, and large cardamom produced in Bhutan. This has led Nepali traders to suspect that Indian traders mix Assami and Bhutani large cardamom with Nepali large cardamom.

Nepali large cardamom traded in the Indian market was dried in traditional dryer with fire burn smoke. This practice has continued since large cardamom trading began. However, in the later years, government and NGOs were encouraging farmers and traders to change to smoke-free large cardamom. They believed that smoke-free large cardamom could support market diversification in countries where food quality provisions are strict. But farmers and traders were not interested in stakeholders' suggestions that the existing Indian market does not take smoke-free large cardamom and they could not export it to new markets elsewhere. This is why no households reported production of smoke-free large cardamom during the field survey, 2018.

Among 354 large cardamom producing farmers surveyed, one farmer has installed a smoke-free dryer. This dryer was given through a grant by an NGO to encourage farmers to use improved technology. The farmer who got the grant was chosen because he was the largest large cardamom producer in the village. He also has

a high social reputation as a retired secondary teacher. But that farmer was also not producing smoke-free large cardamom. Instead, he used the new dryer to shorten the drying time and save firewood. After one level of drying, he was used the traditional dryer to give smoke in large cardamom.

In new, large cardamom production sites in Lamjung district of western Nepal, some farmers produced smoke-free large cardamom and sold it to intermediaries. One intermediary bought around 1,000 kg smoke-free large cardamom and took it to Birtamod. However, he was unable to sell his large cardamom as it was not smoked. He then returned home to smoke large cardamom and finally sold it. Regarding smoky large cardamom, one trader said:

> *"I reached to Delhi and talked with traders whether they would buy smoke-free large cardamom. But I could not find even a single trader who said yes. Smoky large cardamom gives taste different than smoke-free which is as like customers habituated in sekuwa (fire-burn meat) might not interested in boiled meat." [IDI, Male Participant, 58, Birtamod, March, 2019]*

Farmers were also not seeing additional benefits from the production of smoke-free large cardamom. They have to invest more than NPR 70,000 to install an improved dryer. This dryer could only dry a small amount of large cardamom at one time, i.e., it had a lower capacity. Despite this, stakeholders were insisting farmers use smoke-free dryers highlighting the health and environmental benefits. Yet they were silent on the market. They argued instead that smoky large cardamom is not suitable for the food quality compliances of WTO as it contains dust and smoke particles. This could be an issue in the markets beyond India.

Price of large cardamom was linked to quality and Nepali traders believed that they get a higher price for large cardamom in the Indian market (around NPR 80 per kg in March 2018) more than other large cardamom. Large cardamom price was fixed in Delhi and Nepali traders used it to base the daily indicative price of large cardamom for farmers and intermediaries. Nepali traders assume that the daily transaction of large cardamom in Delhi ranges between 12,500 – 15,000 Kg. But Nepali large cardamom has weak competitive capacity in terms of delivery time beyond India. Nepal is a landlocked country with limited access to the use of Indian transportation infrastructure.

One trader shared his experience that it took eight weeks to transport one container load of large cardamom from Birtamod to Karanchi of Pakistan and four weeks to deliver to Bangladesh. The delay in delivery time was caused by procedural requirements rather than the physical distance. In summary, Nepali large cardamom is competitive among large cardamoms produced in the EHR in terms of quantity, quality, and price. However, longer delivery time is linked to access to the Indian transportation infrastructure and procedural difficulties.

7.3.2 Complexity in export procedures

The procedures for export of Nepali large cardamom are complex and they play an influential role in the market diversification of Nepali large cardamom. The export procedures comprise documentation for customs clearance, and the customs process in both the exporting country and the importing country. In Nepal, customs clearance requires a certificate of origin, quarantine clearance certificate and payment of taxes to process clearance. The certificate of origin was a compulsory document for large cardamom export which was easily available online from FNCCI or its chapters. FNCCI was the Nepal government's designated authority for this purpose. To obtain a certificate of origin, traders must file an application with additional documents- Personal Account Number (PAN) bill or Value Added Tax (VAT) bill, commercial invoice and procurement invoice. FNCCI was charging 0.12 per cent of total export value as service charge. After this process is finished, FNCCI provides a certificate of origin immediately. With this, traders can then apply for the quarantine clearance certificate.

Plant Protection and Quarantine Office of Nepal government provides the quarantine clearance certificate. This certificate ensures Nepali large cardamom is free from plants, animals, and their residues at a permitted level. To get this certificate, traders apply with supporting documents- certificate of origin, copy of bills and voucher of payment of revenue. This certificate is valid for five days. If Nepali large cardamom is not exported within this time, the trader must repeat the whole process. With this certificate, the trader is eligible for customs clearance.

Customs clearance is the main step for the export of large cardamom. Customs clearance requires application with supporting documents - PAN/VAT bill, certificate

of origin, quarantine clearance certificate, payment of customs duty fee and submission of a declaration form by the broker. Then product inspection starts at customs office. The customs office at Mechinagar, Jhapa has provisioned three lanes- green, yellow and red. Large cardamom is considered a priority export product, so passes through the green lane for quick inspection. After inspection, the customs office provides an Export and Import Code, in short EXIM Code, through which the firm can track clearance progress online. The customs office has adopted a broker system so that traders don't need to be present in the clearance process. Traders perceive that the broker system, online payment and online tracking system has improved the efficiency of the customs office and reduced clearance time. However, customs clearance on the Indian side is still lengthy.

The Indian customs office does not recognise quarantine clearance certificates issued by Nepali organisations. Instead, the demand a food quality test certificate from the Indian government's designated food quality test laboratory. From eastern Nepal, the nearest laboratory of this type is in Kolkata. So, traders must travel to Kolkata with sample of Nepali large cardamom to obtain this certificate. This process can take 10 to 14 days of time and costs around NPR 30,000 for laboratory test, travel, and accommodation. With this certificate, the Indian customs office allows export of up to 50 consignment trucks of large cardamom from Nepal. Indian customs officials were sensitive on export of goods of Chinese origin, so routinely check whether there was any mixed with large cardamom.

Variation in tax imposed by different states of India has implication in selection of export route to Nepali traders. Prior to the implementation of Goods and Services Tax (GST) from the Government of India (GoI) in July 2017 (GoI, 2019), Nepali traders used an export route via Bihar state of India. This was because the tax imposed by the Bihar government was lower than that imposed by the West Bengal government. However, exporting large cardamom via Bihar meant taking a longer route. In summary, Nepali traders said that export procedures within Nepal have improved. However, the fact that Indian customs do not recognise the Nepal issued food quality certificate, has made the customs clearance process longer and more expensive.

7.3.3 Poor access to market infrastructure

Development of and access to market infrastructure plays an influential role in Nepali large cardamom trading. Basic market infrastructure for large cardamom trading includes establishment of warehouse, establishment of accredited food test laboratory, and access to Indian transportation infrastructure for third country export. There were no warehouses in major large cardamom producing and trading sites. This mean that farmers and traders of all size were storing large cardamom in their own traditional store house, in the village or in Birtamod. Storage conditions for large cardamom thus varied among farmers, intermediaries, and traders. In the view of traders, warehouses provide uniform storage conditions which then contributes to quality retention and adoption of safety standard measures. In addition, if large cardamom is stored in a warehouse, financial institutions like banks accept this as collateral, enabling farmers and traders to take loans without looking for further collateral.

Traders consider warehouses as an important infrastructure that can contribute both to export trade diversification and the move from relation-based trading to competition-based auction. Nepal government and UNNATI Inclusive Growth Programme planned to build a new warehouse in Birtamod in a public private partnership model. FLCEN was awarded this project but turned it down, citing land issues and the short construction period.

Likewise, food quality test laboratory of an international standard was another important infrastructure that traders demanded. Establishment of such a laboratory could remove their burden of going to Kolkata, which could reduce time costs for Indian customs clearance. But DFTQC clarified that even if Nepal's laboratory is of international standard, importing countries might have a different quality standard which traders must know in advance.

Nepal's third country export and import is heavily shaped by access to the Indian transportation infrastructures. By geography, Nepal is a landlocked country, but in practice it is India-locked. Nepal shares an open border in southern, eastern, and western parts of the country with India. Nepal's access to its northern neighbour China, is constrained by the Himalayas. However, India has provided three ports- Kolkata, Haldia and Bishakhapatnam, and limited ground routes to reach these ports for export.

Nepali traders have always worried that if India was not happy with Nepali large cardamom export to other overseas markets, it could create hurdles. For example, in 2018 and 2019, India created a customs barrier in the export of tea and ginger, which cost farmers and traders millions of Nepali rupees. India creates such export hurdles at border points to protect Indian farmers from the competition of Nepali products. For large cardamom short-term barriers have less impact because large cardamom can be stored for a long time. Export via China is less feasible because of strict customs clearance, long route, communication barrier and poor infrastructure that connects Nepal to China. In sum, Nepal's export trade of large cardamom is constrained by weak competitive capacity because of longer delivery time and increased logistics costs. This is because of weak in-country infrastructure, India-locked geography and inaccessibility. If the Nepal government was able to negotiate with India for more roads and seaports, it could increase access to world markets for large cardamom and other agricultural produce.

