GENDER AND GENERATION IN SAFE VEGETABLE VALUE CHAINS IN NORTHERN VIETNAM

HANOI 2018

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1. Introduction

Gender and generation dimensions of agricultural value chains play important roles for rural economic growth and poverty reduction in Vietnam. Recently the labor structure in agricultural production of Vietnam has been changing. In term of age, it has become increasingly common to see young and educated labourers moving away from the agricultural sector and migrating to cities. With the young and dynamic labour force leaving the countryside, Vietnam's agricultural productivity, entrepreneurship and force for change is undermined. A recent study has shown that youngsters have a negative perception of agriculture (Voice Of Vietnam, 2017). Agriculture is considered only with subsistence farming, demanding work, and poverty. Creating more opportunities for the youth in agri-business is one of the challenging tasks for development agencies set for themselves in their new programme.

Agriculture is an important sector in the economy of the most developing countries in the world. The economy of Vietnam depends on agriculture which accounts for more than one-quarter of the GDP, provides 85% of exports and employs about 60% of the work force (GSO 2011). However, the contribution of agriculture to farmers' income and rural development depends on the active participation of youth who are the potential labour force. They are characterized by innovative behaviour, minimal risk aversion, less fear of failure, less conservativeness, greater physical strength and greater knowledge acquisition propensity (Leavy and Smith 2010). In Vietnam, according to the 2012 census youth constitute about 35.5% of the population (UNFPA 2012). At the same time, according to the FAO (2014), agriculture has the potential to create close to 1 million new jobs by 2030, of which about half would be in the smallholder sector, largely meaning self-employment. However, there is a common perception in Vietnam that the youth[1] are not choosing to take up agriculture either as a career or as a key component of a livelihood strategy. The non-interest of the youth in agriculture is firstly exacerbating the youth unemployment crisis, and second, that the already low levels of agricultural activity in the former homelands are likely to drop further, imperiling any hope for rural development in the future. Young people living in rural areas are forced to migrate to cities as they do not find enough incentives, profitable economic opportunities and attractive environments in rural areas.

[1] For purposes of this article, 'youth' is used synonymously with 'young people' which is defined between the age of 16 and 35 as Youth Law 2011 UNFPA (2012). "Youth Law and Vietnamese Youth Development Strategy 2011-2020." '

In term of gender, in rural areas, 70% of rural households continue to rely on agriculture for their livelihoods and the sector continues to provide a safety net for the rural poor, particularly for rural women (ADB, 2012). Also, up to 64% of women versus 53% of men are engaged in agricultural production (JCA Vietnam, 2015). The gap between men and women is growing bigger as a consequence of industrialization where male labourers are moving to the industrial sector. A 2017 study carried out by SNV using the Women Empowerment in Agriculture Index (WEAI) methodology showed that on average, the Vietnamese rural women interviewed as part of the study spend about 20% more time than men on productive and reproductive tasks, including 4 hours a day on reproductive activities, compared to 1.1 hour a day for men. Furthermore, SNV's study highlighted that rural women's capacity for entrepreneurship is limited by a series of gender-related structural barriers such as women's limited access to productive resources due to gender norms that govern the ownership of assets, lower access to production techniques, low levels of financial literacy and limited skills and confidence.

Without a thorough understanding of the opportunities, constraints and barriers faced by youth and women to effectively participate in and benefit from agricultural value chains, and without knowledge of the tools and methodologies that exist to address them, it is challenging for development agencies to design and implement a meaningful approach on gender and youth in its programme. In addition, it is of critical importance that researchers and students develop knowledge and expertise on how to integrate these issues in their research agenda. Only then will they be able to take those issues up and act upon them.

This research is carried out in the framework of cooperation between Department of Rural Economics and Development, Gembloux Agro-Bio-Tech, Liege University (ULG), Faculty of Political and Social Sciences, Vietnam National University of Agriculture (FPSS-VNUA) and Rikolto, Vietnam supported by ARES-CCD, Belgium. The report covers the main characteristics and drivers of gender and generation participation in safety vegetable value chain in Vinh Phuc province, Northern Vietnam.

2. Objectives

The overall goal of this research is to foster the inclusion of youth and gender concerns in development research & projects on agricultural value chains in Vietnam. The specific objectives of this project are:

- To overview the theoretical approaches on integrated gender and generation in agricultural value chain,

- To analyze the constraints, opportunities and challenges preventing equal participation and benefits for women and youth in vegetables value chains in Northern Vietnam.
- To identify best practices, tools and approaches to improve the gender-sensitiveness and youth inclusion of agricultural value chains;

3. Theoretical approaches on gender and generation in agricultural value chain

Value chains have become a crucial concept in development strategy especially in the context of globalization's impact on employment and poverty reduction in the developing countries. Meanwhile, gender equality and the youth's empowerment also feature high on the development policy agenda. Certifying that gender and generation issues are taken into consideration in value chain-related is vital for facilitating the development that would sustain rural development.

However, knowledge among practitioners and policy makers on the gender and generation aspects of value chain interventions is still limited. Integrating gender, generation and value chains has been a challenge to gender, generation and value chain practitioners because literature on these subjects are often presented in commonly exclusive spheres of knowledge and practice. To address this epistemological contest, this review section aims to surge understanding of the effect of gender and generation relations on roles of different actors and on interactions among actors within and across various nodes of value chains. Some documented barriers include low access to markets owing to cultural seclusion of women (Waldie 2006, Farnworth 2011) reduced income control by women and youth with increased commercialization (Riisgaard, Fibla et al. 2010, Njuki, Kaaria et al. 2011) and lower access of women and youth to resource (Parpart, Rai et al. 2003, White 2012). These barriers influence the level of entry in nodes/value chains and an actor's capacity to compete with other actors. However, while the gender-sensitive value chain approach increases visibility of men's and women's roles in various nodes and gender specific barriers to entry and opportunities for growth; there is no approach specific for youth intervention in value chain.

The review starts with brief descriptions of gender, generation, value chains and value chain analysis. The next section covers the rationale for gendered value chain analysis and integrating gender in value chain development, analysis. The review ends with the rapid assessment tools for evaluating gender in value chain analysis. Outcomes of these rapid assessment tools may be used to narrow the gender gaps along the value chains which would raise the requirement for deeper investigation during a more detailed value chain analysis.

3.1 Definitions and concepts

3.1.1 Value chains

The value chain concept describes the full range of activities that firms, farms and workers do to bring a product from its conception to its end use and beyond. In this report, value chain applied the definition of Kaplinsky and Morris (2000) "*all activities that are requisite for bringing a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use*"

The term '*chain*' implied that most products and services are the result of a series of activities at internal nation or international level (Farnworth 2011). The complex network of activities carried out by different actors in multiple system along a value chain implied the importance of the activities that individuals are involved in and how they are linked together through services[2] (Arndt and Kierzkowski 2001). Embracing the value chain approach as a development strategy offers an opportunity for all actors to understand each other's functions and the activities involved; increase their capability, visibility, voice and market share; and classify and correct barriers and gaps that cause inadequacies(Riisgaard, Fibla et al. (2010).

Value chains can either be market driven or relation-based depending on the form of governance they adopt (Farnworth 2011). Market driven value chains are those for whom price is the determinant of who the actors will be and how long their transactional relationship will last. Relational value chains are those in which lead actors, such as producers in dairy cooperatives, buyers in contract farming for chicken or and intermediaries (exporters) in tea, coffee and horticultural trade determines the transactional framework within which other actors will work, resulting in producer-driven, buyer-driven, or intermediary-driven relational value chains respectively.

The value chain concept was articulated and popularized in 1985 by Michael Porter in the "*competitive advantage"*, a seminal work on the implementation of competitive strategy to achieve superior business performance. Porter (1985) defined value as the amount buyers are willing to pay for a products, and he conceived the 'value chain' as the combination of nine generic value added activities classified as primary and support. Primary activities are composed of inbound logistics, operations, outbound logistics, marketing and sales and services. These five activities are considered primary because they are closely linked with

[2] such as transportation, insurance, telecommunications, quality control, and management coordination

creation or delivery of a product or service. The support activities are four and include infrastructure, human resource management, technology transfer and infrastructure to improve value chains efficiency. Another form for value chain is Global value-chain (GVC) popularized by Gereffi and Korzeniewicz (1994) which explores how the linkages between the production, distribution, and consumption of products are globally interconnected along value chains, and is an important framework for analysing economic development in the context of globalisation (Gereffi and Korzeniewicz 1994).

3.1.2 Value chain analysis

Value chain analysis has emerged since the early 1990s as a novel methodological tool for understanding the dynamics of economic globalization and international trade. Rubin et al. (2008, 13) described value chain analysis (VCA) as '*the process of documenting and analysing the operation of a value chain, and usually involves mapping the chain actors and calculating the value added along its different links*'. Value chain analysis is also perceived as a means of understanding trade at the global level (Riisgaard, Fibla et al. 2010) as well as strengthening systemic competitiveness (Kaplinsky and Morris 2000). It identifies vertical and horizontal components in a system of stages/nodes of physical transformation processes that are inter-linked by transactions that occur either in the same firm or between firms in similar or different geographic locations(Mayoux and Mackie 2007). However, the approach focuses on 'vertical' relationships between buyers and suppliers and the movement of a good or service from producer to consumer. The value chain construct has emerged as a popular approach because it provides an analytical tool to address these challenges and to shape implementation of agricultural programming. Value chain analysis is used to clarify market relationships, coordinate the delivery of inputs, improve information flows, and monitor the quantity and quality of products. As value chains have gained in popularity as an organizing framework for coordinating agricultural market relationships, because it pays attention to the complex interactions of income, value added across the chain and how these are distributed within particular points of the chain and across the different levels of the chain. A numerous bilateral and multilateral aid organizations adopting value chain analysis approach to guide several of their development interventions. A wide range of donor-led activities are now labelled 'value chain interventions' or 'value chain development' initiatives.

3.1.3 Generation/ youth

Generation is defined as "the social (or macro-) structure that is seen to distinguish and separate children [and youth] from other social groups, and to constitute them as a social category

through … particular relations of division, difference and inequality between categories" (Alanen and Mayall 2001, Koning 2004). In term of youth, White (2012) stated that youth is socially constructed, not biologically fixed; its meaning and boundaries vary: over time, between societies and within societies(White 2012). Therefore, all age-based boundaries of the categories of youth, whether established by UN agencies or by national governments, are subjective and problematic. Youthood is coming to be increasingly defined by as a transition from childhood to adulthood and being the process of being independent from parents economically and socially (Bennell and Hartl 2010, Leavy and Smith 2010). Theories of youth proposed to study youth in different dimensions: youth as action, youth as (sub)cultural practice, youth as identity, youth as generation(Jones 2009). This last dimension, the generational one, underlines the importance of a relational approach, seeing youth in terms of the dynamics of their relationship with others (adults) in larger structures of social reproduction

Taking a youth perspective on several of the key challenges to development work provides new understandings and insights to complement and inform our existing tools for value chain analysis. Investigating intergenerational aspects of asset and resource ownership and management such as inheritance, provides an important entry point, alongside gender, with which it is possible to go beyond the household level to explore the dynamics of intra-household relationships.

