Challenges and Opportunities of Safe Vegetable Development
A case study in Vinhxuan commune, Hungdong district, Nghean province,

Le Thi Cam Van, Vinh University, Vinh City, Vietnam
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ABSTRACT

The first safe vegetable program of Vietnamese government began in 1996 in an effort to respond to public concern about unsafe food, especially fruits and vegetables. After more than ten years, there are several achievements such as expansion of land area for safe vegetable production and technology transfer in the whole country. However, real safe vegetables are still far out of the reach of consumers due to many constraints that have not been solved effectively.

This case study research was carried out in Vinhxuan commune, Hungdong district, Nghean province where safe vegetables developed earliest in Nghean province. The research applies a value chain analysis approach aiming at presenting a comprehensive analysis of constraints and opportunities for safe vegetable development in the study site. It contributes to the knowledge on safe vegetable production and distribution for organizations and individuals who want to do business in this sector effectively. In addition, to help readers understand more deeply about perspectives of safe vegetables development in the study site in the context of general development of safe vegetables in the whole country, a comparative analysis will also be presented.

The research explores many reasons that prohibit the development of safe vegetables in the study site. Members in the supply chains of safe vegetables are faced with many challenges to respond to market demands on safety, safety certification, diversity, price and retail location. However, they can find some opportunities to improve their business in this sector such as proximity, government supports and social capital.

By presenting the results of this case study research, the researcher hopes to contribute to the development of safe vegetables not only in the study site or in Nghean province but also in other areas of the whole country.
Acknowledgement

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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>AVRDC</td>
<td>World Vegetable Center</td>
</tr>
<tr>
<td>CIAT</td>
<td>International Center for Tropical Agriculture</td>
</tr>
<tr>
<td>CIRAD</td>
<td>Agricultural Research for Developing Country</td>
</tr>
<tr>
<td>DARD</td>
<td>Department of Agriculture and Rural Development</td>
</tr>
<tr>
<td>DOSTE</td>
<td>Department of Science Technology and Environment</td>
</tr>
<tr>
<td>EUREGAP</td>
<td>European Retail Produce Good Agricultural Practice</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GD</td>
<td>Group Discussion</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Production</td>
</tr>
<tr>
<td>GSO</td>
<td>General Statistic Organization</td>
</tr>
<tr>
<td>IPM</td>
<td>Integrated pest management</td>
</tr>
<tr>
<td>MARD</td>
<td>Ministry of Agriculture and Rural Development</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOLISA</td>
<td>Ministry of Labour, Invalids and Social Affairs</td>
</tr>
<tr>
<td>MRL</td>
<td>Maximum Residual level</td>
</tr>
<tr>
<td>PPD</td>
<td>Plant Protection Department</td>
</tr>
<tr>
<td>RIFAV</td>
<td>Research Institutes of Fruits and Vegetables</td>
</tr>
<tr>
<td>SUSPER</td>
<td>Sustainable Development of Peri-Urban Agricultural in South-east Asia Project</td>
</tr>
<tr>
<td>SV</td>
<td>Safe vegetables</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VC</td>
<td>Value chain</td>
</tr>
<tr>
<td>VCA</td>
<td>Value chain analysis</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WDR</td>
<td>World Development Report</td>
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1 INTRODUCTION

In response to increasing public concerns of vegetable safety, Vietnamese government launched a “safe vegetable program” in 1996, firstly in Hanoi peri-urban districts. After that, safe vegetable production has expanded in many regions in the whole country, including Nghean province. However, like many SV production sites in other provinces, SV in Nghean province is facing many difficulties such as a non-transparent certification system, higher price, low diversity and little trust between buyers and producers.

When the situation of vegetable safety has not improved a lot since the beginning of the SV production development program\(^1\), some of us may blame producers for this. It may not be wrong but not enough. The producer is only one member in the supply chains of SV and its activities are affected by functions of others in the chains and market demand. Stimulation of the SV development needs to be done systematically. Therefore, this research will present a value chain analysis approach aiming at giving a comprehensive analysis of constraints and opportunities for SV in Nghean province with a case study which is the most well-known SV production site around Vinh city.

The thesis is divided into six chapters. Firstly, the introduction chapter will give the readers a general understanding about problems, objectives of the research and a description of the study site. Chapter II reviews some relevant literature and presents the analysis framework applied. Chapter III focuses on the context background of SV development in and outside the country. The methodology is presented in Chapter IV. Chapter V is the core of the research with main findings and discussion. Chapter VI summarizes main findings and discussion and suggests further research.

1.1 Identifying Problem

In an effort to respond to the socio economic master plan of Nghean province in the period from 2005 – 2010\(^2\) that promotes the development of safe and high economic efficiency products, many SV production sites have been established with provincial and local support. However, several years after the beginning, it is said that the market for SV is not progressing and difficulties in selling SV at profitable prices motives farmers to turn back to unsafe production practices\(^3\). Safe vegetable shops, a pilot project in Vinh city, stopped after six months of operation in 2005. Those issues may lead to the question of what problems there are with SV development in Nghean province. Besides, a report of Plan Protection Department of Nghean province raised the idea of revision of SV supporting policies and function of responsible organizations because a large proportion of unsafe vegetables in the markets were produced in SV production sites Nghean province\(^4\).

In that context, to ensure the feasibility and success of the SV development policy of the province, an analysis of related constraints and opportunities is needed. This research can contribute to the knowledge of producers, buyers, policy-makers and relevant individuals and organizations in response to the market demand that can help them do business with SV successfully.