7.3.4 Poor institutional capacity of stakeholders

The institutions which enable trading of large cardamom comprise of government, non-government, and private sector at local, sub-national and national level. They can facilitate export of large cardamom particularly around enabling tariff and non-tariff barriers, food quality compliance, export trade facilitation and policies related to export trading of large cardamom. Currently, farmers trade large cardamom with intermediaries or traders with whom they have long trade relationship. This relation is based on trust. But key insiders said that this system of trading does not provide a competitive price and demanded the auction system was adopted instead. As well as a competitive price, they believed the auction system would help improve both quality and market governance. These insiders have seen the auction system at work in Sikkim and Bhutan where only licensed traders can participate in it. Adoption of such a system demands a government mechanism to regulate quality and price in the market, like the SBI in India.

Other institutional constraints in large cardamom trading were both tariff and non-tariff barriers while exporting large cardamom from Nepal to India and beyond. The Indian government does not impose a tariff when large cardamom is exported from Nepal to India. However, when large cardamom is exported to Bangladesh, both tariff

and non-tariff barriers are a problem. Bangladesh is physically the nearest country to India and offers a huge market for large cardamom, i.e., around 7 per cent of global import (see Table 7.2). Yet Nepal was unable to export large cardamom to Bangladesh because of the high tariffs the country imposes on Nepal. Bangladesh imposes tariffs of up to 55 per cent on Nepali agricultural products. In addition, agricultural exports from Nepal to Bangladesh require 78 types of documents, making the process very complicated and long. Despite Nepal and Bangladesh being geographically close, Nepal could not deliver large cardamom or other agri-products quickly because of the lengthy Indian customs process. Food quality compliance was a critical barrier to export large cardamom in India and beyond. Nepali traders must take food quality test certificate from the Indian government's approved laboratory in Kolkata. In the case of other countries, it would be harder and even more costly and time consuming.

Likewise, to facilitate the export of Nepali large cardamom and to increase its visibility on the international market, in 2016, the Nepal government registered the trademark: Everest Big Cardamom. Since then, traders exported large cardamom have used this trademark. Despite this, it has made no difference to trading and the visibility of Nepali large cardamom. This is because Indian traders replace the Nepali trademark with their own for re-exporting to Indian and international markets. In response to this issue, in 2017, the Nepal government awarded FLCEN a project to register a Nepali large cardamom trademark in India, Pakistan and the UAE. The rationale behind this was that if any overseas firm removes the registered Nepali trademark this would be a punishable legal issue. As of December 2020, the Nepali trademark was registered in Pakistan and was being registered in India and the UAE. It is not yet possible to see if the registered trademark will support large cardamom export and increase its visibility.

Policies and strategies adopted by the government of Nepal also have an influence on trading Nepali large cardamom. In Nepal, the execution of policies and strategies has always been challenging. For example, one activity mentioned in the large cardamom export strategy of Nepal, was the distribution of improved dryers to produce smoke-free large cardamom. The Ministry of Commerce awarded a project to FNCCI to distribute these dryers. PMAMP was also distributing improved dryers. But they were a failure because traders did not buy smoke-free large cardamom. One trader who was in the strategy development team, questions whether there was a market for

smoke-free large cardamom. However, he said that the other team members ignored him, and claimed that smoke-free large cardamom is good for health and was a better way to access the global market.

In summary, despite efforts that Nepali traders have made in export market diversification, for example, trademark registration, participation in business expos and other events, Nepal has made little progress. There are two main reasons for this. First, India provides a huge market together with an enabling export environment. This is due to the introduction of GST, soft provisions on food quality standards, easier access to market infrastructures and trust between the traders of both countries. On the other hand, Nepali large cardamom traders lack confidence that they could handle issues of food quality standards, access to the Indian market infrastructure for third country export, manage tax and tariffs and procedural complexities.

7.4 Recapitulation

Nepali large cardamom market diversification rose to prominence in response to the price fall since 2014/15. Traders also face a dilemma over how best to do this - growing the domestic market, keeping trading with India, or exploring the market beyond India. In the existing context, if large cardamom substitutes green cardamom by 100 per cent, the share in the domestic market would be 25 per cent. The domestic market promotion initiatives taken by the traders are good, but it is questionable if these would be continued were the price of cardamom to increase again in the international market. For Nepali large cardamom market beyond India, global trade figures for cardamom complicated matters further for Nepali traders as these figures represent all types of cardamom combined (large, green, white and others). Since India currently provides 99 per cent of the market for Nepali large cardamom, and India has created an enabling environment for trade, it would be difficult for Nepali traders to boycott India and export to third countries. Nepal needs to maintain a good relationship with India due to its landlocked geography and dependence on India for third country export. Moreover, Nepali traders are less confident of exporting large cardamom to developed countries which have strict food quality standards, high tax and tariffs, and complex procedures.

CHAPTER EIGHT

DISCUSSION AND CONCLUSION

In this chapter, I highlight the major findings of this research with regard to the questions at hand. Each finding is then discussed separately. Based on discussion, I draw conclusions for each research question. I then highlight the implications of this study for agricultural policy, planning and practice.

8.1 Discussion

This section discusses the key findings of this study presented in chapters four to seven. It is divided into four parts based on four research questions. This discussion starts with the question of whether commercial farming of HVA contributes to building resilient livelihoods for farmers, and, if yes, how.

Does HVA build resilient livelihoods?

My first finding is that farmers choose crops of higher economic importance (or HVA) over subsistence crops as these crops provide a better income and employment for living. In rural areas, there are limited opportunities to earn cash from non-farm activities. HVA provides an opportunity for both farmers and agri-based waged labour to make a living. Among HVA crops, farmers tend to choose the most profitable crop they can, regardless of its risks (Brown & Kennedy, 2005). In this case, large cardamom is more profitable than tea, broom, betel nut, ginger, coffee, and other agricultural products like honey, dairy and goat rearing in the study sites. This is the main reason that farmers have cultivated large cardamom as their preferred crop for the past 30 years (Rong Rural Municipality [RRM], 2019). It is also why large cardamom has expanded across the country within a few decades (MoALD, 2020). Acharya et al. (2021), Karki et al. (2020), and Kafle et al. (2021) also argue that the longevity of farming a particular crop depends on how long the crop can meet farmers' livelihood needs. Bhattarai et al. (2013) have also revealed from their study in Sikkim state of India that sustainable farming of large cardamom provides resilient livelihoods for farmers.

Large cardamom is not only the high-valued crop within the country. Cardamoms (all types combined) are one of the most profitable crops globally. Cardamoms are ranked in the top three most highly valued spice crops (value per unit volume) after Vanilla and Saffron (George & Cherian, 2017). In Nepal, it is called black gold or *kholsi ko sun* (gold of slopy terrains). Measure of cost benefit ratio also supports this argument. Shrestha (2018a) revealed the benefit and cost ratio for large cardamom is 3.06, which is higher than the cost benefit ratio of betel nut, broom, ginger, vegetables, tea, and other crops farmed in the study sites. Karki et al., (2020), and Kafle et al., (2021) revealed that when farmers are given a choice, they pick crops which provide them high economic returns within a short period of time.

Large cardamom is a high priority export led HVA crop of Nepal. Large cardamom contributes to a better standard of living for farmers and their dependents (Acharya et al., 2021). It is also a major source for bringing foreign money into the country. The share of large cardamom in total exports from the country in terms of value is around 5 per cent, which is significant (MoF, 2020). The government believes economic returns that large cardamom and other HVA crops provide to its farmers is the key driving force behind the rapid expansion of this sub-sector throughout the country. In the past ten years, from 2008 and 2018, the country's HVA sub-sector grew by 27.5 per cent in the production area, 44 per cent in production volume and 17.5 per cent in productivity (MoALD, 2020). This growth is higher than that of the agriculture sector in general. Like federal government, local governments have also given priority to HVA crops as they can build foundations to strengthen the rural economy. An example from the Rong municipality shows that the municipality exports HVA products worth more than NPR 0.5 billion per annum (RRM, 2019). This provides strong economic support for the municipality.

While HVA crops provide a good income, farmers will make intensive use of the land they have available for cultivation. Even if farmers do not have their own land, they can cultivate land for HVA crops by renting it from others. Although most farmers in the study area rely on large cardamom as their major source of income, they simultaneously grow other HVA crops as mentioned above to make optimum use of land. The reasons for this are, firstly, farmers want to maintain a regular flow of income all year around through production and selling. Secondly, this is the best way to use and

to keep available labour in farming. Thirdly, if one crop fails due to unforeseen causes, other crops can provide a backup for their livelihoods.

This finding is important in the context of leaving land fallow in the country's hills and mountain regions. Leaving land fallow is a serious challenge in a country where around 40 per cent of land once cultivated has now been left fallow (Karki et al., 2020; Ojha et al., 2017; Timilsina et al., 2019). Leaving land fallow was observed in areas where farmers were doing subsistence farming of traditional crops. Pande et al. (2017) demonstrates that farmers prefer to retain HVA through switching between crops of high productivity and high price. Based on my own findings and support from other evidence, I believe the way to address the issue of leaving land fallow is to encourage farmers to switch to HVA crops and create an environment for production and trading.