3.1.4 Gender

In this report, gender is conceptualized as the socially constructed difference between women and men (Kabeer 1999) . Thus gender is about how society gives meaning to differences in femininity and masculinity, and the power relations and dynamics that come about as a result of this (Laven and Verhart 2011). Njuki, Kaaria et al. (2011) defined gender as "*the socially constructed roles and status of women and men, girls and boys. It is a set of culturally specific characteristics defining the social behavior of women and men, and the relationship between them. Gender roles, status and relations vary according to place (countries, regions, and villages), groups (class, ethnic, religious, and caste), generations and stages of the lifecycle of individuals. Gender is, thus, not about women but about the relationship between women and men.*" A gendered value chain analysis is a methodology that describes existing gender relations in a particular environment, ranging from within households or firms to a larger scale of community,ethnic group, or nation, and organizes and interprets, in a systematic way, information about gender relations to clarify the importance of gender differences for achieving development objectives (Rubin and Manfre 2014).

3.2 Rationale for integrating gender and generation in value chain analysis

While gender relations affect and are affected by the ways in which value chains function, value chains exist and operate within a given social context that affects the distribution of resources, benefits and opportunities. Gender is thus an important aspect of value chain analysis. Value chains offer tremendous opportunities to men and women through better market linkages and employment opportunities. At the household, the level to which women engage with a value chain is not only affected by men but also affects men. Similarly, the extent men's engagement in value chains affects women in certain ways. Thus, gender relations at the household level play a key role in determining the extent to which men and women interact within a value chain. Degrees of participation and gains are shaped at the household level by gendered divisions of labour and decision-making; and at the value chain level by differential access to chain functions, services and resources, and by gender related power disparities in chain management. Furthermore, gender analysis should be concerned with intra-household conflicts over labour and income by linking broader cultural and societal processes (Parpart, Rai et al. 2003, Wyrod 2008).. Thus, understanding women's position in a value chain, how changes in a value chain might affect gender inequality, and the main constraints for women in terms of gaining from value chain participation, requires one to place gender in the context of intra-household bargaining and of broader social processes dimensions (Wyrod 2008, Laven, Van Eerdewijk et al. 2009).

Value chain analyses provide opportunities for showing that various value chain actors may influence capabilities of other actors, retains different levels of bargaining power, and subsequently affect outcomes along the value chain (Gammage 2009). According to Kaplinsky and Morris (2000) power asymmetries across various levels of value chains influence value chain governance and the roles and voice of different actors within the chain. These power asymmetries can determine the positioning of people within the chain (who is allocated or who plays what role in the chain), and who makes decisions and has most information about different aspects of the chain (Manfre and Sebstad 2010, Reerink 2010). Researches showed that women normally have a lower voice in the value chains or have lower access to market information, which reduces their negotiation power.

Distribution of the outcomes of the value chain is also engendered and diverges from place to place (Terrillon and De Smet 2010, Coles and Mitchell 2011). A key to understanding distributional outcomes is to focus on the profits in the different parts of the chain. There are

an enormous difference between the nodes in which men and women actors are likely to occupy. Men tend to dominate functions with relatively high barriers to entry and correspondingly greater returns, and to control chain management functions while women occupy the lower nodes (Riisgaard, Fibla et al. 2010, Coles and Mitchell 2011) due to lack of adequate income, limited skills, limited access to education and training, limited access to markets and market information (World Bank 2001, World Bank 2007). In term of value chain participation's barriers such as access to capital and technologies, Kaplinsky and Morris (2000) pointed that women have often lower access to capital and technologies than men. FAO (2011) showed that women in sub-Saharan Africa own about 15% of all land, with fewer than 5% in Mali (FAO 2011). Land is an important form of collateral for formal credit (Fletschner and Kenney 2014). As very few women own it, thus cannot use it as collateral, they have a lower access to financial services than men. Access to financial services is especially critical for women in terms of enhancing their ability to participate in value chains beyond producer roles to include, for example, the ability to add value to agricultural produce (Fletschner and Kenney 2014). Analysis of how differential access to productive assets constrains women from participating in value chains and development of strategies that can be used to increase women's access to financial services are important prerequisites to the achievement of all agricultural value chain development projects. Uneven representation of women in low-value value chains and the lower nodes within these chains is an established reality of value chains. An example is the male dominated in globalized flower export chains, which are usually more lucrative than the traditionally feminized domestic markets such as selling farm produce at the farm gate (Tallontire, Dolan et al. 2005, Coles and Mitchell 2011). Moreover, the ownership and control of benefits and the proportions managed by men and women vary. Besides, participation in value chain activities does not necessarily produce benefits and assuming that women will automatically gain from value chain participation may create unintended negative consequences (Coles and Mitchell 2011). Records of repercussion against women beneficiaries ranging from men, taking over traditionally women's crops and livestock once they became profitable have been documented. This is exemplified in Von Braun and Webb (1989) which covers men taking over the irrigated rice crops in the Gambia, Njuki, Poole et al. (2011) which covers men taking over beans in Malawi and Uganda and Goldstein (2012) which covers vulnerability to gender-based violence among women employed in flower farms in Ethiopia. Elson (1995) in Agarwal (2003) gives an example from Kenya, where after introduction of weeding technology in maize, women's plots productivity yields rose by 56% when women

controlled the output but only 15% in men's plots where women worked but the output belonged to men.

Furthermore, value chain analysis does not stop at the level of the actors or groups of firms, producers or market actors. It also draws attention to the national system of innovation—the network of institutions which support economic actors (Kaplinsky and Morris 2000). What institutions do impinges on the competitive performance of firms and groups of firms, and is also subject to the support and regulation provided by governments, whose actions, too, need to be located in value chain analysis (Kaplinsky and Morris 2000). How supportive or prohibitive institutions are to different groups of actors including women actors should constitute key foci in gender integrated value chain analysis. For instance, communities have different norms and practices that affect the participation of men and women in value chains. Land tenure systems and property ownership practices dictate which household members have access, control and/or ownership to means of production. Traditionally, land is owned by men; and women's access and use is determined by the decisions the owners make. Women tend to execute their productive and reproductive1 roles simultaneously (Barrientos, Dolan et al. 2003) causing women to engage mainly in value chain activities/nodes that allow them to be closer to the homestead, whereas men may freely engage in activities that require them to be away from home such as value chain nodes away from home, which are often more profitable.

It is clear that gender is applied in noticeably different ways in value chain analyses and interventions, depending on how gender equality and empowerment are conceptualized. The summary of Laven et al. (2009) about the current discourse on gender and value chains placed the economic empowerment of women as a central issue.

3.3 Empowerment

Empowerment can be defined as "*a process by which those who have been denied the ability to make strategic life choices acquire the ability to do so*" (Kabeer, 1999: 437). Kabeer also distinguishes three 'dimensions' of empowerment : a) resources, serving to enhance the ability to make choices and shape one's life ; b) agency, "the ability to define one's goals and act upon them", and ; c) achievements, the manifestations or outcomes of the different choices, and the different shapes their lives take. Access to these resources, abilities and achievements for men and women is often inequitable. Kabeer (1999) sums this up as *'An observed lack of uniformity in functioning achievements cannot be automatically interpreted as evidence of inequality because it is highly unlikely that all members of a given society will give value to different*

possible ways of "being and doing"'. In the context of value chain development, empowerment may be viewed as the process of reducing inequalities in people's capacity to make choices regarding their manner of participation on two levels. First, not everyone can freely choose to participate in value chains. Second, the extent to which participants gain from their involvement is governed by a complex set of factors, many of which are gender-related. In relation to women and value chains, empowerment is about changing gender relations in order to enhance women's ability to shape their lives (Laven et al., 2009). Thus, from an empowerment perspective, differences in how women and men are involved in (and benefit from) value chains are not by definition a problem, because differences in preferences have to be distinguished from denials of choice.

Rubin and Manfre (2012) provide practical suggestions on how to : develop gender sensitive indicators; use indicators that measure movement in positions instead of "counting bodies"; and measure changes in levels of gender inequality by using, for example, the "percentage change in proportion of women's membership" instead of the "number of women who joined the producer association". Similarly, Dulón (2009) emphasizes the necessity of including the context in which the condition of women is improved and the temporal dynamics, e.g. if gender gaps have become smaller and to what extent empowerment processes have occurred over time.

3.5 Tools for gender and youth integrated value chain analysis

Over the past three years, numerous analytical tools have emerged to help practitioners, whether those working with development organizations or with the private sector (or both) to understand and address gender and generation issues in value chains. They try to translate the analytical approaches and learning into action oriented interventions, providing field practitioners with some tools they can use while working with different actors along the chain. Gender and generation integrated value chain analysed tools can be rapid or in-depth (Terrillon and De Smet 2010). Rapid assessment tools for value chain analysis provide a snapshot of how a certain value chain operates, who are the actors, what are their roles in the value chain, what are their constraints and opportunities. These tools look at the roles of men and women, young and old in the value chains, what markets men and women access, and what gender-based constraints and opportunities exist (Dulón 2009). Rapid assessments provide avenues for getting a snapshot of situations from a respondent's perspective within a short period of time prior to engaging in detailed research (Bhattarai and Leduc 2009). The process is team-based, participatory, employs a variety of qualitative research tools for triangulation purposes and may

be iterative depending on the need for current information(Bishop-Sambrook 2007). Rapid assessment tools may be used to give direction on possible interventions for existing problems and/or gaps and areas requiring further research (Barrientos, Dolan et al. 2003). In-depth tools provide detailed information on gender issues in value chains and may include such analysis as levels of income and profits earned at different points of the value chain and how these differ between men and women or men owned and women owned enterprises, women's management of income, who benefits from accrued income and profits including intra-household analysis of income and decision making. (Fischer, Gramzow et al. 2017)

Tools used for rapid and in-depth integrated gender and generation in value chain analyses can be qualitative and/or quantitative. According to Mayoux and Mackie (2007) qualitative analysis is essential for establishing existing inequalities and their causes, power dynamics at play along the value chain and points of convergence and divergence of interests among actors. The tools used for qualitative analysis of a value chain tend to be participatory. They provide value chain actors with an opportunity to actively participate in the analyses and might empowering themselves in the process. For instance, using maps and diagrams enables even poor and disadvantaged stakeholders to be involved in the collection and analysis of information (Mayoux and Mackie 2007). Data collection during the value chain analysis, baseline and impact assessments should be disaggregated by gender or generation to capture changes in other indicators on men, women and other stakeholder groups (Njuki et al. 2011b). Combining qualitative and quantitative data collection tools is useful for capturing different dimensions of impacts (World Bank 2005)

Integrating gender and generation into value chain analysis provide necessary insights on the roles of men, women, young, old and other stakeholder groups in value chains, the constraints they face and the opportunities that exist for optimizing benefits from value chain development. There are different tools available for value chain analyses and include rapid assessment and in depth tools that involve different stakeholders including women and youth actors and using qualitative and/or quantitative methods. In assessing gender and generation concerns across the value chain, it is important to consider the institutions that govern power relations, such as, the household, the market and the state (Agarwal 2003). Understanding the cultural context within which a value chains exist provides opportunity to address challenges and inequalities that face men and women, young and old actors in the chain. The result would be increased benefits to smallholder farmers, especially women and improved value chain performance.