1.2 Objective

The objective of the research is to contribute to the development of SV in Nghean province through analyzing constraints and opportunities along the SV supply chains in the study site.

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\(^1\) Nienke De Bode (Year not clear).
\(^2\) http://www.Nghean.gov.vn
\(^3\) Nghean newspaper on 12/18/2006 and 4/13/2007
1.3 Research question

What are the main constraints and opportunities of the supply chains of “safe” vegetables that farmers and buyers may have while responding to market demand?

Sub-research questions
1. What are the requirements of consumers in Vinh city - major buyers of SV in the study site regarding diversity, price, delivery, quality and quality assurance of SV?
   - How do supply chains of SV in the study site operate?
   - Who are the actors and supporters in the supply chains and how do they interact with others?
   - What are the constraints in response to market demand as analyzed above?
2. What are the opportunities for members in the chains to satisfy market demand?
3. How do supply chains of SV in other sites operate?

Although there are three sub-research questions, they are not answered separately. The first sub-research questions will be answered in one separate section. The second and the last sub-research questions will be answered simultaneously in one section. While analyzing constraints, the research will analyze the possibilities to satisfy market demand in the study site. Those in other areas will be presented to give a comparative analysis.

1.4 Limitations of the study

Although Vinh market is recognized as a major consumer of “safe” vegetables grown in the study site, in reality, they may be sold to some districts in Nghean province and outside the province. Due to limited resources, the research on market demand was just carried out in Vinh city. In addition, although consumers as organizations are relatively important customers for many SV cooperatives in the country, they are not included in this research. It would have been better to include them in the research because their requirements on price, diversity and quality may be different from those of final consumers.

1.5 Rational of the study site

Vinhxuan commune, Hungdong district is the first area that was supported by provincial and local government to develop SV production. It is the largest commercial vegetable production site near Vinh city, a major market for SV. SV production, if it can be developed well, can supply a large volume for Vinh city. For the plan of 2008, Vinh city is preparing to expand the land area for safe vegetable production up to 215ha in Hungdong district to respond to increasing demand on vegetables due to rapid urbanization. Besides, Vinhxuan cooperative is the only one which has done business with safe vegetable shops. Thus, an analysis of its operation in terms of constraints and opportunities may give good experience for its business in future and for farmers and others who want to join in SV production or distribution.

1.6 Description of the study site

This research is carried out in two regions of Nghean province. One is Vinhxuan commune, Hungdong district, a peri-urban district of Nghean province, the fieldwork site of this research. The other is Vinh city, a major market of SV in Vinhxuan commune where the market survey was carried out.
Nghean province is located in the North Central Coast area stretching from Thanh Hoa to Thua Thien Hue. Its income is relatively high in comparison with other regions on the North Central Coast. In recent years, the Nghean economy has developed by a reduction of agricultural cultivation output and an increase in Industrial and Service output. However, agriculture remains an important sector in the regional economy as it contributes one-third of GDP of Nghean province.

Table 1: Nghean in comparison with other regions

<table>
<thead>
<tr>
<th>Items</th>
<th>Thanh Hoa</th>
<th>Nghe An</th>
<th>Ha Tinh</th>
<th>Quang Binh</th>
<th>Quang Tri</th>
<th>Thua Thien Hue</th>
<th>Hanoi</th>
<th>Sai Gon</th>
<th>Vinh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average income (thous. VND/pers/month)</td>
<td>649.5</td>
<td>699</td>
<td>681.4</td>
<td>634.9</td>
<td>657.8</td>
<td>783</td>
<td>1,739.9</td>
<td>2,668.3</td>
<td>1,020</td>
</tr>
<tr>
<td>Urban population (thous. pers)</td>
<td>360.3</td>
<td>325.7</td>
<td>144.4</td>
<td>118.8</td>
<td>153.6</td>
<td>359.9</td>
<td>2,101.6</td>
<td>5,244.7</td>
<td>237.0</td>
</tr>
</tbody>
</table>

Source: GSO and Nghean Statistics Department, 2006

Nghean is the largest province in the whole country with the area of 16,487km2 but relatively less population in comparison with others because most areas are mountainous districts with small numbers of people. Due to the natural conditions, the industrial and agricultural sectors have some constraints to develop. Minerals are diverse but in low volume and there is not capacity to explore them industrially. Nghean is affected by a Southwest wind in summer, dry and hot, and a Southeast monsoon in the winter, cold and moist. Every year, the province suffers from natural disasters such as storms and floods. Thus, agricultural development faces many difficulties. The service sector may be considered to be the most important sector to stimulate economic development. Some of the most important service fields for economic development are tourism, transportation and commerce.

Vinh city is a major market for “safe” vegetables produced in Vinhxuan commune, the field site of this research. A high 50% demand for vegetables is satisfied by Vinhxuan commune. The rest is supplied by other districts and a relatively large amount is supplied by Hanoi peri-urban districts. Vinh city is the cultural and socio-economic center of Nghean province, located in the Southern east province. Its poverty rate is about five percent (2005) and most poor people are living in the new districts which previously were rural areas around the city. On 09/30/2005, the Prime Minister issued Decision No 239 that approved the Development Master Plan for Vinh city to become the cultural and socio-economic central of the North Central Coast area. That means Vinh city will be stimulated to become a well developed area in terms of culture, economy and society in comparison with other areas in North Central Coast region. This along with the urbanization process and expansion of Vinh city, means that the market for vegetables and other agricultural products will be enlarged. However, at present, its income and population is much lower than Hochiminh and Hanoi city where safe vegetables are developed most (See Table1).