Another finding of this research is that when farmers have good income from HVA, they invest in building livelihood assets of their choice. This includes investing in quality education for their children. For example, farmers choose English speaking private schools in cities assuming these schools provide a better education than the public school in the village. Likewise, they go to private hospitals in cities saying that health facilities are more advanced than the local health centre in the village. Further, higher income also allows them to maintain a more diverse diet and take part in more social events. Finally, they can gather valuable assets and can invest in many other areas. This means income is the main factor which improves farmers' standard of living. This finding exactly fits with those of Kafle et al. (2021), and Karki et al. (2020). They found that recent development of agricultural value chains in hills and mountains provides space for small farmers and women to settle there and build a resilient livelihood.

When the basic livelihood needs of farmers are met, this slows the speed of out-migration. The out-migration from the farming households in the study sites is below 10 per cent (RRM, 2019), which is low in comparison to other areas. Shrestha and Nepal (2016), and Karki et al. (2020) revealed that farmers migrate when they lack adequate land for farming, and/or cannot support livelihoods because of a fall in price. In such situations, farmers leave agriculture for non-farm jobs whether within their locality or abroad. A UN (2020) report also states that out-migration is common when

farmers see risks in livelihood either from climate change or other economic risks. This also shows high income from HVA contributes to build adaptive capacity of farmers against the impacts of climate change (Brooks & Adger, 2004; Khanal et al., 2018), contributes to reducing poverty due to lack of employment opportunities (Brown & Kennedy, 2005; Dolan & Sorby, 2003; NPC, 2017b). Fei and Ranis (1964) model of rural urban migration claims that youth migration from rural to urban occurs until the agricultural outputs are less than institutional wages in urban area. Thus, income and employment are important factors to retain young people, particularly men in agriculture in general and in the village specifically (Acharya et al., 2021; Arain et al., 2018).

However, the benefits derived from large cardamom and other HVA crops are not proportionate among large and small farmers. This is because they differ in access to productive resources such as land, water, and finance. Small farmers also lack access to market information and do not have a good network of support. Thus, they have differing abilities to cope with the economic and environmental risks of farming (Pandey, 2012). For example, small farmers possess fewer resources for livelihoods than large farmers during times of economic or environmental risks. This matches with the findings of Sharma et al. (2017).

In such a context, small farmers have a higher chance to switch crops and/or out-migrate for job (Karki et al., 2020). Small farmers cultivating large cardamom for decades have also switched to vegetable farming in Rong due to price down. They chose vegetables because vegetables provide an income in short period. In addition, vegetables can be grown on a small piece of land and do not require much investment to start, compared to alternative crops available in the study sites. It's a kind of negotiation on choice of crops shaped by access to land (Sharma et al., 2014). Andreatta (1998) claims farmers make their own strategies to cope with possible economic and environmental risks.

While considering production, large cardamom is a more resilient crop because it is less dependent on external inputs for production. But when it comes to price, it is a highly price sensitive product. Though production reduces sharply in years of low rainfall and prices go down, this again provides a good income in comparison to other crops. This crop is produced without using chemical fertiliser and pesticides, which

farmers claim is organic (Acharya et al., 2021). However, when growing vegetables or other crops this is not the case. Instead, farmers intensively use chemical fertiliser, insecticides and pesticides, practice intensive land use for more production, cultivate high yielding varieties, practice haphazard irrigation, and use pollutant technologies to adapt to environmental or economic risks (Deshar, 2013; Karki et al., 2020; Shrestha & Nepal, 2016).

Price fluctuation is a serious issue while farming large cardamom and or other HVA crops. This issue is even more serious when it comes to export led HVA crop like large cardamom. In the last 6-7 years, large cardamom farmers have been faced with an unexpected drop in price. What the future price of large cardamom will be is also hard to predict. Despite this fact, most farmers have chosen to stay in large cardamom farming. If large cardamom had fewer economic benefits or higher environmental risks, farmers would have visibly switched to other HVA crops as an adaptation measure (Joshi & Joshi, 2019). Farmers have been doing this in similar context in other parts of the world as well (Amin et al., 2020; Poudel et al., 2017). In contrast, large cardamom proved to be a resilient crop in the context of a pandemic like COVID-19. There was no reduction in market demand or price, even though the supply chain was disturbed for 3-4 months due to lockdown in Nepal and India (Acharya et al., 2021).

However, large cardamom farmers possess a kind of fear that the crop will disappear from their area sooner or later. Behind this fear, they had already seen the disappearance of ginger during 1990s (KC, 2019), and there was mass dying of orange trees since 2017 in Salakpur. They have also seen large cardamom attacked by heavy disease in Ilam district ten years ago, though it was outside the study sites. Between 2005/06-2015/16, diseases in large cardamom damaged 40 per cent of the total large cardamom farming area in Ilam district (Personal communication with CDC officials at Fikkal, March 2018). On a positive note, large cardamom has gradually recovered in the area where it had been destroyed.

In the debate of crop resilience, some researchers put forward a different view that subsistence crops are future smart crops than HVA crops (Adhikari et al., 2021; Adhikari et al., 2019; Gauchan et al., 2020). This is because of their high nutritional values, maintaining of agrobiodiversity, resilience to climatic factors and efficiency in energy use in production cycles when compared to HVA crops.

Agricultural commercialisation is a priority for the Nepal government (NPC, 2019). Large cardamom is further a priority product of the Nepal government because it earns foreign currency (MoC, 2016, 2017). To facilitate commercialisation of HVA and to address the risks linked to HVA farming, Nepal government has provisioned for grants, subsidies, and insurance. However, the effectiveness of such policies is open to question. Farmers have a bitter experience of lengthy and complicated process they must follow to obtain such benefits. In the same vein, Dhakal (2019) claim that these policies have not benefited women and small farmers who often don't hear about such policies. In case they heard, they could not be able to complete the lengthy and bureaucratic procedures involved, and even if they manage to, the amount of support they get after is too small compared to the potential income they could get from selling the product.

In summary, farmers' choice of crops is based on the income and employment that the crops provide in relation to supporting their livelihood. While HVA crops provide livelihood support, farmers will not leave agriculture. In this case, issues of out-migration, feminisation of agriculture, and leaving land fallow are self-checked. Farmers cultivating HVA crops show a higher adaptive capacity in the context of economic and environmental risks (FAO, 2017). But HVA can be questioned on the gender dimension that the division of roles is not fair. The second part of discussion section delves into what is important in gender division of roles.

Does HVA challenge traditional division of roles?

Findings on the division of roles in the large cardamom value chain revealed that women overlap with men in production, and roles are gendered in post-production. Contemporary debates on the division of roles in agriculture claim that women do roles that are lower paid, less valued, have poor working conditions etc, and often paid work and women empowerment are contested (Adhikari, 2013; Kabeer et al., 2018). In the case of large cardamom, this claim is not true.

In production nodes of large cardamom, women have a very good percentage of participation. For example, 37 per cent of paid harvesting roles are done by women. This is a role traditionally done by men. This applies to other roles traditionally assigned to men too, and the reverse applies too. Now, there is a very good share of men in roles traditionally assigned to women. For example, 36 per cent of paid work in separation

of large cardamom pods is now done by men. Women now make up 46 per cent of paid labour in large cardamom, this means women are very close to getting the same wage labour opportunities as men. This change in the production sites indicates how gendered division of roles are breaking down over time (Acharya et al., 2020). But this does not apply in post-production nodes of large cardamom. This shows that there are certain factors that influence the division of roles in the large cardamom value chain.

The division of roles in large cardamom are linked closely to capabilities. In production, women participate in almost all the roles that men do, although at different proportions. Women who take roles in large cardamom production are traditionally assigned to men are assumed as these women possess the same capabilities as men. Based on this context, I argue that capabilities are not gender specific. If similar conditions are given to women, they can do what men are supposed to do.

Access to education and access to productive resources are influential factors that shape capabilities of men and women. Akter et al. (2018) argues that education (knowledge or skill related to role) is an important capability in choice of roles at both work and in the household. For example, budget for food, health, child education, managing family finances, decision-making etc. Access to education is also linked to income and provides chances to get more valued and better paid roles. Adhikari and Hobley (2015) argues that when women have a higher income, they can invest in education/skills and in other capabilities most relevant to the roles of their choice. Thus, women's conference in Beijing in 1995 identifies education as one of twelve common critical areas of concerns and that it influences other capabilities, i.e., mobility, access a job of own choice (Sevefjord & Olsson, 2001).

Similarly, access to physical resources and services are important capabilities where women fall behind men. When women lack such capabilities, this impacts their conversion of capabilities into functionings, i.e., an output from the role they have. Thus, men and women produce different outcomes. This was something I observed in large cardamom seedlings production in the study sites. The cause for such differential access to resources is rooted in the patriarchal system of Nepal. In this system, ownership of parental property first transfers to men (Bhadra & Shah, 2007; Johnson et al., 2016; UNDP, 2015b).

On a positive note, land entitlement in the name of women is increasing among farming households in Nepal. This is because Nepal government exempts 30 per cent land revenue tax to women. However, having this entitlement alone is not important when women do not have control over land in a real sense (Oxfam, 2019). Evidence from African countries have also revealed that access to land is important both in choice of crops and/or in the productivity of crops (Ajani & Igbokwe, 2011; Akter et al., 2018; Bomuhangi et al., 2011). However, I did not notice any gender specific access to land issues impacting production or productivity of large cardamom in the study sites. In large cardamom, the economic class of farmers, large or small, matters more to their production and productivity than gender and caste.