Specifying expected gender and generation outcomes can inform the design of the monitoring and evaluation strategy for value chain interventions. Gender and generation outcomes must be specified at various levels; individual, household, market and community and at policy and macro levels (Mayoux and Mackie 2007). At these different levels it is crucial to focus on different types of impacts including economic, social, political and psychological impacts (Mayoux and Mackie 2007).

4. Methodology

4.1 Data collection

4.1.1 Bibliography research

The analyses of secondary data were based on two sources. The scientific literatures were used for developing the rational of research, then building up the framework analysis such as empowerment concept, how to measure empowerment … Other sources of secondary data collected from empirical reportes provided by local authorities was used for field survey design

4.1.2 Field survey

This research applied field survey by designed questionnaire with 208 samples, including 50 youths who currently work on non-farm employments, and 158 individuals who classified as young and old farmers, male and female farmers.

Field survey focused on data in relation with accessing to resources and services; receiving trainings, skills and knowledge; accessing to markets and employment opportunities; understanding workloads; and recognizing voice and representation outside the home

4.1.3 Semi-structured interviews

This study used 28 semi-structured interviews, including 2 gender experts, 2 state officers at provincial level (DARD), and 24 key informants communal level including the Youth Union, Women Union, Farmer Union, Head of village, Head of cooperative, farmers by age and gender and Collector. Those interviews mainly focused on current agriculture and practices according to gender and age.

4.1.3 Focus group

This study used 8 focus group discussions in order to explore workloads by gender in agriculture production and understand why youths preferred working out for non-farm employments. In each commune, 4 groups have been conducted in range from 7 to 9 participants

4.2 Data analysis

Analysing data follows descriptive statistic. The results have also been tested by Pearson Chi-square for binary variables

5. Results

5.1 Gender in agriculture value chain

5.1.1 Access to and control over resources and services

In order to gain an understanding of how gender differences in agriculture value chain, this section starts analyzing empowerments that both man and woman were taken to access to resources and services. Then, the results turn to examine income contribution by gender for households income as well as how men and women relied on agriculture.

Referring to empowerments, collected data showed that the statistically significant differences did not take place in respondents' decision-making related to agriculture production (Table 1), however, it did for other family's members in some activities. It found that the proportion of women who were given a decision on purchasing fertilizer was higher than that of men by 10.19% (p=0.0081) (Table 2). Whereas, the proportion of men who decided on migrating out of villages, purchasing animals, selling land, taking loans, and practicing land use purpose was higher than that of women by 11.11% (p=0.000), 9.56% (p=0.0058), 4.55% (p=0.0075), 7.09% (p=0.0019), and 8.87% (p=0.0155) respectively.

In-depth interviews showed that agriculture production in Vinh Phuc was mostly conducted by people who were over 35 years old. Those who were under 35 (youth) were more interested in non-farm employments in places surround villages. Few youths who married and totally engaged with agriculture production were less than high school education and failed to find other non-farm employments. Other married youths participated in agriculture production for food security or an extra income. In Ho Son commune, besides working out of villages for non-farm income, married youths still rent one or two *sao* for *xu xu (a kind of vegetable)* plantation because *xu xu* do not need much cares, but economic efficiency is relatively high. In fact, youths who are male involved more in buying and selling vegetable that producing it. (collect vegetable in or surrounding the villages, then sell it to the surrounding provinces). Youths who are single and share home with their parents have participated in household's agriculture production as extra labors. They did it when they were availble only.

Table 1: Respondents' decisions in agriculture production

		N	Mean	Std0. Deviation	Mean Difference	Sig0. (2-tailed)
Purchasing seedlings	Male	50	0.6200	0.49031	-0.05925	0.469
	Female	106	0.6792	0.46898		
Purchasing pesticides	Male	48	0.5417	0.50353	-0.13758	0.112
	Female	106	0.6792	0.46898		
Applying pesticides	Male	50	0.6400	0.48487	0.00190	0.982
	Female	105	0.6381	0.48286		
Joining cooperative	Male	50	0.5400	0.50346	0.03533	0.682
	Female	107	0.5047	0.50233		
Migrating out of village	Male	49	0.1224	0.33120	0.07437	0.156
	Female	104	0.0481	0.21496		
Using plants (varieties)	Male	50	0.7000	0.46291	0.01481	0.853
	Female	108	0.6852	0.46661		
Purchasing fertilizer	Male	50	0.6200	0.49031	-0.06224	0.446
	Female	107	0.6822	0.46780		
Hiring labors	Male	49	0.2041	0.40721	0.02484	0.715
	Female	106	0.1792	0.38538		
Purchasing animals	Male	49	0.3469	0.48093	-0.04558	0.589
	Female	107	0.3925	0.49061		
Selling animals	Male	49	0.3469	0.48093	-0.03269	0.696
	Female	108	0.3796	0.48756		
Buying/renting more agriculture land	Male	49	0.1837	0.39123	-0.06395	0.381
	Female	105	0.2476	0.43370		
Selling land	Male	49	0.0408	0.19991	-0.02585	0.527
	Female	105	0.0667	0.25064		
Taking loans	Male	49	0.2653	0.44607	0.07663	0.305
	Female	106	0.1887	0.39311		
Deciding land use purpose	Male	50	0.5800	0.49857	0.00593	0.945
	Female	108	0.5741	0.49679		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Table 2 : Other family members' decisions in agriculture production

	N	Other Males	Other Females	Mean Difference	Sig. (2-tailed)
Purchasing seedlings	156	0.1282	0.1795	0.0513	0.2099
		(0.33539)	(0.3850)		
Purchasing pesticides	154	0.1364	0.1623	0.0259	0.5244
		(0.34429)	(0.36996)		
Applying pesticides	155	0.1677	0.129	-0.0387	0.3386
		(0.37485)	(0.33632)		

Joining cooperative	157	0.1465	0.0892	-0.0573	0.1159
		(0.35474)	(0.2859)		
Migrating out of village	153	0.1111	0	-0.1111	0.0000
		(0.3153)	0		
Using plants (varieties)	158	0.0886	0.1203	0.0317	0.3577
		(0.28508)	(0.32629)		
Purchasing fertilizer	157	0.0828	0.1847	0.1019	0.0081
		(0.27647)	(0.38931)		
Hiring labors	156	0.0192	0.0321	0.0129	0.4718
		(0.13778)	(0.1767)		
Purchasing animals	157	0.1529	0.0573	-0.0956	0.0058
		(0.36101)	(0.23321)		
Selling animals	157	0.1146	0.0573	-0.0573	0.0705
		(0.31962)	(0.23321)		
Buying/renting more agriculture land	155	0.0774	0.0581	-0.0193	0.4997
		(0.26812)	(0.23462)		
Selling land	154	0.0455	0	-0.0455	0.0075
		(0.20898)	0		
Taking loans	155	0.0774	0.0065	-0.0709	0.0019
		(0.26812)	(0.08032)		
Deciding land use purpose	158	0.1646	0.0759	-0.0887	0.0155
		(0.37196)	(0.26576)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

The role of agriculture production is more important when it found that principle source of funds for investments in agricultural activities comes from agriculture earnings, accounting for 91.7%. Investments that taken from non-farm income and loans counted for 2.5% and 0.8% respectively (Table 3). A common household's strategy for vegetable production was that taking a loan for 1 or 2 started years, or then, repaid it as soon as possible. The investments of the following years were added by monthly non-farm income, typically for disease treatment caused by climate changes. Major investments like fertilizers or pesticides have been bought in credit, then repaid the agents at the end of crop, after selling products completed.

Table 3 : Source of investments in agricultural activities

	Frequency	**Valid Percent**
From agriculture production	110	91.7
From non-agriculture earnings	3	2.5
From loans	1	0.8
From others	6	5.0

Total	120	100.0

Source : Field survey, 2018

The significance role of agriculture is increasingly proved by showing that agriculture production contributed to 55.81% of total annual household's income, including 44.87% of main crops (rice and vegetable) and 10,94% of other crops. In addition, annual household's incomes involved to agriculture is even higher than that of non-farm employments such as regular salaries, wages, remittances and earnings form running own businesses. It was 116,715.64 thousand VND compared to 79,636.91 thousand VND, 61,413.68 thousand VND, 53,916.67 thousand VND, and 101,645.16 thousand VND respectively (Table 4).