Vinhxuan commune is located in Hungdong district, a peri-urban district of Vinh city. It is about eight kms from Vinh city. Administratively, Hungdong is under the control of Vinh city locality. However, it is

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Table 2: GDP of main economic sectors in Nghean province

<table>
<thead>
<tr>
<th>Items</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>21.33</td>
<td>23.35</td>
<td>25.88</td>
<td>28.73</td>
<td>30.43</td>
</tr>
<tr>
<td>Agriculture</td>
<td>42.28</td>
<td>41.01</td>
<td>37.95</td>
<td>36.92</td>
<td>34.16</td>
</tr>
<tr>
<td>Service</td>
<td>36.39</td>
<td>35.65</td>
<td>36.18</td>
<td>34.35</td>
<td>35.41</td>
</tr>
</tbody>
</table>

Source: Nghean Statistic Department, 2005

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considered a rural area as 80% share of the GDP of Hungdong district comes from agricultural production. Hungdong is one of districts where the poverty rate is 15%, highest in comparison with other wards in Vinh city. The agricultural land area is 365ha, in which the land area for vegetable production is 49ha and for rice 212ha. Most land area for vegetable production is in Vinhxuan, about 32 ha. According to the local Social-economic Annual Report 2006, vegetable production in Vinhxuan accounts for more than 80% GDP of the commune. Vegetable production seems to be highly profitable because the poverty rate in Vinhxuan is only five percent, lowest in comparison to other communes in the district. Thus, Hungdong district and Vinhxuan commune are paying much attention to develop safe vegetable production in the near future.
2 LITERATURE REVIEW

2.1 Concepts and definitions

2.1.1 Value chain and Value chain analysis

2.1.1.1 Value chain

According to Value Chain Partnerships for a Sustainable Agriculture (VCPSA), a value chain is a string of companies or collaborating players who work together to satisfy market demands for specific products or services. Similarly, Hubert Schmitz presents his definition of Value chain in “Value chain analysis for policy-makers and practitioners” as follow: VC is the sequence of activities required to make a product or provide a service (Schmitz, 2005).

Players or members in the chains include (i) actors who are involved in designing, producing, marketing and even distribution of products or services directly and (ii) supporters who have impact on those activities by their inter-supports.

The complexity of value chains varies in accordance with different contexts. For example, if the product is for export, value chains are longer and more complex than for the local market because it includes more actors such as multination buyers, wholesalers and retailers in importing countries. Besides, there are many supporters such as policy makers and competitors in importing countries who may act to inhibit the export.

All actors and supporters in value chains operate interdependently. Each member in the chains has different levels of power on the others and on how the chains are governed. The powerful actors are often called the “lead firms” who seek to govern the chain and set the terms for operation of others in the chain. However, not all chains are governed by lead firms. In this case, power dynamics are relatively equal between actors (Schmitz, 2005).

2.1.1.2 Value chain analysis

A value chain analysis (VCA) is defined as an approach to gain a comprehensive view of the various interlocking stages involved in input supply activities, production process and distribution to final consumers. It offers the opportunities and constraints in maximizing value added to members in the chains. (Schmitz, 2005). Similarly, another definition of VCA is proposed by Robert Fries and Banu Akin (2004) in “Value Chains and Their Significance for Addressing the Rural Finance Challenge”. They see VCA as one tool for understanding the dynamics, opportunities and constraints of promising product markets. Such analysis, can show what and how chains, or activities, should be added in the current value chains to increase value added, which parts of chains deserve priority attention, which can be solved by individuals or by interaction among members, for example by private or public sector or both, and donors.

VCA focuses on interactions between actors to share information, build trust and close relationship. It allows members in value chains to make better decisions and helps them get highest benefit by satisfying the demand of consumers. To create integrated value chains, producers must think how they view their customers and suppliers. Actors must concentrate not just on maximizing their own profits, but also on how to maximize the success of all members in the chains through satisfying market demand. Besides, interaction and co-operation between supporters and between supporters and actors are very important to how value chains are governed.

VCA leads to analyzing these factors: human resources, infrastructure, technology, policy, institutions and organization. In many developing countries where the private sector has not been developed enough, policy is a key factor involved with legitimacy in the environment and offering supports for producers. By giving incentives, providing information and setting rules, policy has strong and broad effects on
organization and interaction in the value chains. Offering support by tracing value chain analysis prevents policy makers from giving “stand-alone” support that is not useful enough in upgrading competitiveness of local entrepreneurs. It can raise questions on how the private sector can be encouraged to work with the public sector in providing support for producers effectively.

Each activity in value chains adds value in a certain chain but some activities add more value and are more lucrative than others. Thus, VCA gives more understanding to members and this can encourage them to move to more profitable chain or take more lucrative activities in the current chain they belong to.

2.1.2 Vertical and horizontal integration

2.1.2.1 Vertical integration

As written by Wikimedia Foundation, the term vertical and horizontal integration describes a style of ownership and control. It presents a definition of vertical integration as follows: “Vertical integration is the degree to which a firm owns its upstream suppliers and its downstream buyers. It is typified by one firm engaged in different aspects of production”. We can find another similar definition on vertical integration in “Chain empowerment”. Vertical integration means taking on additional activities in the value chain, for example, farmers are involved not only in production but also in processing or grading produce. The two definitions mention about the activities and power that each member in a chain have to control other members and govern their activities in the different chains aiming at receiving more benefit.