In similar situations, examples from outside of Nepal have mixed findings. In Uganda, men formally own land. Yet, this has an insignificant influence in taking joint decision related to types of crops to be grown, inputs to be used, crops to sell and making household expenses (Bomuhangi et al., 2011). But in Bangladesh, the situation is different. Rubin et al. (2018) finds that women farmers face constraints when they do not have entitlement over resources. Likewise, women farmers face legal discrimination and social pressures in accessing resources. When women are single and they do not have money, they could not enter certain value chain nodes (Rubin et al., 2018). Meinzen-Dick et al. (2019) also claimed that as men have more control over resources, women's expansion of capabilities is limited. Such differential access to resources is a major reason that women fall behind (Kabeer, 2001).

In contrast, when women have adequate resources, they possess higher bargaining power (Peterman et al., 2011), and can make investment decisions (Malapit et al., 2018). Giving an example of Sub-Saharan Africa, Akter et al. (2017) argues that differential access to resources for production and access to market means that men and women choose different crops. In Nepal, this is not the case, and is less relevant in the context of Nepal, although Farnworth et al. (2019) claim maize as a women's crop in southern part of Nepal. In large cardamom and in other HVAs in the study sites shows that women have equal access to family resources like agricultural equipment, and farmland, regardless of who has formal entitlement to these resources. However, women fall behind when they must manage inputs and technical services from outside.

Likewise, when it comes to taking agricultural loans for large cardamom or other HVA farming which require collateral, women are constrained. Ajani and Igbokwe (2011) argue that this is a common issue for women farmers of African countries. Women large cardamom farmers in Nepal face constraints due to social norms around land ownership, but productivity of large cardamom is the same. It is also irrelevant to large cardamom farming that woman concentrate in lower-value, less-marketed crops as claimed by Croppenstedt et al. (2013). But women are behind in communication, information and networking with market actors and stakeholders. Doss et al. (2018) claims that these are important capabilities which allow them to bargain for price with traders and increase their visibility and confidence in management roles.

Physical strength is an important capability in the division of roles at both production and post-production nodes of the large cardamom value chain. Women's participation is lower in roles that require physical strength such as irrigation, transportation, drying, load and unload, packaging, and others. Due to this, women's proportion of participation in these roles is lower. This is because when farmers have a choice, they prefer men as they perceive women as physically weak. Kabeer (2016), and Petermen et al. (2011) have also revealed that women's waged work outside home is constrained by physical demanding and personally demanding forms of work. In the South Asian countries where patriarchy is strong, for example, in Bangladesh, people don't believe that women could do as well as men, regardless of physical strength (Rubin et al., 2018).

Role related mobility is an important capability in choice of roles and functioning of roles. Overall, in the last 10-12 years, freedom of role related mobility has increased greatly in large cardamom production sites. But mobility of women depends on conditions, i.e., travel distance (high frequency in shorter distance), availability of means of transportation (high frequency when transportation service is easily accessible), condition of domestic responsibilities (high frequency when someone in the family shares), when there is no alternative member to go (in the context of mandatory travel), and the caste group they belong to (*Dalits* and *Janajati* are more liberal towards women's mobility).

Meinzen-Dick et al. (2019) also find that women's workloads and domestic responsibilities are common factors which limit their mobility and ability. Due to

mobility constraints, women were unable to benefit from their participation in higher nodes of the pigeon pea post-production value chain in Malawi (Me-Nsope & Larkins, 2016). Similarly in Bangladesh, women's mobility and visibility in agriculture is severely restricted outside the home (Aregu et al., 2018; Rubin et al., 2018). De Schhutter (2013) argues that mobility is one criterion for many women while choosing subsistence or HVA crops. The main reason for this is mobility constraint as many women prefer not to go to the local market to sell surplus product. In the case of large cardamom and other HVA products in Nepal, women prefer not to go to the market because they don't want to load and unload sacks and other packaged things. In addition, men do not facilitate women to go to market as they think women could not bargain well, and they also must bear domestic responsibilities in the absence of women.

Men out-migration is one factor that influences women's capabilities. This has enhanced women capabilities with regard to mobility, decision-making, financial management, and filling the wage labour gap, sometimes by taking on so called 'men's jobs'. Likewise, men out-migration has also brought women into managerial roles like inputs management, farm management, and taking public space and roles, which are also found by Farnworth et al. (2019), and Maharjan et al. (2012). On the other side, as Ajani and Igbokwe (2011) argue, men out-migration reduces certain capabilities of women. For example, they have poorer health, and decreased leisure time due to increased workload in farm and non-farm work, and less time to participate in religious and ritual activities. This is also true in the case of large cardamom. However, women are happy with this situation as it gives them an opportunity to gain important capabilities.

This study finds that when women organise in groups, they gain collective capability and can use this capability in their choice of certain roles. Women's collective capability helps them to gain inputs, in trading, in access to finance, increased mobility and speaking out against discriminatory practices in their community. This has already been highlighted by many researchers in this field (Clugston, 2014; Deere & Doss, 2006; Dongol, 2010; Markelova & Mwangi, 2010; Markelova et al., 2009). When women are organised in groups, this allows them to go collectively for paid jobs. Meinzen-Dick et al. (2019) claim that this is as an important step towards the

empowerment of women. Being a member of a group, women benefit from social and economic opportunities (Fischer & Qaim, 2012; Upreti et al., 2018) as well as they strengthen their collective and individual capabilities (Farnworth et al., 2019; Shiferaw et al., 2008; Stewart, 2013).

Roles in large cardamom value chain are gendered to the extent that social norms are influential. Social norms influence the distribution of resources among farmers by exerting influence on social structures and institutions (Kabeer, 2001). Farnworth et al. (2019) argue that social norms often constrain women in their choice of roles and can prevent women from meeting their immediate practical needs. Malapit et al. (2018) claim that social norms influence the shaping of preferences between men and women in relation to division of roles, resources, and choices. Alkire et al. (2013) argues that organisations working on the issues of agriculture and gender often fail to consider social norms as an influential issue which are context-specific, and society-specific, rather than general.

Rubin and Manfre (2014) argue that social norms are embedded very deeply at household, community, and national level. They shape institutions in a way that women and men have unequal ability to participate in and benefit from value chain development. In the same vein, Me-Nsope and Larkins (2016) find social norms impact the patterns of resource allocation, the division of roles and responsibilities, intra-household decision-making around the choice of crop, market participation, control over production assets and incomes, and influence women's incentives and benefits. Social norms also limit women from taking new roles because of their traditional responsibilities for household work (Doss et al., 2018).

In large cardamom farming in Nepal, social norms restrict women in the choice of certain roles during specific periods of time, for example, during menstruation, later stage pregnancy and the first few months after giving birth. This can be interpreted in two ways. Firstly, the 'impurity' of women, and secondly, that farmers are sensitive towards women's health during such times. Rubin (2018) says it is good when social norms influence the ability of farmers to lead healthy lives. In the Philippines, women face many health-related problems, such as back pain / body pain, due to heavy workloads. This burden is because of women's joint responsibilities for both farming and household work (Akter et al., 2018). I agree with Akter et al. (2018) that back pain,

common cold, fever and frequent sneezing is a common health problem among large cardamom farmers in Nepal. In addition, farmers get cuts from knives or sharp tools and fire burn injuries. Large cardamom wage labourers, particularly those who transport fresh large cardamom from farm to home, spend a huge amount on health treatments. This can put them at risk of poverty, which is also claimed by Bradshaw et al. (2018).

Regarding the issue of feminisation of agriculture, I claim that it is based on men's absence in farm work which is instead done by women. Evidence in this study does not support the claim of feminisation in large cardamom farming, rather it contributes to defeminisation. There is growing interest among returnee migrants in large cardamom and HVA crops, rather than going abroad again or doing a non-farm job. However, feminisation of agriculture is observed in subsistence agriculture in Nepal. As a result, women face an increased workload and time poverty (Gartaula et al., 2010; Khader, 2019; Maharjan et al., 2012; Tamang et al., 2014). Song et al. (2009) has similar findings among women farmers working in subsistence agriculture in rural China. In Rwanda, Ingabire et al. (2018) finds agricultural transformation contributed to feminisation of agriculture. This is because women must work with men on HVA crops and produce subsistence crops for family food.

This shows that the division of roles are shaped largely by capabilities. The opportunity to develop capabilities is further influenced by seen and unseen factors that women farmers are facing in different ways. As women large cardamom farmers have increased capabilities, this not only influences the division of roles. More importantly, it also contributes to changing gender relations. The following section discusses this topic in detail.

Does HVA contribute to change gender relations?

One of the major findings of this study is that large cardamom and other HVA crops contribute to changing gender relations. This study finds that gender relations are reshaped in terms of waged work, income, wage rates, and access to assets. Likewise, gender relations are also reshaped in terms of women's increased role in decision making, participation in public life, changes in intrahousehold relations and satisfaction with their own lives.

Starting with women's participation in paid work, this study finds women's proportionate participation in paid employment in large cardamom has grown to 46 per cent. This is far higher than the findings of the Nepal Labour Force Survey, 2017-18. The survey shows women's employment-to-population rate is about 23 per cent. This is 25 per cent lower than men's employment-to-population rate (CBS, 2019). Similarly, household earnings from large cardamom combined with other HVA has retained young people in agriculture, in the context of more than four million young people working abroad (MoF, 2019). The Labour and Employment Survey (Ministry of Labour, Employment [MoLE], 2016) confirms that abroad migration is comparatively low in eastern hill districts of Nepal, and these areas are known for farming HVA crops. Specific to the study site, men out-migration for jobs is only around 10 per cent (RRM, 2019). This suggests that men are equally involved in farming large cardamom and other HVA crops.