Table 4 : The distribution of annual household's income

	N	Minimum	Maximum	Mean	Std. Deviation
Sale main crop (1000 VND)	**150**	**5000**	**400000**	**72,177.47**	**70,125.99**
% in total income	158	0	1	0.4487	0.2932
% Male contribution	132	0	1	0.1515	0.3599
% Female contribution	132	0	1	0.3206	0.4685
% whole household contribution	132	0	1	0.6107	0.4895
Sale other crops (1000 VND)	**67**	**20**	**310000**	**44,583.19**	**59,184.20**
% in total income	158	0.00	.85	0.1094	0.1852
% Male contribution	61	0	1	0.3115	0.4669
% Female contribution	61	0	1	0.1311	0.3404
% whole household contribution	61	0	1	0.5738	0.4986
Regular salary (1000 VND)	**66**	**36**	**300000**	**79,636.91**	**48,015.31**
% in total income	158	0.00	1.00	0.2004	0.2772
% Male contribution	55	0	1	0.5600	0.5010
% Female contribution	55	0	1	0.5100	0.5050
% whole household contribution	55	0	1	0.0500	0.2290
Wage (1000 VND)	**56**	**12**	**700000**	**61,413.68**	**103,920.00**
% in total income	158	0.00	1.00	0.1374	0.2404
% Male contribution	52	0	1	0.6200	0.4910
% Female contribution	52	0	1	0.4000	0.4950
% whole household contribution	52	0	1	0.0400	0.1940
Running own business (1000 VND)	**31**	**11000**	**400000**	**101,645.16**	**88,407.60**
% in total income	158	0.00	1.00	0.0809	0.1918
% Male contribution	24	0	1	0.5000	0.5110
% Female contribution	24	0	1	0.5000	0.5110

% whole household contribution	24	0	1	0.1700	0.3810
Remittances (1000 VND)	**12**	**10000**	**240000**	**53,916.67**	**64,383.03**
% in total income	158	0.00	.71	0.0232	0.0967
% Male contribution	9	0	1	0.7800	0.4410
% Female contribution	9	0	1	0.2200	0.4410
% whole household contribution	9	0	0	-	-
Total household income	**158**	**15,000.00**	**800,000.00**	**166,499.34**	**115,766.62**
% Male contribution	108	0	100	67.3600	29.5010
% Female contribution	50	0	100	69.8000	35.6140

Source : Field survey, 2018

In the line of income by gender, it also found that both men and women relied on agriculture production for approximately 70% of their total income (Table 5). In addition, the proportion of women who contributed for annual main crops was significantly higher than that of men by 16.91% (p=0.000). However, women who involved to the annual sale of other crops contributed significantly less than18.04% (p=0.017) compared to men. Similarly, men delivered a bigger contribution to annual wages than women were. It was 22% difference (p=0.026).

Table 5: Income contribution by gender

	N	**Male**	**Female**	**Difference**	**Sig**
Sale main crop	132	0.1515	0.3206	0.1691	0.000
		(0.3599)	0.4685)		
Sale other crops	61	0.3115	0.1311	-0.1804	0.017
		(0.4669)	0.3404)		
Regular salary	55	0.5600	0.5100	-0.0500	0.601
		(0.5010)	0.5050)		
Wage	52	0.6200	0.4000	-0.2200	0.026
		(0.4910)	(0.4950)		
Running own business	24	0.5000	0.5000	-	
		(0.5110)	(0.5110)		
Remittances	9	0.7800	0.2200	-0.5600	0.152
		(0.4410)	(0.4410)	-	
Percentage farm income of total income	158	0.6736	0.6980	0.2439	0.674
		(0.2950)	(0.35610)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Regarding the gendered division of decision-making responsibilities in agriculture, it found that young farmers, both single or married ones, who share livings with their parents completely follow their parents' decisions in relation to agriculture production when the parents are still able working on the farm. Those who separated livings from their parents set quite clear gender division. Male was likely to engage with farm, whereas female sought for other non-farm employments at industrial zones or factories nearby villages. The possible explanation was that those non-farm employments required female rather than male.

In recent 5 years, due to non-farm employment availability, women who are over 35 years old engage more with agriculture activities and men extend their works to non-farm sectors surround villages. This possibly reflects cash desires for daily consumption that cannot be fulfilled by agriculture during producing periods. Not only young farmers, but also older ones, when both male and female involved to agriculture production, major decision making referred to women rather than men for small farms (from 4-5 *sao)*. It reversely happened for bigger farms.

Youths tend to find non-farm employments surround villages while waiting for an inheritance of agriculture land from their parents. In-depth interviews showed many cases that farmers did out-migration (for non-farm employments) before returned to agriculture production. No way out of ordinary, this propensity remains in current youths

The main challenge for farmers results from price fluctuation of agriculture products that directly impacts on household income. It did happen to several cases in Ho Son commune where some young farmers have been pushed out of agriculture production because of the period that the price of *xu xu* vegetable dropped rapidly.

Maintaining the brands of agriculture products (like Green Van Hoi) that has been currently formulated by cooperatives also challenged farmers in three communes: Van Hoi, An Hoa and Ho Son. Cooperatives have limited members, while vegetable is cultivated in most of households in communes. They set regulations to manage cultivation process of their members, but how to control product quality of other households who are not member of cooperatives. The case of Van Giua village, agriculture practice is quite good and does not exit a big different between members and non-members of cooperative because of the men who is the vice director of cooperative (Green Van Hoi) is also the head of the village. Therefore, when cooperative shared information on vegetable production, non-cooperatives members within the village were included. However, this did not happen in other villages of Van Hoi, An Hoa and Ho Son.

Limited access to agriculture land also challenges youths for agriculture practice. In recent years, increasing benefit from vegetable production pushed agriculture land to be hard to rent or even to consolidate while those have just received 1 to 2 sao after getting marriage and separating households from their parents.

Finally, the development of market economy requires more cash for daily expenses that failed to be fulfilled by agriculture production. Cash can only be available after selling the crops at the end. This could be an explanation that youths currently prefer working for non-farm employment that provided stable income in cash.

5.1.2 Trainings, skills and knowledge

Skills and knowledge play a vital role on decreasing gender gap in value chain activities. Women's relative lack of using technologies, compared to men, that constrainsted by lower skills and knowledge may prevent an added value in production process as well as market participation. This section focuses on analyses of gender differences from delivered trainings in three communes: Van Hoi, An Hoa and Ho Son. Then, constrainsts that prevent both men's and women's participation on trainings have been addressed.

Annualy, many trainings in relation to agriculture production have been delivered in different ways. Most of the trainings that farmer attracted farmers' participation were on the topic of crop production, Viet GAP (Vietnam Good Agriculture Practice), advance technology application, and pest and disease management, counting for 61%, 42%, 38% and 37% respectively (Table 6). However, gender was not different in almost of trainings, except the training on Vet GAP and pest and disease management. Those trainings showed that men participated more than women were. The significant differences are 17.9% (p=0.038) for Viet GAP and 18.5 (p=0.031) for pest and disease management trainings. The survey also showed that few famers participated in trainings on marketing and credit, accounting for 14% and 15% respectively.

Table 6: Trainings and gender difference

	Pooled (1) N=158	Male (2) N=50	Female (3) N=108	Mean Difference (2)-(3)	Sig. (2-tailed)
Crop production	0.61	0.68	0.58	0.097	0.241
	(0.488)	(0.471)	(0.495)		
Animal production	0.34	0.42	0.31	0.114	0.173
	(0.476)	(0.499)	(0.463)		
VietGAP standard	0.42	0.54	0.36	0.179	0.038

	(0.495)	(0.503)	(0.483)		
Pest and disease management	0.37	0.5	0.31	0.185	0.031
	(0.485)	(0.505)	(0.467)		
Marketing	0.14	0.16	0.13	0.03	0.611
	(0.347)	(0.370)	(0.337)		
Credit	0.15	0.16	0.14	0.021	0.728
	(0.354)	(0.370)	(0.347)		
Advance tech-application	0.38	0.43	0.38	0.049	0.572
	(0.487)	(0.500)	(0.488)		
Labour safety	0.27	0.31	0.26	0.041	0.598
	(0.443)	0.466	(0.443)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Regarding to the frequency of attendance, it found that the number of attendances of women were higher than that of men on all trainings of crop production, Viet GAP and advance technology application. Women did respectively 2.29 times, 1.95 times and 2.05 times during recent 12 months, whereas men did respectively 1.94 times, 1.77 times, 1.86 times (Table 7).

Table 7: Training frequency by gender

	Gender	N	Mean	Std. Deviation	Mean Difference	Sig. (2-tailed)
Crop production	Male	33	1.94	1.029	-0.351	0.176
	Female	62	2.29	1.272		
Animal production	Male	22	1.91	1.477	0.369	0.308
	Female	37	1.54	1.238		
VietGAP standard	Male	26	1.77	0.765	-0.179	0.522
	Female	39	1.95	1.276		
Pest and disease management	Male	25	1.84	1.375	-0.046	0.896
	Female	35	1.89	1.301		
Marketing	Male	13	1.38	1.325	-0.181	0.755
	Female	23	1.57	1.805		
Credit	Male	13	1.38	1.325	-0.095	0.846
	Female	25	1.48	1.475		
Advance tech-application	Male	22	1.86	1.082	-0.185	0.598
	Female	41	2.05	1.431		
Labour safety	Male	20	1.6	1.142	-0.086	0.83
	Female	35	1.69	1.549		

Source : Field survey, 2018

Notes: Significances of the mean differences are based on an independent T-test t for continuous variables

Regarding to main reasons preventing women from attending trainings, it reported that some farmers did not attend to the trainings because of working on another job or taking care of family's members. It accounted for 32.28% and 24.68% respectively (Table 8). In addition, as reported by in-depth interviews, farmers over 50 years old were likely more absent from the trainings because of family's member than those who were around 40 years old. The survey showed gender difference did not significantly take place for reasons preventing farmers from attending trainings (Table 8).

Table 8: Reasons preventing farmers' attendance to trainings

	N	Minimum	Maximum	Mean	Std. Deviation
I must take care of family members	158	0	1	0.2468	0.43254
I have another job	158	0	1	0.3228	0.46903
My family doesn't want me to attend	158	0	1	0.019	0.13691
I don't need the trainings	158	0	1	0.0506	0.21994
My family doesn't have activities in relation to trainings	158	0	1	0.2911	0.45573
There are no trainings	158	0	1	0.3987	0.49119
Another member participates trainings	158	0	1	0.038	0.19174
I am not informed	158	0	1	0.0253	0.15758
Others	158	0	1	0.1076	0.31085

Source : Field survey, 2018

In the line of training needs and wishes, qualification of inputs was mentioned in most of interviews as a training desire of farmers. It reported that many of them, both men and women, have bought fake or low-quality pesticides or fertilizers that then, recognized it after usage only. Further, they also wanted more trainings on using those inputs due to increasing complicated diseases and fertilized techniques. Trainings on oriented market plane for agriculture production is also needed to avoid a situation of supply surplus or producing under demand.

In evaluation of extension services, it found that currently, delivered trainings somehow follow what extension office had or objectives of enterprises who offered inputs products. Therefore,

many of trainings missed the demand of farmers. In addition, trainings frequently lasted for full day and interfered to other activities that prevented the farmers' attendance.

Some of trainings lack practical knowledge, thus, could not be effectively applied. For example, the training on making compost and land use for vegetable production in Van Hoi

5.1.3 Access to markets and employment opportunities

From farm to market, gender issue has never presented its absense impacts. Although women increasingly supply markets with both traditional and high value produce, their income is probably lost as products move from farms to markets. They somehow find it hard to participate in agriculture value chain due to limited access to markets and employment opportunities.