There are three vertical integrations classified in Chain Empowerment and by Wikimedia Foundation. Firstly, backward vertical integration means a firm sets up subsidiaries or inputs for its suppliers which are used for production of its products. Secondly, forward integration means a firm controls its distribution to customs or sets up subsidiaries to market products. Thirdly, balanced vertical integration means a firm controls both input supply and distribution of their products.

2.1.2.2 Horizontal integration

In contrast to vertical integration, according to Wikimedia Foundation, horizontal integration is a strategy which a firm uses to sell its products in numerous markets. There are two types of horizontal integrations. The first one is horizontal integration of marketing. It means that a firm tries to sell its product to different market segments or different areas. The second one is horizontal integration of production. It is a strategy used by a firm to produce similar products in different areas. Another more general definition on horizontal integration is presented in “Chain empowerment”. It is said that horizontal integration means becoming more involved in managing the value chain itself. In this definition, horizontal integration not only mentions about production or marketing activity but also mentions about all management activities in the value chain that a firm operates currently. For example, farmers improve their access to information and technology, their power to control over contract or their cooperation with other members in the chain.

2.1.3 Stronger vertical integration

A stronger vertical integration is recognized when analyzing change in agri-food systems. It is said that agri-food systems around the word are in a transformation process. Changes can be seen in all chains of agri-food supply chains, from production to distribution. Farmers tend to produce agricultural products at larger scale (increase in size and reduce in numbers), adopt requirements on production processes under the recommendation of buyers such as manufacturing enterprises, selling enterprises and consumers and develop closer relationships among members in supply chains (Boehlje, 1999; Reardon and Barret, 2000 cited by Weiberger & Lumpkin, 2005).

7 www.en.wikipedia.org/wiki/vertical_integration
8 KIT, Faida, IRR (Year not clear)
9 “The agri-food system consists of interdependent sets of enterprises, institutions, activities and relationships which collectively develop and deliver material inputs to the farming sector, produce primary commodities, and subsequently handle, process, transport, market and distribute. Rondot, P., Biénabe, E & Collion, M (Year not clear)
We can see similar ideas on the stronger vertical integration in another study (Weinberger and Lumpkin, 2005). They show that the standards for participation in high value markets have increased; supply chains are increasingly complex and often based on strong vertical integration. It also implies that policies and regulations should increase the incentives for members in supply chains to use the produce of small scale farmers as inputs, and improve their capacity to meet the market demand in a rapidly modernizing agricultural market place. Similarly, ADB in “Markets for Development” (2007), also emphasizes the international trends in agriculture based industries which show the strong vertical coordination between different elements in a value chains. ADB says that the trends are mostly driven by profitability but some times they are to satisfy an increasing market demand on quality, food safety, traceability and authenticity.

Pierre Rondot and others, in “Rural economic organization and market restructuring: What challenges, what opportunities for smallholders”, encourage a stronger relationship between farmers and other members in the value chains. They state that small farmers can capture added value by reducing transaction cost if they have cooperation and contract farming with downstream and upstream entrepreneurs.

From this literature review, we can see that stronger vertical relation in a value chains is an international trend and its importance in increasing value added for smallholder producers in a supply chains is recognized widely over the world. This review leads to the issue that development of SV production may need a strong and clear coordination and interaction among other members in the supply chains to give more benefit, not only for small producers but also for sellers, buyers and others. Much attention needs to be paid to the relationship among farmers with backward and downward chains in the supply chains of SV and how to have better linkage with the market for small farmers.

2.2 Definitions of different vegetables

Research sometimes compares different kinds of vegetables available on market at present including normal, safe and organic vegetables. For readers to have clear concepts on what they are, definitions are introduced as follows:

SUSPER in a study on market information and the consultation system in the Mekong Region, define normal vegetables as grown by using pesticides and chemicals that sometimes are not adapted to disease and potential harm to consumers’ health.

According to Decision No.4 19/01/2007/Agricultural and Development Ministry, SV are fresh products (seed, leaves, flower, fruit, root, mushroom, etc) produced, harvested, processed, packaged and protected under a technology process that ensures chemical residuals level to be below the maximum residual levels (MRL).

Also in the research by SUSPER, organic vegetables are grown in a site which is isolated from other vegetable-growing areas. During the production process, they are fed with clean water, organic and micro organic fertilizers and no chemicals are used.

2.3 Challenges and opportunities for small producers

2.3.1 Challenges and opportunities for small producers in general

In general, many studies agree that the main challenges for smallholder producers including lack of market information, lack of production knowledge and skills, shortage in financial capital and high transaction cost come from small scale. These problems are more and more difficult to farmers while vertical integration is increasingly stronger and standard for participation in high value agricultural product market is higher. To improve this circumstance by scaling up, contract farming (will be reviewed later) and farmers’ economic organizations are considered effective ways or a pre-condition. It is said that a group

10 WB (2007), Katinka Weinberger and Thomas A Lumpkin (2005), KIT, Faida and IRR (Year not clear)
finds it easier to obtain market information and access to new markets because other chain actors prefer to work with a group rather than with numerous small-scale producers. Besides, for improvement of production knowledge and skills, a group is said to be more effective in mobilizing resources such as credits, services and human capital in the group aiming at accessing technology and skills needed for production.