Women's participation rates in paid employment in HVA now close to men's, they are also getting equal wages for their work. Engagement of women in large cardamom co-relates with their paid employment and income generation. Women's employment and income has influenced the changing of the traditional belief that men are 'breadwinners' Aregu et al. (2018) states that men are considered 'breadwinners' and women as 'homemakers'. In this view, men have primary responsibility in agriculture, earning money and providing for their family. Women on the other hand have responsibility for housework, childcare, and for pleasing their husband. This kind of thinking does not exist in eastern hills of Nepal in contrast to what Spangler and Christie (2020) found in the hills of other parts of Nepal.

Increased income of women from HVA in Nepal corresponds to more personal and household assets and increased self-confidence leading to the empowerment of women (Acharya et al., 2020). Bomuhangi et al. (2011) find that women involved in HVA crops are better able to make family decisions in Uganda. Likewise, Alam (2012), and Kabeer (2012) find that women live better and get more social recognition. Family recognition increases when the contribution of women is visible in family food, health, and educational investments (Duflo, 2012). Thus, enhancing women's economic power is important as it enables women to take care of themselves, their families, and their communities (Meinzen-Dick et al., 2019).

The case of large cardamom shows that HVA provides space for spouses to work together and bear joint responsibility for being family breadwinners. This builds cooperation and trust between spouses and provides an environment which can bring women opportunities for mobility, group membership, control over assets and income (Acharya et al., 2020; KIT, Agri-ProFocus & IIRR, 2012; Meinzen-Dick et. al, 2019). The decisions related to investment in child education are important determinants for the child's wellbeing and creating a more equal and just society in future (Malapit et al., 2018). But in subsistence agriculture in Nepal, women's roles are less visible and less recognised (Adhikari, 2013; Bhadra & Shah, 2007), even when both the spouses have contributed equally (Diego & Quentin, 2010; Hill & Vigneri, 2011).

Thus, my own findings and evidence from other researchers confirm that commercial farming of large cardamom and other HVA crops, has a huge impact. Not only does it change the division of roles it changes overall gender relations too. Positive change in gender relations shows the way forward to achieving gender equality in agriculture. This change is rooted in the market of HVA crops. Any change in the market dynamics affects all the actors involved in the entire value chain. The final part of this discussion section assesses the market dynamics in the context of export led HVA crops of Nepal, with a focus on large cardamom.

Is access to world market is difficult for Nepali agricultural products?

For HVA products like large cardamom, market and price reshapes the whole value chain of the product. In large cardamom trading, farmers, traders, and other value chain actors have talked about market diversification since its unprecedented fall in price over the last 5-6 years. As year, there are few signs of the price rising again. Large cardamom value chain actors were happy in production and trading until 2014/15. Every year, prices were going up and each actor was getting an excellent price. From 2015/16, the price of large cardamom started to fall abruptly, affecting each actor involved in the value chain. It has forced everyone to think of new markets which could offer them a better price. This could help reduce Nepal's solo dependence on the Indian market, which gone on for more than a century (ITC, 2019; MoICS, 2019a).

Traders believe the Middle Eastern countries provide a huge market and prime price for Nepali large cardamom. However, my findings indicate there is scope in the domestic market. Large cardamom markets beyond India are unclear, and even where

a market exists, it can be hard to reach. Access to the market beyond India is largely constrained by issues that Nepali traders are unfamiliar with. These include food quality standards, transportation, export processes and procedures, tax and tariffs, infrastructure, and the capability of institutions.

Starting with the history of large cardamom trading, Nepal has export experience of more than a century. At that time, India was the only accessible market for Nepali agricultural exports. The issue of large cardamom export market diversification only increased after 2015. However, the GoN has made it a priority since the period of the Agriculture Perspective Plan (1995-2015). GoN prepared the 'Nepal National Sector Export Strategy: Large Cardamom 2017-2021' (MoC, 2017) and 'Nepal Trade Integration Strategy 2016' (MoC, 2016). The prime objectives of both strategies are to diversify Nepal's agricultural exports. However, five years after both these strategies were launched, there is still no sign of market diversification. I believe that these strategies are misguided regarding the market of large cardamom, specifically in relation to Middle Eastern countries. This situation is exacerbated by the non-implementation of trade-policies specific to land-locked countries (Sharma, 2015).

While assuming a high price and huge market in the Middle Eastern countries, Nepali traders and stakeholders did not consider the scope of large cardamom in the domestic market. My findings revealed there is huge potential for large cardamom in the domestic market if we can turn existing consumers of green cardamom to large cardamom. Data from ITC (2019) shows Nepal imported green cardamom (HS Code: 09083120) valued USD 9,008,000 from world markets in 2018. In the same year, Nepal exported large cardamom (HS Code: 09083110) valued USD 36,220,000 to the world markets. This shows that green cardamom on the Nepali large cardamom market is worth around one-quarter of the total export value of Nepali large cardamom. Since, large cardamom has similar taste and properties to green cardamom, and as large cardamom is cheaper (SBI, 2019), there is a great opportunity to flip current consumers of green cardamom to Nepali large cardamom. The FLCEN initiative to promote the domestic market, and recently established large cardamom- based spice company in Birtamod, could help to expand large cardamom in the domestic market.

The information regarding the large cardamom market outside India is less clear (Joshi & Piya, 2019; Mehta et al., 2015). This ambiguity is rooted on the common HS

code (090830) for all cardamoms at six-digit level. These HS code-based export and import figures provide only the combined information for all types of cardamoms (green, white and others) making it hard to trace the separate market for large cardamom (Joshi & Piya, 2019). There are also no market studies of Nepali large cardamom by the GoN or others in the countries recognised as potential markets. One feasibility study conducted by Bhutan in Kuwait revealed that the cardamom market in Kuwait is for green cardamom not for large cardamom, that Bhutan also produces (MoAF, 2017a). Bhutia et al. (2017) estimate that large cardamom has around a 20 per cent share in the world market. However, it is difficult to estimate the large cardamom market outside India, because India is a huge producer, importer, consumer, and exporter of large volume of both large and green cardamoms (Thomas et al., 2019). As one way to trace the large cardamom market, ICIMOD (2019) suggests a common geographical identifier to be collectively used by Nepal, India, and Bhutan. This could support large cardamom trading and increase the visibility of large cardamom (Joshi & Piya, 2019; MoAF, 2017b).

Market diversification of Nepali large cardamom, whether in domestic, Indian or world markets, requires certain market infrastructures. However, the GoN does not have enough resources to invest in market infrastructure. Establishing warehouses, upgrading existing food laboratories, and market research and development could increase the scope of Nepali large cardamom market diversification. Likewise, so could a shift in the traditional relation-based large cardamom trading system to a market-based trading system. For example, large cardamom auctions could benefit farmers. Bhutan and India already run auctions for cardamom trading. Both already provide warehouse services to farmers for free or at subsidised prices. In addition, they have proper rules in place and well-established institutions to facilitate large cardamom trading (Bhutia et al., 2017; MoAF, 2017b). Yet in Nepal, whatever rules, institutions, and infrastructures exist do not function properly because of poor governance.

Nepal also faces multiple constraints in the export of large cardamom in India and beyond. However, export constraints are softer in India than outside. Nepal's export of large cardamom to India is constrained by an Indian SPS certificate which Nepali traders must obtain from the designated Indian food laboratory. This increases cost and delivery time for large cardamom. As such, this practice conflicts with the SAFTA

Article 8 (a) which states reciprocal recognition of tests and accreditation of testing laboratories of contracting states and certification of products (SAARC Secretariat, 2004). On the positive side, India does not impose any duties for products of Nepali origin (Taneja et al., 2013). Moreover, the recent revision of the Indian tax system, GST has eased customs clearance procedures.

There are also malpractice issues in cardamom trading. Nepali traders believe that Indian traders mix Nepali large cardamom with low-quality Assamese and Bhutanese large cardamoms. Fraud with foreign trademarks is not uncommon in the cardamom sector. For instance, Indian traders were caught mixing cheaper Guatemalan cardamom with Indian cardamom to fetch higher prices on the Indian auction market (SBI, 2019). Similarly, Guatemalan traders were caught misusing the Indian trademark to label their own cardamom as Indian and fetch higher prices on the international market (George & Cherian, 2017). In such situations, the role of regulating institutions becomes prominent. In India, the SBI has authority to correct such malpractices, issue warning notices and even withdraw auction licenses. In the case of international trade, the SBI can file complaints with the World Trade Organization to protect their own trademark "Made in India" (SBI, 2019). But in Nepal, no similar authorised institution exists to monitor and regulate the quality and trade of cardamom.

Nepal's landlocked context poses major and unresolved constraints in the trading of large cardamom and other agricultural products in the world market. India has given access to certain Indian ground routes and ports to Nepal. However, due to the longer time that Nepali traders must spent in processing, it has weakened the competitive capacity of Nepali large cardamom. Access to neighbours' infrastructure is also dependent on the political relationship between the countries. Faye et al. (2004) pointed out the importance of cordial political relations between countries in accessing each other's market infrastructure. In the case of Nepal and India, Nepal cannot stand against Indian interests.