Common agribusiness that have been found in surveyed sites is trading on agricultural products. They are collectors who buy vegetables from villagers within or closed communes, then sell them to surrounding provinces or other collectors to export to China. Collected data showed that the proportion of women who involved to agribusiness activities was higher than that of men. It was 31% of total respondents for female and 26% for male (Table 5). However, women worked as casual labors rather than business owners. The difference between men and women who were business owners at 40.33% (p=0.008), while it was for casual labors at -48.25% (p=0.001). The possible explanation was that being a business owner required a certain knowledge like calculating and predicting potential market that women were in disadvantage, or even traveling far away from home somehow that women were unable to favor because of house-works or taking care of other family's members. That could be the reason why more young males and middle age women engaged more to agribusiness than other ones were.

> *Mr. Ch, 60 years old farmer, has worked on vegetable trading for many years in Van Hoi commune. The ideas for being a collector resulted from himself observation for agriculture practice within the commune. He found that farmers struggled for their market due to mall scale of production. In harvesting season, he frequently went to households to collect vegetable. Sometime when the supply was limited, he had to go out of the commune to collect, even in other neighbor provinces. His major customers are vegetable agencies in different provinces like Nam Dinh, Thai Binh, Bac Ninh, Bac Giang. Thus, he made a lot of travel for deliveries that his wife couldn't afforce. Her main responsibility was for taking care of grandchildren and of the works on rice field together with him. According to him, his success, till now, relied on trusty networks of both*

supplier and customers. While working with them, he always evaluated their trust (honesty) to decide if cooperation needed to maintain.

Mr. N, 35 years old, collected xu xu and sent it to Ha Noi. He said farmers transport xu xu to his house and his wife managed hired labors for pre-processing. This work allows her to take care of children in the same time (five children). He responded for transporting vegetable to Ha Noi by his own truck. This work usually took place at night because the market in Ha Noi opened at early morning (4-5AM). For recent three years, he did want to send xu xu to some restaurants in Ha Noi due to delayed payment. He preferred to bring vegetable to open market over there where he could receive cash right after the deliveries. His wife couldn't follow him because of children.

In the vein of access to market information, the survey illustrated that farmers sent their agriculture products by two ways. The major one was sent to buyers who directly did collection at the field. Fewer rest went to local/traditional market by farmers themselves. It was consistence with the result of survey that reflected 13.29% of respondents accessed to market information at level 1 and 62.66% of them got it at level 3 and 4. However, high access to market information was referred to men rather than women. The proportion of men who got access to market information at level 4 was 18.52% (p=0.031) significantly higher than that of women (Table 9). Women were more low access to market information where was reported to take place in local market.

It also found that the proportion of men who did daily information update was higher than that of women. The difference was significant at 33.37% (p=0.000). However, it was not for men and women who watched television.

Table 9: Agribusiness and accessing to market information

	***Pooled* (1) N=158**	***Male* (2) N=50**	**Female (3) N=108**	**Mean Difference (2)-(3)**	**Sig. (2-tailed)**
A sales contract with a main buyer	*0.0800*	*0.0600*	0.0900	-0.0330	0.491
	0.2760)	*(0.2400)*	(0.2910)		
Working for an agribusiness	*0.2900*	*0.2600*	0.3100	-0.0460	0.561
	(0.4560)	*(0.4430)*	(0.4630)		
Owner	*0.3261*	*0.6154*	0.2121	0.4033	0.008
	(0.4740)	*(0.5064)*	(0.4152)		
Regular worker	*0.1739*	*0.2308*	0.1515	0.0793	0.534
	(0.3832)	*(0.4385)*	(0.3641)		
Casual worker	*0.5000*	*0.1538*	0.6364	-0.4825	0.001

	(0.5055)	*(0.3755)*	(0.4885)		
Update information	*0.6519*	*0.88*	0.5463	0.3337	0.000
	(0.4779)	*0.32826*	(0.5002)		
Watch television	*0.9367*	*0.94*	0.9352	0.00481	0.909
	(0.2443)	*0.2399*	(0.2474)		
Access to market information 1	*0.1329*	*0.0600*	0.1667	-0.1067	0.033
	(0.3406)	*(0.2399)*	(0.3744)		
Access to market information 2	*0.1709*	*0.1800*	0.1667	0.0133	0.837
	(0.3776)	*(0.3881)*	(0.3744)		
Access to market information 3	*0.2532*	*0.2000*	0.2778	-0.0778	0.28
	(0.4362)	*(0.4041)*	(0.4500)		
Access to market information 4	*0.3734*	*0.5000*	0.3148	0.1852	0.031
	(0.4853)	*(0.5051)*	(0.4666)		
Access to market information 5	*0.0696*	*0.0600*	0.0741	-0.0141	0.748
	(0.2553)	*(0.2399)*	(0.2631)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

For selling agriculture products, the survey showed that few farmers had a sale contract with regular buyers, accounting for 8% of total respondents only. Reported by most of interviewees, those who accessed to market information were in charge of contacting to buyers. By this point of view, these activities were likely conducted by men rather than women.

To know about the access to information, the level of "advancing" and independence and somehow an opportunity to get higher income, we examine the means of transportation and communication that woman can own. Referring to means of market access, gender was completely different in relation to means of communication and transportation. The proportion of men who controlled television, owned smartphone, motorbike and car was significantly higher than that of women at 19.69% (p=0.005), 51.44% (p=0.000), 23.78% (p=0.000), and 43% (p=0.006) respectively (Table 10). As observed in interviews, even though most of the older women had cell phone, many of them couldn't remember their number. Smartphone were used by young women rather than older ones.

Table 10: Means of communication and transportation

	Gender	**N**	**Mean**	**Std. Deviation**	**Mean Difference**	**Sig. (2-tailed)**
Control television	Male	45	0.8488	N/A	0.1969	0.005
	Female	107	0.6509	N/A		
Smart phone	Male	50	0.8200	0.3881	0.5144	0.000
	Female	108	0.3056	0.4628		

Motorbike	Male	50	0.9600	0.1980	0.2378	0.000
	Female	108	0.7222	0.4500		
Bicycle	Male	17	0.5882	0.5073	-0.2642	0.057
	Female	61	0.8525	0.3576		
Car	Male	15	0.4667	0.5164	0.4300	0.006
	Female	56	0.0714	0.2673		

Source : Field survey, 2018

Notes: Significances of the mean differences are based on a Chi square test for binary variables

5.1.4 Workloads

Gender inequalities in household's workloads are pervasive. Burdens resulting from over workloads in both households and production processes may decrease women's benefits, including the participation in value chain activities

According to group discussions in three communes, *xu xu* production in Ho Son required highest working hours, about 362 hours per crop/sao, then cucumber production in An Hoa, about 275.5 hours, and vegetable production in Van Hoi, about 88 hours (Table 11,12,13). However, it reported that annually there was one crop for *xu xu* production while two or three one for cucumber and vegetable production. Thus, workload of those may not be different.

Regarding to gender, it found that in Ho Son, where produced xu xu, although woman conducted major workload, men still participated in most of production activities. In contrast, agriculture production was likely woman's activities in two other communes. In Van Hoi, except purchasing inputs like varieties, fertilizes, and pesticides that performed equally between man and woman, other production activities were mainly in charged by woman. Especially, in An Hoa, men only participated in harvesting activity as additional labor, their main works took place on non-farm activities. The possible explanation for the gender difference between *xu xu* production and others was that incomes generated from *xu xu* was much higher than that of other production, and invested capital was higher also. Therefore, livelihood from xu xu production as perceived by farmers was more important that attracted man's concerns.

Turning to house works, gender was significant difference. It found that woman was dominantly in charge of preparing foods, taking care of children and cleaning houses. The difference between woman and man of those activities was 42.4% (p=0.000), 26.6% (p=0.001) and 41.7% (p=0.000) respectively (Table 14).

In the field, preparing land that was considered as the hardest work, consuming a lot of intensive labors has been replaced by machines. Those who was unable to own such kind of machines could ask for a hired machine service for their land preparation. However, since those machines was applied on the fields, preparing land referred to man's work rather than woman's once. It also reported that sometime applying machines for land preparation faced to a difficulty due to land fragment.

The hardest work concerned by women currently was activities in relation with spraying pesticide and watering vegetable periodically that manually applied. As surveyed, watering accounted for 13.6% of total workloads per crop/*sao* for vegetable production in Van Hoi, 20.3% for cucumber production in An Hoa, and 13.3% for *xu xu* production in Ho Son (Table 11,12,13).

Other activities, mainly conducted by women, were harvesting, pre-processing and transporting (typically in Ho Son) which accounted for 40% to 50% of total workloads per crop/sao. Of those productions, xu xu in Ho Son required highest workload for pre-processing and transporting because it could not be sold at the field while it did for vegetables and cucumber products. Additionally, those products have been pre-processed by cooperatives located at production areas (Van Hoi and An Hoa).

Table 11 : Work load and labor division by gender in Van Hoi

Activities	Work load per crop (h)	Male	Female	Notes
Purchasing inputs: varieties, fertilizes, and pesticides	4	x	x	Male and female are similar
Preparing land	4	x		
Pre-enriching land with fertilizer (Bón lót)	2		x	
Flatting land	1		x	
Seedling	3	x	x	More female
Spraying herbicides	0.5	x	x	More female
Watering and fertilizing (liquid)	12	x	x	More female
Spraying pesticides	1.5	x	x	More female
Harvesting	32	x	x	More female
Pre-processing	32	x	x	More female
Selling products (on field or at local market)		x	x	

Keeping money			x	
Total	88			

Source : Field survey, 2018

Table 12: Work load and labor division by gender in An Hoa

Activities	**Work load per crop (h)**	**Male**	**Female**	**Notes**
Preparing seedlings			x	
Preparing land	16		x	Hired machine
Cleaning land and covering nylon			x	
Planting	16		x	
Setting frame (like for vines)	16		x	
Watering (periodically)	56		x	
Praying pesticides	3.5		x	
Harvesting	150	x	x	
Pre-processing				Conducting by cooperative
Total	275.5			

Source : Field survey, 2018

Table 13: Work load and labor division by gender in Ho Son

Activities	**Work load per crop (h)**	**Male**	**Female**	**Notes**
Purchasing varieties	4	x	x	Male and female are similar
Preparing for seedlings	6	x	x	Male and female are similar
Preparing land	24	x	x	Male and female are similar
Pre-enriching land with fertilizer (Bón lót)	16	x	x	More female
Planting				
Taking care and fertilizing	72	x	x	More female
Setting frame (like for vines)		x	x	
Watering	48		x	
Spraying pesticides	4	x		
Weaving	8		x	
Harvesting	90	x	x	More female
Carrying home and pre-processing	90		x	
Tổng	362			

Source : Field survey, 2018

Table 14: Gender division for housework

	Male (N=50)	Female (N=108)	Mean Difference	Sig. (2-tailed)
Preparing foods	0.52	0.94	-0.424	0.000
	(0.505)	(0.230)		
Taking care of children	0.28	0.55	-0.266	0.001
	(0.454)	(0.500)		
Cleaning house	0.5	0.92	-0.417	0.000
	(0.505)	(0.278)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

5.1.5 Voice and representation outside the home

It is no doubt that constrainsts of gender inequalities relate to women's ability to effectively participate in both formal and informal groups where they are membership. The lack of voice suffered by women is possible to prevent them to access to resources and services. Indeed, a need for empowerments of women in relation to an increase of effective membership or leadership within local unions and groups.