Lack of capacity to respond to market demand on quality and quantity supply is a constraint of smallholder producers while participating in high-value market. To solve these problems, working through a group or organization is encouraged by those studies. According to “Chain empowerment” and “World Development Report 2008”, a group can set specific quality standards and force farmers to follow, paying for certification and inspection for all members that reduce transaction cost. Working through a group can ensure a consistent supply in terms of volume and quality because group members can organize among themselves to grow different kinds of crops at certain periods. However, there is a different viewpoint on quality assurance for small producers which is analyzed in “High value agricultural products in Asia and the Pacific for small-holder farmers: Trends, opportunities and research priorities” (Weiberger and Lumpkin, 2005). In this research, it states that small scale, sometime, is an advantage if production activities need careful handling that can not be mechanized.

2.3.2 Challenges and opportunities for smallholder producers in fresh food production

There are some exceptions to the challenges and opportunities mentioned above, of which small farmers in fresh food production should be concerned.

2.3.2.1 More profitable crops

Some studies show that horticulture is more profitable than many other crops. Farmers engaged in the production of fruit and vegetables in general get higher incomes than those who only are engaged in the production of cereal crops. As for safe vegetable production in Vietnam, although its production cost is higher than the normal ones due to higher labor cost, the final balance sheet shows that the benefit from one unit of safe vegetables is higher than from normal vegetables due to its higher price. This is one factor that encourages different economic sectors to get involved in the safe vegetable production and marketing process (Nguyen Thi Tan Loc, ho Thanh Son & Tran Thi Tham, 2003). However, the conclusion of this study may not be general, because its study sites are well-known SV production areas such as Hanoi peri-urban districts and Dalat so that it may not apply in areas with different natural and socio-economic conditions.

2.3.2.2 High demand in volume but strict requirements on other aspects

Contrary to the opportunity coming from the increase in demand, the strict requirements on quality, especially safety, delivery and economic scales are special challenges for small farmers. A change in consumption behaviour not only focuses on volumes of different types of food, but also tends to move towards higher safety requirements. Growing concern for the quality, especially safety, of food products leads to change in consumption behaviour of consumers moving toward safe and high quality food (Wiboonpongse & Sriboonchitta, 2004; Phan Thi Giac Tam, 2005).

2.3.3 Contract farming - a condition for better linkage with market for smallholders

In “Contract farming - partnerships for growth” (FAO, 2001), it is widely recognized that when vertical integration is stronger in the context of market liberalization and globalization, small scale farmers have to face many difficulties in making profit while participating in a high competitiveness market economy. They claim that the failure of raising income generation activities is largely due to the lack of necessary linkages between input supply, production and distribution chain in the supply chains. In other words, providing input and supporting services for production are not connected with guarantee of a profitable

11 Katinka Weinberger and Thomas A Lumpkin, AVRDC,( 2005)
market for agricultural products. Contract farming, if well organized, will provide and improve those linkages and may be a big opportunity for small farmers to produce in a commercial manner. Through contract farming, members in a value chains can share risk, value and decision making that may maximize benefit to all (ADB, 2007).

“Contract farming can be defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements” (FAO, 2001). Although the basis of “Agreements” is that farmers provide a specific commodity with quantity and quality standard at a predetermined price set up by purchasers, the complexity of agreements varies depending on the different provision of contract farming as follows:

- **Market provision:** The producers and buyers set the terms only involving the sale and purchase of products in the futures such as quality standard, quantity, price and delivery of supplied products.
- **Resource provision:** The buyers provide selected inputs such as technical advice, seeds, fertilized and credits.
- **Management provision:** The growers agree to follow the recommendation on product method, cultivation and harvesting specification and input regimes as well.

Contract farming may include one, two or three kinds of provision, mostly depending on the level of closeness of relationships of members in the chains. If contract only refers to market provision, it means that the relationship between producers and purchasers is weakest. The purchaser is only a purchaser. In case contract farming also includes resource or/and management provision, the purchaser is a sponsor or/and manager and supervisor. The relationship between producers and purchasers/sponsors in this case is stronger.

In Vietnam, as presented in the ADB report, contract farming is a relatively new development but its role is increasingly important in the agricultural sector. Its development is supported strongly by Government in Decision 80/2002 Ttg. This encourages the development of “cooperatives” to organize small farmers and offer the mechanism to develop the linkage between four partners including the state, producers, scientists and enterprises which help farmers to get more benefit and have better access to the market.

**2.3.3.1 Preconditions for the success of contract farming**

As raised in the report above, three conditions are considered as essential for the success of contract farming including (i) a profitable market, (ii) physical and social environment, and (iii) government support.

- **A profitable market**
  Parties having contract farming have to be based on a perception that their activities will bring benefits. The benefit has to be sustained in both the short-term and the long-term for two parties, even in the case of low price.
- **The physical and social environment**
  The physical environment includes infrastructure, facilities and natural conditions for cultivation, harvesting, maintenance and delivery of specific agricultural products. Those conditions are needed to ensure the yield and quality of products which are factors that determine profitability.

The social environment refers to the influences of traditional practices on modern practices. It results from custom, farmers’ conservative sense and fear of risks of new things. Social environment problems may come from the conflict between chosen farmers and others if the number of participant is limited. It may make pre-existing economic disparity more deep between the better-off who have contracts and the poor who have not. Those factors may threaten the success of contract farming.

- **Government support**
  Although contract farming may be written or verbalized, it has to comply with the legal requirements set up by government. As a result, government plays a role of setting legal framework for contracting, ensuring legality of contract and operation of parties. Implications of Law may restrict or stimulate the development of contract farming. Government can support training in technological and managerial skills, research, collaboration and consultation that may benefit to small farmers. It can be argued that government should protect farmers as the weaker of the contracting parties through special regulations.