Even if the markets are available in the countries of the Middle East and West, stricter food quality provisions (SPS provisions) could be a major constraint. In other food products exported from Nepal, food safety institutions in these countries found salmonella, toxins, and unapproved colourants (USAID, 2018). Meeting the SPS is a serious constraint even for experienced exporters like China and India (Bhagat, 2019;

Dong & Jensen, 2007). As the SPS in many low-income and developing countries are weak (Geremy & Fernandez-Stark, 2016; ITC, 2017b; Janvry & Sadoulet, 2019), Nepal should have robust preparations to meet international food quality standards.

Nepali traders face procedural complexities and high tariffs. This has made Nepali large cardamom less competitive and has also limited the opportunities to connect with regional and global value chains. For example, Bangladesh applies 55 – 90 per cent tariffs to Nepali large cardamom (Government of Bangladesh [GoB], 2020), while Nepal imposes only 30 per cent tariffs on agricultural products imported from Bangladesh (Nabodit, 2019). In addition, the cumbersome documentation required by Bangladeshi customs authorities impedes the export of Nepali agricultural products to Bangladesh (Sah, 2019). These are common challenges for low-income countries (NBT, 2013; Pietrobelli & Rabellotti, 2011; Tallontire et al., 2011). However, these challenges can be addressed by building collaboration among trading institutions of Nepal and importing countries (Mohanty et al., 2019).

This shows Nepal's large cardamom market diversification dilemma is founded on collective issues related to clarity in markets, competitive capacity, and access to market infrastructures. In addition, the ability of Nepali traders to meet procedural and market requirements is also important, coupled with their interest, as Nepali traders feel comfortable trading large cardamom and other HVA products with India.

8.2 Conclusion

This section draws conclusions based on the discussions on the findings above. While the study presents the case of large cardamom, these conclusions thus derived, provide a broader outlook of the HVA sub-sector in Nepal. My first conclusion is commercial farming of large cardamom and other HVA crops positively correlate with building resilient livelihoods of farmers. For building resilient livelihoods, financial asset is a vital which HVA crops generate. Financial asset contributes to building other livelihood assets. At the time of uncertainties, these livelihood assets reinforce each other to provide secure livelihoods to farmers. Farmers when see secure livelihoods in farming, they often do not intend to switch into non-farm jobs. As HVA retains more youth, it checks the process of feminisation of agriculture. Commercial farming of HVA utilises land to its' optimum.

Large cardamom has a well-developed value chain which rests on cooperation and mutual trust among its' actors, whether they are small or large, and at which nodes they belong to. However, the share of benefit of small and women farmers is relatively low due to their limited access to productive resources. Though HVA crops are sensitive towards climate change, incidence of disease and pests, price fluctuations, the higher price these crops offer to farmers in comparison to traditional crops anyway support better in the livelihoods. A minimum impact on large cardamom during the turbulence of the COVID-19 pandemic demonstrates the example that HVA crops with long product life can survive even when temporary disruption occurs in the value chain.

My second conclusion is women's possession of similar capabilities as men and existence of the less-gendered roles in production nodes of agricultural value chains are positively inter-connected. While the existence of gendered roles in post-production nodes of large cardamom value chains is the influence of women's possession of differing capabilities to men. Even in the case of gendered roles, a positive change large cardamom has brought is in increasing proportion of women in highly paid and highly recognised roles in both nodes. The capabilities of women together with factors that influence capabilities shape women's participation in highly paid and highly recognised roles. The social norms still constrain women to develop roles related capabilities as men, and such constraints are more powerful in post-production as women are burdened with reproductive roles as well.

Choice of roles by women also depends upon personal context regardless of their capabilities. Behind women's preference to roles that require less mobile, less physical demanding and offer flexibility in working conditions suggests it is the result of women's reproductive roles. Gender equality does not mean equal participation of women in every role, or in the socioeconomic public spaces. It is linked to equal respect and recognition of productive and reproductive roles which they play. HVA extends the women's choice of productive roles and creates the context for men to share the reproductive roles.

The change in women's capabilities also changes the community's perception towards women. At the beginning of large cardamom farming, women who performed roles that were traditionally assigned to men were called men like and they felt proud. On this aspect, large cardamom and other HVA products have contributed to bringing

change. Still, there is a considerable gap in women's participation in roles that require specific capabilities, such as knowledge/skills, physical strength, mobility, resources etc. There are many underlying factors influence the division of roles and capabilities of women. Labour scarcity is one such factors which on a positive note creates space for women to fill the men's gap. On a negative note, it adds to women's workload. But it is important to consider how women feel about the trade-offs brought by HVA. The change in traditional labour use modality can also generate space for women for labour. In addition, this provides women co-working with men on the farm, and sharing household work at home.

My third conclusion is changing of gender relations in eastern hills of Nepal is the role of women's enhanced capabilities from their engagement in HVA. The specific aspect of change in gender relation is in the form of women's stake in family earnings, getting equal wages for the same work, men sharing reproductive roles, women's ownership in valuable assets, stake in decision making. Such changes in gender relations are founded in women's income and its' contribution to family. When women take roles traditionally taken by men, the hierarchy in role division becomes thin and gendered social norms become more flexible. This creates an open equal opportunity and equal recognition to women. The women's recognition of reproductive role and respect from family, freedom of choice, acceptance in public role brings a shift in intra-household relations. Women's association in groups and cooperatives are useful means to strengthen capabilities around leadership, access to finance, mobility, collective voice, mutual cooperation and others. In combination, these build women's agency leading to women's empowerment.

However, choice of roles is also shaped by other social factors- human diversity, social institutions, and social structures. Women who belong to *Janajati*, *Lepcha* and *Dalit* exercise more freedom of choice of roles as their socio-cultural norms are soft towards women than *Bramhin/Chhetri* and *Marwari* women. Women who work on small farms have more opportunity to join groups, wage work and mobility than women who work on own large farms. Some form of patriarchal beliefs exists in the society that women are less capable in firm management, intermediary and trading roles. Influence of such beliefs is also reflected on questioning on women's capabilities to manage finance, take risky business decisions, and link with buyers and suppliers.

My fourth conclusion is export market diversification is challenging because of land-locked situation, unclear market information and complex export requirements to fulfil. The claim that the large cardamom market outside of India rests on the misinterpretation of market data from ITC. Without having segregated market information for large cardamom, export related efforts ultimately fail. In addition, Nepali traders are less familiar with export requirements: food quality standards, tax and tariffs, export procedures that are required to reach the advanced world market. Until there is a large cardamom market in India, and until there is interest of Indian on Nepali large cardamom, export of it beyond India via Indian route is challenging because of unequal power relations. The enabling environment created by India for the export of Nepali goods by smoothening export procedures, relaxing on tariffs, granting access to major markets, and strict SPS provisions is another reason.

Considerable consumption of green cardamom, a close substitute of large cardamom, in the country suggests for domestic market potential. Realising this, few entrepreneurs have taken domestic market promotion initiatives. Yet, a note of caution must be sounded on whether such initiatives will continue because it is unclear how the farmers and traders will react if large cardamom prices go up again in the Indian market. Even if there is good expansion of domestic market of large cardamom, its expected consumption is only around 20 per cent in the present context. So, Nepal must be dependent on the international market. In this context, the way forward for large cardamom to reach in the world markets would be through specialization. Such specialization could be by highlighting its unique features and its geographic identification, sending processed spice, export finished low volume high value products through air cargo, and through extension services for the sustainable farming practices.

8.3 Implications of This Research

I believe this study contributes to the knowledge, policy and the practice. I suggest for planned response to potential risks from climate and market risks as current spontaneous response from farmers is not adequate for resilient livelihoods in future. A planned adaptation can include protection measures to farmers through grants, subsidies, insurance, and subsidised loans. I agree with government policy of commercialisation of HVA and suggest for initiatives to expand HVA throughout the hills of Nepal which can improve livelihoods of thousands additional farmers.

An exploration of customised technology for large cardamom harvesting, and processing could reduce production costs, improve quality and increase competitive capacity. Likewise, large cardamom promotion needs specific attention to extension services related to production (irrigation, quality seedlings, technology use), and marketing (warehouse, auction, information); development of market infrastructure (warehouses, accredited laboratories), and strengthening the research and development. An exploration on policy implementation aspect of HVA can point out additional gaps in policy and practice.

Government of Nepal has provisioned policies to achieving gender equality. The Local Government Operation Act 2017 (Ministry of Law, Justice and Parliamentary Affairs [MoLJPA], 2017) provisioned for the specific plans that contribute to women's empowerment and MoF has provided a guideline to track this. There is a question on quality of action on these provisions in the ground. A further study on this aspect could identify the operational level gaps. Likewise, in heterogenous communities with high gender-based discrimination, policies should aim to strengthen women's collective capabilities and mobilisation of local institutions to achieve that. At present, many of these institutions are concentrated on savings and credits, which is not envisioned by the Cooperative Act 2017 (Ministry of Cooperative and Poverty Alleviation [MoCPA], 2017).