Besides farmers' unions and cooperatives that formally established and, there existed two other groups organized by farmers themselves: credit and mutual help group. It found that men and women regarding to memberships of both formal and an informal group were not significant difference (Table 15). To what extent were farmers involved in making important as membership, the survey showed that all their level of impact on those groups was less than 3 (little impact). However, man had a significantly higher level of impact than woman was in Farmer' unions and mutual help groups (Table 16)

Table 15: Union and group membership by gender

	Male (N=50)	Female (N=108)	Mean Difference	Sig. (2-tailed)
Member of Farmers' union	0.5	0.49	0.009	0.914
	(0.505)	(0.502)		
Member of credit group	0.1	0.13	-0.03	0.597
	(0.303)	(0.337)		
Member of mutual help group	0.32	0.32	-0.004	0.96
	(0.471)	(0.470)		
Member of cooperatives	0.46	0.53	-0.068	0.431
	(0.503)	(0.502)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Table 16: Level of impact on union and group by gender

	Gender	N	Mean	Std. Deviation	Mean Difference	Sig. (2-tailed)
Level of impact on Farmers' union	Male	23	2.65	1.152	0.795	0.006
	Female	56	1.86	0.943		
Level of impact on credit group	Male	8	1.63	1.188	-0.239	0.596
	Female	22	1.86	1.037		
Level of impact on mutual help group	Male	15	2.33	0.724	0.533	0.042
	Female	40	1.8	0.883		
Level of impact on cooperative	Male	21	2.24	0.995	0.135	0.584
	Female	58	2.1	0.949		

Source : Field survey, 2018

Notes: Significances of the mean differences are based on Independence T-test for continuous variables

We also make a comparison between men and women on their leadership roles within organisations and the reasons preventing more leadership. Those who addressed no interest to leadership of the unions or group accounted for a lager part of total respondents. It was 35.5%, 31.6%, 39.7% and 37.8% for women' unions, credit group, mutual help group, and cooperative respectively (Table 9c). It was clearer for Famers' union where reasons mainly focused on lack of leadership skills, accounting for 93.4%.

Referring to decision making, this survey did not find statistical differences between cooperative members and non-cooperative members, except on purchasing and selling animals. Those who were cooperative's members had more impact on decisions of purchasing and selling animals by 15.7% (p=0.043) and 19.9% (p=0.01) compared to those who were not cooperative's members (Table 10a). In the same vein, being owners, regular and casual workers on agribusiness was not statistical differences between cooperative members and non-cooperative members (Table 17).

Table 17: Constrains to leadership of unions and groups

	Women' union		Farmers' union		Credit group		Mutual help group		Cooperative	
	No	Valid %	No	Valid %	No	Valid %	No	Valid %	No	Valid %

Lack of time	11	17.7	12	7.6	7	12.3	11	15.1	12	16.2
Lack of leadership skills	0	0	146	92.4			1	1.4		0
Lack of technical skills	0	0	0	0	1	1.8	0	0	1	1.4
Lack of support from family members	3	4.8	0	0	3	5.3	3	4.1	6	8.1
Lack of self-confident	3	4.8	0	0	1	1.8	2	2.7	2	2.7
No interest	22	35.5	0	0	18	31.6	29	39.7	28	37.8
Others	23	37.1	0	0	27	47.4	27	37	25	33.8
Sub-Total	62	100	158	100	57	100	73	100	74	100
System	96		0		101		85		84	
Total	158		158		158		158		158	

Source : Field survey, 2018

In contrast, trainings that farmers received were likely to favor members of cooperative rather than non-ones. The proportions of respondents who were cooperative members and non-cooperative members participated in trainings of crop production, VietGAP standard, and advance technology application were higher than that of non-cooperative members. The differences were statistically significance at 37.7% (p=0.000), 21.7% (p=0.005), and 29,4% (p=0.000) respectively (Table 18).

Table 18: Resources control by cooperative's members

	Non-cooperative (N=78)	**Cooperative (N=80)**	**Mean Difference**	**Sig. (2-tailed)**
Purchasing seedlings	0.6579	0.6625	-0.00461	0.952
	(0.478)	(0.476)		
Purchasing pesticides	0.6216	0.65	-0.02838	0.717
	(0.488)	(0.480)		
Applying pesticides	0.6316	0.6456	-0.01399	0.857
	(0.486)	(0.481)		
Joining cooperative	0.5455	0.4875	0.05795	0.471
	(0.501)	(0.503)		
Migrating out of village	0.0526	0.0909	-0.03828	0.363
	(0.225)	(0.289)		
Using plants (varieties)	0.7051	0.675	0.03013	0.685
	(0.459)	(0.471)		

Purchasing fertilizer	0.6795	0.6456	0.03392	0.656
	(0.470)	(0.481)		
Hiring labors	0.2078	0.1667	0.04113	0.515
	(0.408)	(0.375)		
Purchasing animals	0.2987	0.4557	-0.15699	0.043
	(0.461)	(0.501)		
Selling animals	0.2692	0.4684	-0.19912	0.01
	(0.446)	(0.502)		
Buying/renting more agriculture land	0.2133	0.2405	-0.02717	0.69
	(0.412)	(0.430)		
Selling land	0.039	0.0779	-0.03896	0.306
	(0.195)	(0.270)		
Taking loans	0.2078	0.2179	-0.01016	0.878
	(0.408)	(0.416)		
Deciding land use purpose	0.5769	0.575	0.00192	0.981
	(0.497)	(0.497)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Table 19:Trainings participation by cooperative's members

	Non-cooperative (N=78)	**Cooperative (N=80)**	**Mean Difference**	**Sig. (2-tailed)**
Crop production	0.4200	0.8000	-0.377	0.000
	(0.497)	(0.403)		
Animal production	0.3300	0.3500	-0.017	0.827
	(0.474)	(0.480)		
VietGAP standard	0.3100	0.5300	-0.217	0.005
	(0.465)	(0.503)		
Pest and disease management	0.3200	0.4300	-0.104	0.176
	(0.470)	(0.497)		
Marketing	0.0900	0.1900	-0.098	0.076
	(0.288)	(0.393)		
Credit	0.1200	0.1800	-0.06	0.290
	(0.322)	(0.382)		
Advance tech-application	0.2300	0.5300	-0.294	0.000
	(0.424)	(0.503)		
Labour safety	0.1800	0.3500	-0.171	0.015
	(0.386)	(0.480)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

Table 20: Agribusiness by cooperative's members

	Non-cooperative (N=78)	**Cooperative (N=80)**	**Mean Difference**	**Sig. (2-tailed)**
Owner	0.1282	0.0625	0.0657	0.163
	(0.336)	(0.244)		
Regular worker	0.0513	0.05	0.0013	0.971
	(0.222)	(0.219)		
Casual worker	0.1538	0.1375	0.0164	0.773
	(0.363)	(0.347)		

Source : Field survey, 2018

Notes: Standard deviations in parentheses. Significances of the mean differences are based on a Chi square test for binary variables

5.1.6 Well-being and quality of life

According to in-depth interviews, having young children or babies are not a barrier for women to participate in value chain activities because traditionally other family's members are able to take care of them while their parents are working. Otherwise, those mothers can send them to school for whole day. The reasons that prevented woman's participation in value chain activities were different by diversification of household's livelihoods. For women in households that livelihood totally relied on agriculture (both husband and wife work on agriculture), the involvement to value chain activities traditionally follows their husbands. In this case, women preferred their husbands to lead household economic activities, including the participation of value chain. It was typically true for households who produced more than 5 *sao* (larger scale) in Van Hoi and Ho Son.

For those women in households where husbands worked mainly on non-farm employments, the constraints derived from production habit based on their own experiences combining to small-scale production (less than 5 *sao*). For example, even though Viet GAP trainings were delivered, some women did not follow because, application procedures such as harvesting to schedule, taking notes for fertilizing, poeticizing days…, perceived by them, were complicated compared to conventional methods

House works like traditional obligations prevented women in general, including those who had young children and babies, to participate in value chain activities. Besides working, whatever

on the field or non-farm, preparing foods and cleaning houses … took the rest of the time of women

We also explore the safety gear (e.g. gumboots, gloves, mask when spraying, protective jacket) that woman and men wear when working in the field. According to interviews, both male and female well perceived the severe impacts of pesticide on human body, partly knew in trainings on safety using pesticides. That the reason why they all reported that spraying pesticides was the hardest work of production. Therefore, gumboots, gloves, mask when spraying, protective jacket were frequently applied.

In general we can see that woman are active participating in safety vegetable value chain. Most of them are producers and there is increasing percentage of woman participating in trading vegetable. In term of empowerment, women get more and more equal to men in decision making related to agricultural production. However, the traditional way of labor division is common in the households who focus on agricultural production.

5.2 Youth in agriculture value chain

Given the importance of agriculture and the youth in the sustainable development, this section aimed at finding out the determinants which influence rural youth participation in agriculture, and identified conditions under which capable youth being interested in agriculture with particular reference to value chain. The next section provides an overview on the relationship between the socio-economic of the youth farmer and their farming activities. The third section discusses the on the contraints that prevents the youth participation on agriculture and value chain while the forth section focused on the difficulties and the needs of the youth who has practiced agriculture. Following is the conclusion and the policy recommendation.

5.2.1 Socio-economic characteristics for rural youth participation in farming

A number of factors have been associated with youth participation in agricultural activities. This section has analysed a number of factors associated with rural youth participation in agriculture including socio-demographic and economic factors. The socio-demographic factors included age, marital status, gender, level of education and position in the household

In term of gender, table 21 reveals that female youth participate equally in agricultural activities as male youth. Therefore the analysis shows that gender in the research site has no positively association with rural youth's participation in agriculture. However, while male are involved higher in non-farm business (56.8%) and migrating out than female (43.1%). It reflects a continuously change in the agricultural labour division of rural households in village.