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12 ADB (2007)
2.3.3.2 Advantages and Disadvantages of farmers and purchasers

Farmer side

Farmers can reduce the risk of low market prices or unsold product when those terms are predetermined in contract farming. Besides, it helps small farmers to access new market which they can not if they are not participating in contract farming. Depending on the provisions of contract farming, farmers can be supported with inputs, training courses on managerial skills and production knowledge and credits.

However, farmers may face a failure of the contract that results in contracted products not being purchased. Besides, they also have to bear the risk of production problems that prevents them from supplying products at quality standard and quantity pre-determined in contract farming. In addition, farmers may not get the benefit or/and have to take the loss if purchasing enterprises are unreliable, if there is poor management or they take advantages of a monopoly position to exploit the farmers.

Purchaser side

Purchasing enterprises, firstly, take advantage of governmental regulations that encourages enterprises to work with small farmers. Secondly, by pre-determining the price, quantity and quality standard of products, buyers can reduce the risk of sub-standard products and shortage of supplied volume. Problems that purchasers may deal with can result from several reasons. Firstly, lack of security of long-term land tenure that may threaten the sustainability of co-operation. Secondly, traditional social and cultural custom may forbid the implementation of new practices. Thirdly, farmers may sell their products outside the contract leading to a shortage in purchased volume. Besides, if contract farming has resource provisions, purchasers may take the loss if farmers divert inputs supplied on credits to other purposes that can down grade of quality and reduce yields.

2.3.4 Trademark and Group certification

As presented by ADB (2007) on the issue of making markets work better for the poor, trademarks are strongly promoted in Vietnam in an effort to increase value added of agricultural products. It is said to raise the competitiveness and increase the price of a product. It is not only more beneficial to enterprises but also to producers. The key issues one should be concerned with are (i) trademark development has to be accompanied by Quality Development and Assurance, (ii) marketing, advertising are activities which need further attention, (iii) intellectual property right protection is needed and (iv) making it possible for poor producers to involve in labelled value chains and get benefit.

Certification, a quality assurance, a factor that creates a trademark for a product, is not easy to get for small producers. It is analyzed in the proceedings of FAO-UNCTAD (2007). In this paper, group certification is considered a potential for the small farmers to get EurepGAP certification of fruits and vegetables. A similar idea is presented in the report by USAID named “Case Studies of Farmer Organizations Linking to Dynamic Markets in Southern Africa”. It shows the way members in a cooperative named LUCCU get group EUREGAP certification to meet requirement of its major buyers York Farm company in a transaction cost saving manner.

However, the number of members in a group is identified to maintain the internal quality control system.

Group certification can be seen in the SV development process in some regions in Vietnam for example in Hanoi peri-urban districts and in Dalat city. Safety certifications were certificated to SV production cooperatives, not to individuals. Nevertheless, a large proportion of those certifications lacks a quality control assurance system that make them trustful. This issue will be analyzed more in the Findings and Discussion chapter.

The reviewed literature in contract farming, trademark and group certification, raises an idea that those may be potential for SV development in the study site which could help farmers improve the relationship with other members in the chains to cut down transaction cost and access to market effectively.
3 CONTEXT BACKGROUND

3.1 Change in fresh food retailing systems

3.1.1 Overview of change in food retailing systems over the world

3.1.1.1 Change in consumption behavior lead to increase in demand

Consumption behavior is moving toward purchasing more high value (dairy, meat, fruits, and vegetables) and processed products [World Development Report 2008]. The WDR recognizes that the increase is due to income rising, urbanization, trade liberalization and advancing technology. The example below for the shift from cereals to higher-value and prepared foods describes the change in consumption behavior clearly (Figure 1).

Figure 1. Share (%) in per capital food expenditure in Indonesia
Source: Badan Pusat Statistik Indonesia, http://www.bps.go.id

The change in consumption behavior leads to an increase in domestic and international demand for horticultural products. According to FAO, domestic demand in developing countries for fruits and vegetables doubled from 1980 to 2005. As forecasted by FAO, the world demand for vegetables, fruits and flower will increase at higher rate than productivity increase rate. The average consumption demand increases 3.6%/year whereas productivity increases 2.8% (RIFAV, 2004). This is a big opportunity for developing countries to stimulate the development of high quality vegetables such as safe and organic vegetables.

3.1.1.2 Restruction of food retailing system

Many studies focusing on the opportunities and challenges of small farmers in responding to market demand recognize that the main point of restructuring of the food retailing system in developing countries is its modernization with the penetration of supermarkets and hypermarkets. It not only do the distribution channels change but it also shows the stronger role of the private sector in setting quality standards and quantity of supplied products.

The role of supermarkets was further highlighted in WDR08 (WB, 2007). It implies that responding to requirements of supermarket chains is vital for small scale farmers to access global market. However, other studies also recognize that the penetration of supermarkets into food retailing systems of developing

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countries, especially fresh products, is not as important as it might. The share of fresh fruit and vegetable sold in supermarkets is just only 4.4% according to studies on Africa and Southeast Asia. For fresh products, traditional marketing channels remain an important outlet as shown in “Shaping value chain for development” (Humphrey, 2005) and “Growing role of contract farming” (FAO, 2005).

The low importance of supermarkets in the food retailing system in developing countries is not only seen through the small share of sales but also presented through its involvement in input and supporting services supply. Contract farming, if it exist, just only comprise market provisions, supporting services such as technology, market information and input supply such as variety, pesticides have not been included (Humphrey, 2005).