I also suggest for a separate study to re-examine the market of large cardamom beyond India as the existing policies (Large Cardamom Export Strategy, and the NTIS Strategy) mis-interpret the market for large cardamom beyond India. Similarly, a clarity on contestation on the production of smoke-free large cardamom is required. It is worth to investigate why government initiative to produce smoke-free large cardamom and its export to the world markets has failed.

Finally, the capabilities approach and gender-sensitive value chain approach provided conceptual lens to understand gender inequalities in agriculture. In similar studies in the future, I suggest taking collective capabilities as conceptual lens to investigate the role of collective action, local institutions and social capital in building women's capabilities and responding to gender inequalities.

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ANNEXES

ANNEX I: Survey Questionnaire

Section A: General information

General information							
Name of respondent:							
Category:	Primary		Sec.				
Address:	Cluster		Tole		Phone No		
Gender	Male		Female		Other		
Ethnicity	Bra /Chhe	Rai	Limbu	Dalit	Lepcha	Newar	Others
Religion	Hindu	Buddhist	Christian	Muslim	Other		
Age	> 25	25-40	40-60	>60			
Marital status	Married	Unmar.	Single	Other			
Education level	lower second.	higher second.	under - grad.	post-grad.	literate		
Family members	Male	No	Female	No			
Working members	Male	No	Female	No			
In which node of value chain, you are working with?							
a. Production / immediate post-production			b. local collection / transportation			c. processing / trading	
If the answer is: ‘a ‘continue with section B1; if the answer is: ‘b’ continue with section B2 and if the answer is: ‘c’ continue with section B3.							

Section B1: at production / immediate post-production level

What is the size of land you hold for agriculture (local unit: ropani; converted into hactare)?	None	< 5	5 to 10	10 to 20	> 20
How much land do you have cropped with large cardamom?	None	< 5	5 to 10	10 to 20	all land
How much land do you have cropped with other cash crops?	None	< 5	5 to 10	10 to 20	all land
Do you have land cropped with traditional crops? If yes, what is its size?	None	< 5	5 to 10	10 to 20	>20
How much large cardamom do you have produced last year (year: 2018; local unit: maund; converted into kg)?	None	<100	100 – 400	400-1000	1000
Did you hire labour to work in your farm in past twelve months?		Yes	No		
If yes, how many were males and how many were females?		M	No	F	No
Do you consume large cardamom for domestic use?		Yes	No		

If yes, what is the amount in Kg?					
If yes, what is the trend of consumption?		Increase	Decrease	Indifferent	Don't know
How much large cardamom did you sell last year?	None	<100	100 – 400	400-1000	>1000
How do you sell your large cardamom? If yes, you sell for,		Single time	multiple times		
Where and to whom do you sell your large cardamom?		from home	collection centre	trade centre	combined
Could you please tell the maximum and minimum price you got per kg last year?			Max. Rs.	Min. Rs.	

Section B2: at local collection / transportation level

How much large cardamom do you collect round the year (in Kg)?	< 2000	2000 -5000	5000-10000	>10000	
What is the mode of collection	farmgate	farmer brings	through agent	In combination	
What is the mode of trading of collected large cardamom?	to traders	to trader's agent	through middleman	In combination	
What price do you offer to the farmers for large cardamom?	FLCEN rate	own rate	negotiated rate	other	
How do you make the payments?	in advance	immediate after purchase	immediate after sale	either mode of payment	
what are the activities you carry-out at the collection centre?	cleaning	grading	packaging	labelling	transportation
How do you sell your large cardamom?	one time		multiple times		
Where and to whom do you sell your large cardamom?	from home	collection centre	at trade centre		Others
Could you please tell us the maximum and minimum price you got per kg last year?	Max. Rs.	Min. Rs.			

Section B3: at processing / trading level

How much large cardamom do you trade in a year (unit: 1000 kg)?					
Who bring most of the large cardamom at yours?	farmers	local collectors	own agents	others	
Out of total traded large cardamom, what was the share of trade (in % in domestic and in international market?		domestic		international	
What is the trend of trading of large cardamom in domestic market?	increase	decrease	constant	cannot say	

What price do you offer to farmers/ intermediaries for large cardamom?	FLCEN rate	own rate	negotiated rate	either way	
How do you make the payments?	in advance	immediate	after sell	either way	
What value addition works you carry-out at trade centre?	Head-tail cutting	Cleaning and grading	packaging	labelling	Others
How do you sell your large cardamom?	one time		multiple times		
Could you please tell us the maximum and minimum price you got per kg last year?	Max. Rs.		Min. Rs.		
How do you get the payments?	in advance	immed	In 1 month	In 1-3 months	>3 months

If respondent is working at production/ immediate post-production level, continue with Section C1. If respondent is working local collection / transportation level, go to Section C2 and if respondent is working at processing / trading level, then go to Section C3.

Section C1: at production and immediate post-production level

Who participates in the roles (self-employed / hired both) stated below and what are their respective numbers?	Male No	Female No		
land preparation				
nursery				
seeding / plantation				
weeding and cleaning				
irrigation				
harvesting				
transportation from farm to home				
warming of fresh large cardamom				
separation of pods				
drying of large cardamom				
packaging				
transportation (to collection centre, trade centre				
sell of Cardamom				
other				
Who often goes to sell the large cardamom	Male	Female	Both	
What is the basis for participation for male and female in the stated roles mentioned above? If you agree, click to yes and do not agree, click no	M / Yes	M / No	F / Yes	F / No
roles need relatively more strength				
related to skills				
outdoor mobility				
need time flexibility				
simple math skills				

educational qualification				
flexibility in working conditions				
personal interest				
others				

Section C2: at local collection / transportation level

Who participates in the roles stated below and what are their respective numbers?	Male No	Female No	
Labour role			
cleaning			
grading			
packaging			
labelling			
weighing			
load and unload			
storage			
transportation			
Management role			
management of inputs			
making payments			
keeping records			
making procedural docs (if needed)			
price negotiation			
labour management			
logistics arrangement for transportation			
approach to support institutions			
Others			
Who often goes to sell the large cardamom	Male	Female	Both

What is the basis for participation of male and female in the stated roles mentioned above?
If you agree, click to yes and do not agree, click no

	M / Yes	M / No	F / Yes	F / No
roles that need more strength				
related to skills				
outdoor mobility				
time flexibility				
simple math skills				
educational qualification				

personal interest				
flexibility in work conditions				
Others				

Section C3: at processing / trading level

Who participates in the roles stated below and what are their respective numbers?	Male No	Female No	
Trading level			
daily buying and selling			
keeping records			
making daily transactions			
labour management			
making payments			
banking works			
preparing official documents			
logistics arrangement for sale			
dealing with government officials / business parties			
supervision			
.....			
Others			
Processing level			
cleaning			
head and tail cutting			
grading			
packaging			
labelling			
load and unloads			
.....			
others			

What is the basis for participation of male and female in the stated roles mentioned above? If you agree, click to yes and do not agree, click no	M / Yes	M / No	F / Yes	F / No
roles that need strength				
related to skills				
outdoor mobility				
time flexibility				
simple math skills				
educational qualification				
personal interest				

flexibility in work conditions				
others				

Section D: Data on factors that influence participation of women

If the respondent is working at production / immediate post-production level, continue with Section D1. If the respondent is working at local collection / transportation level, go to Section D2 and if the respondent is working at processing / trading level, continue with Section D3.

Section D1: at production / immediate post-production level

Influence of social norms and values

How do you rate the level of influence of social norms and values in your participation? Please rate 1 for maximum influence and 5 for zero or no influence.					
How do you rate the level of influence of following factors for your participation in the value chain?					
	fully restrict.	mostly restrict.	res. at certain level	mostly non-restrict	non – restrict.
role related to mobility					
ownership of land					
productive assets					
access to credits					
participation in social groups					
education / skills					
others, if any					

Influence of risks and gains

For your participation, how do you perceive the risk of following factors? Please rate 1 for extreme risk and rate 5 for zero or no risk.			
crop failure due to attack from insects/ pests and diseases			
management of inputs			
loss of investment due to price down			
harm to personal health			
availability of human resource			
access to information			
access to technology			
access to finance			
safety / security			
For your participation, how do you perceive the influence of following factors? Please rate 1 for very high influence and 5 for zero or no influence.			
income			
investment in health			
investment in education			
building assets – home, land purchase			
food and other daily requirements			
gain knowledge / skill / exposure			
role recognition			
membership in social networks			

Section D2: at local collection / transportation level

Influence of social norms and values

How do you rate the level of influence of social norms and values in your participation? Please rate 1 for maximum influence and 5 for zero or no influence.					
How do you rate the level of influence of following factors for your participation in the value chain?					
	fully restri.	mostly restrict.	res. at certain level	mostly non-restrict	non – restrict .
role related to mobility					
ownership of land / productive assets					
access to credits					
participation in social groups					
gain knowledge / skills					
participate in public events					
participate in community decisions					
Others					
Influence of risks and gains					
For your participation, how do you perceive the risk of following factors? Please rate 1 for extreme risk and rate 5 for zero or no risk.					
attack from insects/ pests and diseases					
shortage of water					
availability of inputs					
weather conditions					
fluctuation in price					
risks related to personal health					
availability of human resource					
access to information / technology					
access to finance					
workplace security / safety					
others, if any					
For your participation, how do you perceive the influence of following factors? Please rate 1 for very high influence and 5 for zero or no influence.					
income					
investment in health					
investment in child education					
building assets – home, land purchase					
food and other daily requirements					
knowledge / skill / exposure					
social recognition					
others, if any					