Traditionally, men are capable of doing more tedious farming work than the females. But these heavy chores have been replaced by new system of irrigation and tractors and others agricultural machines. Therefore, there was a period in the village which was realized as feminization agriculture when male was released from farming to massive migrating out. However, the reversed trend has been reported during recent year while it is emerging the preference for female labour in the Industrial Zone. Working in Industrial Zones near home permits the female villagers at the same time participate in non-farm jobs for higher earnings and take care of their family and even some farming activities in the fields. This resulted in the balance proportion of male and female farming during the time of survey.

Table 21 also illustrates that (88.1%) were married, (11.9%) were not married in group 1 while in opposite (68.2%) were married and (31.8%) were single in group 2. This indicates that marriage is well associated with rural youth's participation in agriculture. Firstly they had already get married and having the babies, which means they need to arrage family member at home to take care of reproductive works and agricultural production at the same time. Secondly, the companies in the industrial zones normally fire massive people at their age of 35 which forced the youth came back to farming. Thirdly the marriage permits the youth separate their own household from their parents, and has decicion making power over their own livelihood strategy included farming production, which highly inspired the youth to participate in agriculture. Forthly, they have their own savings which would allow them to invest in their agricultural plan.

Table 21: Demographic characteristics distribution of the respondents

		Group 1: Farmer		**Group 2: Non-farmer**	
		N	%	N	%
Gender	Male	21	50.0	25	56.8
	Female	21	50.0	19	43.1
Marital status	Single	5	11.9	14	31.8
	Married	37	88.1	30	68.2
Age	15-20	1	2.4	9	20.5
	21-25	4	9.5	8	18.2
	26-30	15	35.7	11	25.0
	>30	22	52.4	16	36.3
Education level	Primary	2	4.8	0	0
	Secondary	14	33.3	5	11.3
	High school	20	47.6	20	45.5
	Higher education	6	14.3	19	43.2
Position in household	Head of household	15	35.7	11	25.0
	Other position than head	27	64.3	33	75.0

Source: Field research 2018

Age is meant to refer to the individual age appropriate for agricultural activities. The rate of the age of youth attribute to the increasing of their consciousness and self-realization of the importance of agriculture in development. The analysis of data in this study shows how age was associated with the rate of youth participation in agricultural activities. It was found that the participation of rural youth in agriculture depend on their oldness. Table 1 showed that majority of farmer group 2.3% aged over 30 years old participated in agricultural activities. 35.7% of all respondents aged between 26-30 years and only 11.9% of respondents aged under 25 years old participated in agricultural activities. This indicates that a unit increases in age increases the chance of youth involvement in agricultural activities. Therefore as youth are getting older they are more likely to participate in agriculture. In non-farmer group, 38.7% was the youngest range 15-25 years old who were mostly pursuing education.

In term of education, there were some different between two groups in agriculture participation. Table 1 reveals that group 1 included 4.8% respondents had primary education while non of group 2 had those education levels. Majority of secondary education fell in group 1 (33.3%) while only 11.3% of group 2 had attained this level. It is interesting that the high school range observed the relatively equal between two groups (47.6% and 45.5% correspondently). This phenomenon implied the common education trap in developing countries that young people had more education than their parents, yet higher levels of education did not translate automatically into good jobs(White 2012). Many high school graduates had to turn to daily labour of farming or other menial kinds. There was also a clear hierarchy among the youth in the research site: those who had done well at school were expected to attend university and seek the professional jobs in the urban areas, which is shown by 42.3% of youth in group 2. But there are still 14.3% of youth who graduated from university cannot access to the decent jobs in the city has come back and choose agriculture as stone-step waiting for other chance. According to the youth, education alone has not been enough for non-farm business. Yet, although agriculture is considered as the significant alternative solution to youth's unemployment and ability to overcome economic issues, it seems that youth have negative attitudes toward agriculture (Ommani 2011). In term of household's position, only one third of the total youth is head of the household in which group 1 has larger numbers head of the household in comparision with group 2 (35.7% and 25% respectively). The reason is because in the Vietnamese traditional majority of the household's head is male and not all the married couple would separate their own nuclear family right after their marriage. In contrast, they keep

living toghether with their parent-in-law for the beginning of their married life to utilize the support from their extented family.

5.2.2 Factors impact on youth participation in agricultural activities

This section will discussed on the preventive factors and supportive factors which effect on the participation of the non-farmer youth on farming and agricultural value chain

5.2.2.1 Prevention factors

In the research site, the negative attitude to agriculture is consisted of a wide range of constraints they perceived to militate against their active participation in agricultural production activities. Overall, table 22 revealed that inadequate Credit facilities, Low and unstable returns to agricultural investment, Drudgery of agriculture work and Availability of other employment alternatives were the major constraints that have militated against respondents' active participation in agriculture. The interesting notion is these constraints have complex interlinks with each other. Credit facility is considered as the most important factor for the youth because credit is essential to obtain the "developed" farm model - a bigger model farm, skilled farming and training agricultural technologies (Abdullah 2013). Most of the young respondents claimed they were only interested in technology modernized farming, market-oriented farming and not kind of subsistence-based agriculture which was always considered as "heavy", "dirty", "back broken" (rank 2$^{nd)}$. As a young people, they also feel unhappy with farming because they cannot wear nice clothes and accessories when they are farming like their friends who working elsewhere. Besides, if they works for any companies, they only spent around 8 hours per day for working and they don't need to bring work or responsibility home. In case of vegetable growing, it is careless day or night, rain or sunshine, if they have contract with the customer, they need to wake up and working in the field to ensure their own job. One 22 years old female student exposed "*I saw my parent trying to toil and moil all of their lives. I don't want to work in the muddy field which makes me itchy and under the sun which burning my skin. I want to have an office job with air-conditioner and have chance to wear nice clothes*…" – this idea about life style and employment is even more emphasized by media and social network which make agriculture very unattractive to the youth (F. Proctor and Lucchesi 2012) If the youth fail in finding alternative jobs in city, which forced them return to their hometown, agriculture is not the primary choice (Nguyen Thi Dien, Nguyen Thi Minh Khue et al. 2015), except for the new farming models such as "hydroponic farming", or "organic farming" makes farming look more clean, easy, modern and high-

technique. Therefore the contributions of rural credit facilities are remarkable on create a farming model as the image in the youth mind.

Most of the respondents said their family does not support them to work on the paddy field by the traditional way as well (rank 8th). This statement is confirmed by interviewing with rural household, such as a 56 years old farmer claimed "*I have sacrificed everything for my children education without expectation they would be a small peasant like me. There is no future for agriculture. Only child who cannot educate works in the field*". This perception is widespread by the package policy which supported for a robust agroindustrialization. It aimed at peasants as a social form and smallholding as an agricultural form are targets for capitalist transformation. In another word, political discourses define peasants and small-scale farming as Vietnam is "problems" and "backward" and "low status" which is needed to "developed" (rank 13th, 14th). It is ironic that the traditional agriculture even creates food; it is supposed to make people who work in this sector starved due to its low profit. The study found out that poor profit return makes farming's lack of appeal for most young people in the village (Rank 2nd). A 34 years old male migrant claims that "*None of work is easy. I am motorcycle driver in Hanoi so I am present on the road whole day and night. I am also suffering for being far away from home. I am not scared of heavy work, but agriculture working is not enough to make end meets".* In the youth perception, farm earning is not enough and infrequent to supply the cash source for their living (White 2011). In other words. the income from agriculture is considered lower than any other jobs which could not cover the material needs of the youth. It is worth to notice that the income from other source is supposed to be higher because normally the youth who lives with their parent are ensured of the living cost including food supply which is directly from farming such as rice, vegetables, eggs, poultry, fish…Thus there is a typical trend when the youth get married, after a period living with their husband's family, when they divided household, they will arrange their own family member back to the field, combine farming in household's strategy for food security. It is observed that married and having babies is a remark for the youth to come back to agriculture.

Table 22: Perceived constraints for rural youth participation in agriculture

No	Constraints	Ranking	
1.	Limited entertainment and social activities in rural areas	14	15th

2.	Lack of initial capital	17	12th
3.	Low returns to investment	39	2nd
4.	Availability of employment alternatives	35	4th
5.	Family does not support	25	8th
6.	Low status of agriculture and farmer	22	9th
7.	Drudgery/ Heavy and dirty work	39	2nd
8.	Lack of access to land	30	5th
9.	Rural infrastructure problems (*communication technology, transportation…*)	13	16th
10.	Inadequate credit facility	40	1st
11.	Basic farming knowledge	20	9th
12.	Storage facilities & other farm inputs	12	17th
13.	Market availability	29	6th
14.	No future in agriculture	14	14th
15.	No agricultural insurance and social security	19	11th
16.	Government incentives for farmers	15	13th
17	Independent decision on farming	29	6th

Source: Field work report 2018

On other hand, "high" income from other source is calculated on the cash that they received monthly, hasnot abstract the reproductive fee. These income in deed is not really higher than vegetable growing, however, always preferred because the youth has all authority with this earning –"the money they earn themselves". In opposite, if they participated in growing vegetable with their parent, their contribution still in the household's income and under their parent control – which is really disliked by the youth when they need money for their personal use. Agricultural profit is not only lower in amount of earning but also in liquidity compared with other sources of income. It is only access within at least a 3 month interval between planting a crop and harvesting which depends on weather and selling which depends on market availability (Rank 6th).

Many of these constraints are not new such as the limitation of entertainment and social activities in rural areas or their opportunities are limited by lack of skills or capital. (Sumberg J, N. A. Anyidoho et al. 2012). Sometimes, young people will not even be able to fall back on agriculture because they lack of agricultural knowledge (rank 9th). Despite agriculture is a dominant sector and employer, it is still lack of agricultural curricula in education. Again, the willingness to work on agricultural production might be there, but a lack of land and capital limits their independent decision on farming (rank 6th). In term of independence, **o**n one hand, youth does not want to stay at home, doing agriculture and being under their parent control. On the other hand, dependent in decision making could be the main constraint for the agricultural

participation of the youth. Young people mostly have less decisive power over what and how their household farming occur. Therefore, until marriage and have their own agricultural land, the youth prefer migrate out and experiement their own life. Besides, at this period of their lifecourse, their parents normally take care of all farming work, which permit them to go out without any worry.