3.1.2 Overview changes in fresh food production and the retailing system in Vietnam

3.1.2.1 Food quality and safety issues in fresh products

As shown in the research of Phan Thi Giac Tam, food quality and safety issues in the fresh produce production and marketing chains, 2005, reports on food poisoning has increased alarmingly in whole country. Between 1993 and 1998, thousands of people reported food poisoning by fruit and vegetable consumption in Mekong delta. The identified causes were food infected by micro-organisms, contamination of food by pesticide residues and natural toxins. A survey carried out in Hanoi and Hatay in 2002 showed that of all unsafe food products, vegetables were considered the most unsafe food category, followed by meat, fruits and aquatic products. However, vegetable consumption has increased rapidly.

3.1.2.2 Opportunities for safe vegetable production development

Geographic advantages

Vietnam stretches from the subtropics in the North to tropics in the South so it has advantages of diverse soils and climatic conditions which facilitate production of various agricultural crop species, especially fruit, vegetable and flowers whole year. Horticultural products can meet domestic demands and partly be exported to some temperate countries in Northern Asia, Northern America or Europe where there is a long winter (RIFAV, 2004). However, vegetable and fruit production has not matched those advantages due to constraints in quality (Phan Thi Giac Tam, 2005).

Increasing demand and more profitable crops

As mentioned above, domestic and international demand for high value crops including safe vegetables and organics vegetable is increasing. Besides, it is said that fresh food gives more profitability for growers than staple crops. Thus, Vietnam can take this chance to develop safe and organics vegetables to benefit farmers than before.

3.2 Vietnam on the way of safe and organic vegetable production development

3.2.1 Intervention of government and donors and highlight of achievements

Vietnamese Ministry of Agriculture and Rural Development (MARD) launched a “safe vegetables” program in 1995 in response to public concern for vegetable safety. This program involved technical support to cooperatives to spread (1) the production of SV with regulations relative to the use of water and other inputs, (2) the distribution of the vegetables through specific “safe vegetables shops”, and (3) some controls on pesticide residues (Moustier, Bridier, Nguyen Thi Tan Loc, CIRAD, 2002).

Land expansion can be seen as a successful aspect of safe vegetable development (NhanDan, 03/08/2007). Up to 2007, the land area for safe vegetables in Hanoi peri-urban is 3,756 ha, accounting for 44% of the total land area for vegetable production in the area; it is 3,000 ha in Hochiminh city and 1,500 ha in Vinh Phuc. Safe vegetable production is developed in some Northern provinces such as HaiPhong, ThaiNguyen, QuangNinh, in some middle provinces such as Nghean, Quangnam and in Southern provinces such as Angiang, Hauijang, Baria-Vungtau. According to the plans, under co-operation
between Angiang province and Baria-Vungtau, safe vegetable production will be developed in 22 provinces in Southern provinces from 2006 to 2008.

Along with the land expansion, The Vietnam National IPM program that started in 1992, organized training courses in whole country under a grant of FAO and other donors, such as Denmark and Australia. It was conducted with the coordination and implementation of the Plan and by 1997 four vegetable courses of Training of trainers (TOTs) in IPM had been organized. About 37,000 farmers had been trained supported by the National IPM program and locally-funded vegetable IPM. Thereby, farmers can optimize water and fertilize management, reduce the use of pesticides to produce safer vegetables.

3.2.2 Participation of private sector and the early period of market restructuring

Supermarket diffusion to highlight participation of private sector in supply chains of safe vegetables, is analyzed in “Food safety labelling: an opportunity for small farmers to sell to supermarkets, the Vietnam case” (Moustier, cited by Phan Thi Giac Tam, 2005). It shows that the increase in demand for vegetables in terms of quality, especially safety can be seen a driver for the development of the sale of supermarkets and new retailing enterprises such as vegetable shops. Formally, these new retailers offer “safe” vegetables to high and medium income consumers by visual quality such as attractive presentation, packaging and communication on product safety.

The development of supermarkets is going at a steady pace in Vietnam. There was no one in 1990 and increased up to 70 (32 in Hanoi and 38 in Hochiminh city) in late 2001. But not all supermarkets involve safe vegetable distribution and the outlets of this product are very few. Only 13 supermarkets and 22 shops in Hanoi and 17 supermarkets and 23 shops in Hochiminh city supply safe vegetables (Moustier et al. 2005). Supermarkets prefer to work with cooperatives rather than individual farmers. All supermarkets in Hanoi are supplied by one of the four cooperatives who have been successful in the labelling of “safe vegetable production”. It helps them reduce transaction cost and ensure quality of supplied products with lots of different kinds.

The development of supermarkets seems to have a promising perspective when a survey in the North showed that 90% of consumers believed in the safety of sold vegetables (Cadilhon and Tam, 2004, cited by Phan Thi Giac Tam, 2005). However, at present, traditional distribution chains (wet markets, vendors, etc) still play a dominant role in the supply. The share of the supermarket remains limited, less than 5% of total vegetable consumption. Supermarkets admitted that safe vegetable shelves in their stores have been retained to attract consumers by making the supermarket a “one-stop shopping place” (Phan Thi Giac Tam, 2005)

3.2.3 Problems with the supply chain of “safe” vegetables.

From production

Although many safe vegetable production sites have been developed in the whole country, the safety of “safe” vegetables are alarming due to the increase in using chemicals in many areas. Pesticides and plant protective are still used illegally in many safe production areas (NhanDan, 03/08/2007). More seriously, forbidden chemicals are used widely. In VinhPhuc province, 40% “safe” vegetable sample tested had chemical residuals and adverse micro-organism.