Section D3: at processing / trading level

Influence of social norms and values

How do you rate the level of influence of social norms and values in your participation? Please rate 1 for maximum influence and 5 for zero or no influence.					
How do you rate the level of influence of following factors for your participation in the value chain?					
	fully restri.	mostly restrict.	res. at certain level	mostly non-restrict	Non – restrict.
role related to mobility					
ownership of land / productive assets					
access to credits					
participation in social groups					
gain knowledge / skills					
participate in public events					
participate in community decisions					
Others					
For your participation, how do you perceive the risk of following factors? Please rate 1 for extreme risk and rate 5 for zero or no risk.					
attack from insects/ pests and diseases					
shortage of water					
availability of inputs					
weather conditions					
fluctuation in price					
risks related to personal health					
availability of human resource					
access to information / technology					
access to finance					
work place security / safety					
others					
Influence of risks and gains					
For your participation, how do you perceive the influence of following factors? Please rate 1 for very high influence and 5 for zero or no influence.					
income					
investment in health					
investment in child education					
building assets – home, land purchase					
food and other daily requirements					
knowledge / skill / exposure					
social recognition					
others					

Section E: Capabilities of women and choice of roles

Capability in decision making

Did you have inputs on decisions about land acquisition?	NI	VLI	IISD	IIMD	IIAD	NA
Did you have inputs on decisions about use of technologies?						
Did you have inputs on decisions about farming, weeding, harvesting of large cardamom?						
Did you have inputs on decisions about labour?						
Did you have inputs on decisions about production / value addition/ sell of product?						
Did you have inputs on decisions on the education of your children?						
Did you have inputs on decisions about labour of family members?						

NI – no input; VLI – very limited input; IISD – Input into some decisions; IIMD – input into most decisions; IIAD – input into all decisions, NA – not applicable

State of access to resources / assets

Do you and your spouse keep what you earn together?	Keep together		Keep separate		NA	
Do you have any money you can decide what to spend on?	Yes		No		NA	
Could you decide whether you could work outside the house?	Yes		No		NA	
Who is the owner of the house you live in?	you	spouse	joint	rented	Other	NA
Who owns most of the productive resources of you home?	you	spouse	joint	other	NA	
If your family needs to buy assets e.g., furniture, motorbike, from the market, who would decide what to buy?	you	spouse	joint	other	NA	
If your family needs to buy productive assets related to farm / business, who would decide what to buy?	you	spouse	joint	other	NA	
Who usually makes decisions about making purchases of assets for daily household needs?	you	spouse	joint	other	NA	

State of leadership / collective capabilities

Are you a member in groups / networks?	Yes	No	Na			
If yes, in what type of groups / networks you are member in?	Co-oper.	Agri-co-op.	Product based	Religious	Saving credit	Informal
Of all these groups, which one is the most important to you?						
Do you often participate in meetings / events organised by this group?	almost never	only occasionally	Quite often	NA		

Do you often have an opportunity to speak in public?	almost never	only occasionally	Quite often	NA		
Do the members in your group / network help (may need financial support) you at the time of need?	Yes	No	NA			
In the past 12 months, you or any member from your family participated in any activity for the benefit of community?	Yes	No	NA			
In the past 12 months, you or any member from your family got together to jointly petition government officials or political leaders for something benefiting the community	Yes	No	NA			
Do you feel that you have power to make important decisions that change the course of your life? Rate yourself at a scale of 1 to 5	1	2	3	4	5	NA

1- No power to make important decisions 2. Little power to make important decisions 3. Some power to make important decisions 4. Significant power to make important decisions 5. Full power to make important decisions

ANNEX II: In-depth Interview Guide

Theme: General information

General information of participant

Name:	Village/tole:	Gender:
Caste/Ethnicity:	Age:	Education:
Contact no:	Date:	

Household information: Members in the household, their roles

Household head: age, gender, main roles

Main sources of livelihood- farm and non-farm

Members in farm and non-farm jobs, abroad migration

Theme: Value chain development

Sub-theme: Farm production

- Farmland characteristics and main agricultural crops
- Farmers' characteristics
- Inputs required and access to them- irrigation, fertiliser, ...
- Total production, household consumption and sale
- Production issues- labour, climate change, market, Covid, disease, pest attacks

Sub-theme: Farmers' livelihoods and livelihood risks

- Sources of farm and non-farm income, share of LC in family income
- Employment generation, and forms of employment in farming
- Contribution of livelihoods
- Social, economic and environmental risks
- Livelihood implications and adaptation strategies

Sub-theme: Local value addition and trading

- Large cardamom drying- inputs, technology, costs and other requirements
- Household consumption, use and sale
- Mode of trading- village intermediaries, district intermediaries, direct sale
- Logistics and transportation- mode, distance, procedures, difficulties
- Price, payments, price fluctuations and its' implications

Sub-theme: Relationship mapping

- Relationship among horizontal and vertical actors
- Mapping stakeholders at different nodes with roles
- Perception with regard to engagement with stakeholders

Theme: Gender division of roles

Sub-theme: Roles in production and post-production

- Lists of roles in production, and post production
- Men dominant roles and women dominant roles
- Division of roles and basis of role division
- Any specialised roles for men and women
- Wages given to men and women, and its' basis
- Women in non-farm roles and wages
- Social norms regarding the division of roles, wages

Theme: Gender relation

Sub-theme: Women leadership and decision-making

- Women in farm roles and farm decision-making
- Perception with regard to role division and household relations
- Women in household roles and household decision-making
- Women in public roles/ public decision-making
- Membership/ leadership role in public institutions and role performance
- Opportunities and constraints in public participation
- Change in societal/ family perception after taking public roles

Sub-theme: Women's access to finance

- Access to financial resources
- Household earnings, expenditures, personal expenditures
- Financial record keeping, holding family money
- Family financial transactions- it's nature and amount
- Family financial decision making

Sub-theme: Women's access to non-financial assets

- Access to physical assets/ services- land and others
- Assets of transportation (e.g., motorcycle, pickup vans, jeep, tractors)
- Valuable physical assets (land, house, gold, TV, furniture, others)
- Communication assets: mobile and internet, television and radio

Sub-theme: Access to services

- Services: drinking water, health service, educational institutions, road, electricity
- Access to technical and business services
- Women's contacts with government, non-government and private institutions

Theme: Women capabilities and division of roles

- Specific firm and associated roles that men and women do
- Specific capabilities that such roles require
- Capabilities constraint in choice/performance of roles
- Role of physical strength, health, skills/education, distance, work conditions, wage rates in division and performance of roles of women
- Capacity enhancement opportunities or constraints to women
- Role of social norms in role division, asset ownership, capabilities
- Organizations that support in women's capacity development

Sub-theme: Power relation among men and women

- Farmers perception about change in gender division of roles
- Men and women sharing each other's farm and household workload
- Family perception on women's earning, role in decision-making, public participation and relation among household members
- Overall perception of women on these changes

Theme: Market diversification

Sub-theme: Opportunities in the domestic market

- Perception towards domestic market
- Scope in the domestic market, its' form, use, price
- Presence of competitors (green cardamom)
- Initiatives taken to promote domestic market

Sub-theme: Existing trade with India abroad

- Reflection of trading large cardamom in India- relationship, opportunities and difficulties
- Procedures and logistic requirements, access to infrastructures
- Reflection on Indian dominance in the market
- Reflection on price

Sub-theme: Procedural requirements

- Legal and procedural compliances to be fulfilled

- Taxes/certificate of origin/food quality test certificate
- Customs clearance/access to market infrastructure

Sub-theme: Access to abroad market

- Scope of large cardamom in the world market
- Initiatives in access to the world markets
- Competitive capacity- quality, quantity, price, delivery time
- Issues of food safety, mix of extraneous matters
- Market infrastructure- opportunities, constraints, alternatives
- Prior attempts to export market diversification and potential opportunities
- Export requirements, preparations, and Nepali traders' capacity
- Competitive in the world market, geo-location of Nepal
- Role of government, non-government, private, and donor organizations

Theme: Policies and practice

- Existing policies in practice regarding large cardamom
- Promotional activities for large cardamom in the country
- Relevance of large cardamom policy
- Different cardamoms in the world market

ANNEX III: Focused Group Discussion Guide

- Farming and livelihoods in the intersection of farm size, caste/ethnicity, gender
- HVA/large cardamom in livelihood assets building
- Non-farm sources of livelihood of farmers
- Women's role in farming, reflection of change- then and now
- Women in leadership, management, decision-making roles- then and now
- Perception on factors for these changes
- Access to and decision-making: inputs, credit, technology, decision making on storage, marketing, etc
- Opportunities and constraints in HVA/large cardamom
- Women's access to and control over resources of production
- Capabilities and constraints to women in taking roles
- HVA/large cardamom in enhancing women's capabilities
- Risks/challenges in the involvement of women trading/marketing
- Reflection on social norms regarding firm and non-farm roles
- Perceptions about wage rates, work conditions, safety
- Role of women's group in addressing capabilities constraints
- Women's preference on groups, position, and contributions
- Women in public role- acceptance, influence, and change