Some youths mentioned that they do not master of farming works because they only do what their parents told. Besides, unaccessable to agricultural land is also important constraint for the youth to do agriculture. The youth don't want to participate in sgricultural business because they think doing business need ability which is uneven for everyone.

Therefore, drawing on insights from migration researches, the youth migrates out at some moments of their own life course is not only due to the need for cash (de Brauw 2010, Kelly 2012) but also because temporary migration is a method to overcome the issue of intergenerational transfer of land and power (White 2012). Savings from non-farm jobs and migration would support them access to land, improve farm inputs and/ or develop the farming business on their own decision. The study suggests that while young people appear to be moving away from farming they also prefer keeping their land and other assets – not only for economic security but also as an important part of their identity. However, the expectation on the root of peasant identity among the youth is still far from their pursuing farm work in rural areas. Land access, capital and other material inputs are expected to encourage young people to follow their farming ambitions, however, these factors are only one part of the story, to which an 76th years old peasant villager attests "*If the youths were provided with land, farming implements, a ready market or farm produce, maybe that would attract them to farming. But youths can't go into farming because they know how to respect for nature and farming as a life-style".* This complicated combination of determinants makes it hard to configure an answer for the future of small-scale farming and order more urgent researches in the development agenda.

5.2.2.2 Supportive factors

There is a trend of educated youth who interested in doing agriculture and living in rural areas. They quit the stable job elsewhere, come back hometown and rent 3-4 *sao* to do make small farm in horticulture or raising birds or fish…

Table 23: Youth intention of being farmer

		N	%
Intend to do farming	*Yes*	25	56.8%
	No	10	22.7%
	Probably	9	20.5%
If yes, in how long?	*<5 years*	4	9.0%
	5<=10 years	9	20.5%
	10-<15 years	13	29.5%
	15<=20 years	15	34.1%
	>20 years	2	4.5%

Source: Field research 2018

Table 23 shows majority of non-farmer youth has intention to come back farming, in which 56.8% was determined in doing agriculture in combination with 20.5% respondent who have unclear target for their farming future. Only 22.7% of non-farmer youth claimed that they do not want to do agriculture. However, in the farming-targeted group, majority identified their plans in long-term period, which mostly fall from 10 to 20 years coming (63.6%) while the near future of less than 5 years only attracted 9.0% of the respondents. Some studies show that the village is now empty, the rural population is floating and the agriculture is abundant. However, it seems happen in the opposite way. At the age of their 30s, there seem a large wave of rural youth come back to rural areas and take care of agriculture. In short, the youth has intention to do agriculture, but what are the important push factors?

Table 24 indicated the interesting point is the earnings from agriculture becomes equal with the other non-farm jobs' income. Moreover, the beginning investment for start-up a small agricultural farm is quite small (20 million vnd), but could bring as much earning as their salary (5-6 millions vnd per month). Moreover, the youth are more appreciated the potential opportunity that would bring from farming while they are more active in their own schedule and their work. At the same time, they feel satisfied because they could concentrate on what they are interested in (rank 3rd) and their own advantages (5th)

In case of Mr X, he firstly invested in grew 2 sao of chillies, which only cost around ten millions vnd that he had already saved durin his migration time. Then, he bought the tractor which make the field's bed preparation much easier and economical. Besides, he could plough for rent when he has time. Overall, his earning from agricultural activities was around 6 million vnd per month, which is similar with the salary when he was an industrialised worker.

Table 24: Supportive fators for the youth to participate in farming

	Frequency	%	Rank
Income	15	34.1%	1sr
Interest	13	29.5%	3rd
Parent wish	3	6.8%	6th
Village living	10	22.7%	4th
Personal skill application	5	11.4%	5th
No other choice	15	34.1%	1st

Source: Field research 2018

However, it should notice on the diversification of livelihoods that the youth pursuit recently. The youth keeps working outside, and participate to help their family doing agriculture for example cutting susu from 3.5 am to 6am they will come back and go to work as normal. Most of youth reported that they helps their family' farm work in the weekends and whenever they have free time. The increased number of the youth who take the daily-shift form of migration permits them to join more in their family farming. They indicated that most of the companies in the industrialised zones have their buses to pick their workers up, which is considered as the important reason to attract labour in the areas and helps them to save plentiful time. In one hand, the youth still accumulated the incomes from non-farm work, and reduced the living costs. On the other hand, they could help their family to do agriculture and support other family works. However, because non-farm job is still considered as their main occupation, therefore, labour shortage is the difficulty in agricultural production. Renting labour in farming increase the production costs remarkably. However, available and cheap agricultural service becomes important factors to encourage the youth participated partly or full-time with their households.

5.2.3 Challenges for the farmer youth in vegetable value chain participation

5.2.3.1 Difficulties of the young farmers

Agricultural credit, especially credit from the banks, is the most difficulty for young farmer to join the vegetable value chain with 79.5 of the respondents. Unlike the financial supports which are available for women, there are no credit or any agricultural inputs supports for the youth. One of the reason was reported due to the unstability of the youth in pursuing agricultural activities and irresponsibility in paying their debts, especially the unmarried young people. Therefore, most of the young farmers claimed that they started up their own farming business based on their savings from non-farm works and migration.

Land acquiration is also the high-specified difficuly of the young farmers. To accumulate the necessary land area for establishing the Cooperative or building up the value chain is very complicated and orders many time and efforts. Although Vinh Phuc has its own policy support, it is difficult to accumulate enough agricultural land in a long time.

Table 25: Difficulty of the youth from participated in vegetable value chain

Challenges	**Frequency**	**%**
Credit available	35	79.5
Land holdings	30	68.2
Farming skills	17	38.6
Market information	28	63.6
Infrastructure	21	47.7

Source: Field research 2018

Other difficulties are mentioned included knowledge of high technology farming skills with practical experiences and the limited administrative skills as well as capability in agricultural production plan and marketing plan making.

There is a case of Mr Cuong DKC who was born in 1988 and mentioned as the agricultural passion, especially in vegetable growing. His natal family sell agricultural inputs which permits him to open his own Cooperatives in 2013. However, he has continuously failed because he is lack of essential growing knowledge. For example, in 2016, he wanted to grow unseasonal watermelon for higher profit, but he did not calculate the heavy rainfall during this pediod which ruined all of his watermelon. Besides, he seems to lack of market sense. For example, in the cabbage 2017, before the New Year time (*Tet*), the collector paid him 6000 vnd per cabbage, he did not sell. Instead, he leased the cold warehouse to store tons of cabbage waiting for higher price after Tet. However, the cold warehouse had problem which damage plenty of cabbage. Besides, contrast to his prediction, the cabbage price after Tet fell down to 1000vnd per cabbage.

The specific difficulty for vegetable value chain is the infrastructure for post-harvesting. Nature of agriculture is high risk and low liquidity: Risks come from weather, diseases, post-harvesting…Low liquidity occurs because high value chain order large investment for the beginning infrastructure, while the turnover is normally very small and take time to cover the

spent. It took 2 years for the cooperatives to work stably and making profit. Therefore, it is consider as the main constraints for the youth.

5.2.3.2 Needs of rural youth

A study of the priority needs of the respondents (Table 6) reveals that credit support (70.5%) is of utmost importance to nearly two third of them. About 45.5% of them named marketing and administrative training is important next to high technology farming skills (40.9%), and another 38.6% ranked farm inputs supply in third place. Others indicated needs such as: leadership training (6.8%), and supporting opportunities (4.5%).

Table 26: Needs of farmer youth

Type of assistance	Frequency	%
Credit support	31	70.5
Agricultural training	18	40.9
Farm inputs supply	17	38.6
Market/ administrative training	20	45.5
Leadership training	3	6.8
Supporting activities	2	4.5

Source: Field research 2018

6. Conclusions and recommendations

This research analyzes the main characteristics of gender and generation participation in safety vegetable value chain in Vinh Phuc province, Northern Vietnam. The research concludes that :

First, women experienced in agriculture practice more than men and participated mainly in production process of value chain. The more men work out for non-farm employment, the more women participate in agriculture production. Women have been empowered to make decision on agriculture production and contributed a great importance to agriculture income is higher than men one. But their empowerment is less than that of men in relation to some issues reported as importance to agriculture practice such as selling land, deciding land use purpose and taking a loan for agriculture production. Thanks to the applications of land preparation machines on agriculture production (land preparation), men are involved to women' works more than it was. Those machines required more skills that women could not afforce to operate

them. Households who owned those machines were alo able to provide land preparation service that possibly favors other women working on agriculture.

Second, women face to more difficulty to participate in trainings than men are. The fact was that women had more workloads on agriculture production, but men participated more on trainings. Except no trainings, the most important reason that prevented the woman's participation was a care for other family's members. In addition, delivered trainings likely flavored for cooperative's members than who are not membership. Voice and presentation of men in both formal and informal groups is higher than that of women, however, they all present a little impact on the groups where they are membership.

Third, through analyzing the capacities, difficulties and scenarios of rural youths in the context of agricultural and vegetable value chain development in the study area, this research found that despite the central role of agriculture in the rural social systems, little progress has so far been achieved towards raising the income and living standard of youths engaged in its practice. Other challenges being faced by youths engaged in farming include lack of finance, poor access to farm inputs, good market channels and other services. The prospects for success in the future lie in the fact despite its low returns, most rural youths still engage in agriculture and believe it as the way of life. From this findings the study recommends the following as policy implications: Enhancement of youth's knowledge of high technology farming skills as well as marketing and administrative skills; Support of credit facilities for youths in agriculture through rural commercial banks, and changing the negative perceptions toward small-scale farming in policy public media. Government therefore must invest in the rural sector to develop the infrastructure needed to facilitate faster agricultural growth. Doing this will restore the dignity of farming, make it rewarding/attractive to the youths, and boosting the trend of young rural emigration. Future success of our agricultural value chain will, to a large extent, depend on the level to which we address our current constraints and aspirations.

The research also recommends the best practices that encourage woman and youth participation in agricultural value chain as following :

First, promoting agribusiness may bring households daily cash incomes that is unable to generate during producing period of agriculture, and that fulfill household's daily expenses. If this fact is true, it probably increases youths to participate in agriculture. Those ones currently work out for non-farm employments.

Second, woman's benefits probably increase when workload is reduced, especially in harvesting in all communes, and pre-processing typically in Ho Son where *xu xu* production is performed. Evidences show that when mechanization that applied to agriculture production extent the possibility that attract men to participate more, sharing works with women.

Third, to increase woman's participation effectively in trainings, it should firstly be based on farmers' demands, then change the time frame of trainings that in correspondent to women' schedules

Fourth, youths who are single and share home with their parents have participated in household's agriculture production as extra labors. They did it when they were availble only.

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