To quality control activities

Quality control activities including supervision, inspection and punishment have not been done regularly and effectively even when safety certifications have been granted. This information is presented in the (Marten Siebe van Wirk, Nguyen Anh Tru & Pham Van Hoi, 2005) and in a study by VEGSYS in TangMy and SonDu safe vegetable production cooperative. Besides, in spite of some violation to the safety in safe vegetable production site having been publicized, no punishment has been recorded.

To testing and labelling

14 http://www.communityipm.org/Countries/Vietnam.htm
According to a report by SUSPER on a Safe and Organic Vegetables Fair held in 2003 in Hanoi, the change in the quality management system and certification system caused big problems for producers to get safety certification.¹⁵

On January 2007, MARD issued Decision No.4/2007: Regulations on production management and certification of safe vegetable. It opens an opportunity for all organizations to grant safety certification if they meet the requirements specified in the Regulations. However, its expected effects will be analyzed more in next section.

Difficulties in getting safety certification come from the high cost for analysis. Government has shifted the cost for analysis after harvest to producers. For the early period of development, fees for analysis were always supported by government (Bui Thi gia et al.2003. www.vegsys.nl; Phan Thi Giac Tam, Le Thanh Loan 2005).

**And distribution**

Safe vegetable development is facing big challenges when consumer trust on the safety of “safe” vegetable sold in safe vegetable shops and supermarkets has collapsed. Commonly, so-called “safe” vegetables sold in those places come from “safe vegetable production areas” but are of low quality or alternatively they come from unsafe vegetable production areas. Thus, consumers hesitate to buy safe vegetable because of the high price and no assurance of quality (Vietnam Economic Times - No.132, 2005).

A high transaction cost is not only a burden of new retailing enterprises but also a burden of small farmers. In Vietnam, 85% of rural households are involved in vegetable, fruit and flower production (International Food Policy Research Institute, 2002) and most of them are at small household scale, 0.3ha for vegetables and 1ha for fruit trees (Phan Thi Giac Tam, 2005). This is a common problem of small producers reviewed above.

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¹⁵ Nguyen Thi Tan Loc, Ho Thanh Son & Tran Thi Tham (2004).
4 METHODOLOGY

4.1 Data collection methods

4.1.1 Desk study

A desk study was carried out to review literature on SV development, successful and failure cases in the country as well as outside the country. While reviewing those papers, the researcher paid attention to logical frameworks used in those papers in order to find a suitable theory and analytical framework for the study. VC and VCA theory has been used as the main theory of this study. My understanding of how this theory can be applied in different kinds of studies and how to use it for this research improved through the review of many studies.

The desk study was also carried out to collect secondary data from some important information sources such as FAO, GSO, MARD, DARD and journals and other research. Also data from Socio-economic Annual Reports and relevant documents of the study site was used.

4.1.2 Fieldwork data collection methods

4.1.2.1 Questionnaire survey

A market demand survey was carried out with 100 consumers in Vinh city which is considered the major market for “safe” vegetable in the study site. The survey was conducted for two reasons. Firstly, it is very difficult to invite consumers to have focus group discussion (FDG) because choosing homogenous members in large and diverse population in which people do not know each other well is nearly impossible. Secondly, a limitation is that number of members in a FGD can not exceed about 12 persons. Thus, results obtained from FGD may not be representative of large population like Vinh city. Using questionnaire survey allowed researchers obtaining representative information from many respondents. In addition, consumer in-depth interviews could be conducted easily if needed.

Raising questions in the questionnaire depends on some literature reviewed in which how consumers assess the capacity of producers and distributors in satisfying their demand is presented. After reviewing, research will focus on important aspect which have mentioned on other studies. Questionnaire was tested to revise before carrying out real survey.

Stratified and spontaneous sampling was connected to carry out the survey. All wards in Vinh city can be divided into two groups, the group of relatively wealthy commercial ones and the group of normal ones. Of four selected wards, two former ones are representative of the first group and two latter ones are representative of the rest. In the four wards, researchers selected four clusters which have common characteristics for each ward. After that, sampling was carried out spontaneously with individual households.

4.1.2.2 Group discussion and Focus group discussion

The general purpose of all was to explore perceptions and find common knowledge of farmers and relevant people about issues related to production and distribution of SV. Characteristics of rural areas are that people know each other relatively well and population is not as large and diverse as that in urban areas. Therefore, group discussion (GD) and FGD can be applied to obtain information. Besides, carrying out GD and FGD is a chance to develop mutual understanding among members in the cooperatives and between farmers and other members in supply chains such as wholesalers, locality or trainers.

However, GD is aiming to raise general issues relate to overall objective, not focusing on one or several issues deeply. Homogeneity of participants in GD is not needed but they have to have well knowledge and experience related to issues raised in the discussion. Focus group discussion requires the homogeneity of participants and discussion just only focuses on several issues very deeply.
GD was done with key informants who knew vegetable production and villagers in the commune well. They are staff of Woman Union, Farmer Union, Safe vegetable production Cooperative, village headers and other ones who have lived in the commune for a very long time. The objectives of this discussion was to (i) describe the strengths and weakness relates to vegetable production under perception of the group and (ii) classify all safe vegetable production households into groups of different production scales through indicators presented by themselves.

Initially, the researcher intended to classify vegetable production households into two groups, one group of households that produce for selling and the other group of households who produce for household consumption. However, as indicated, the group could not do that because all vegetable production households produce for sale. Thus, as seen in the description of characteristics of SV production households in the study site, the group and the researcher agreed that growers would be classified into two groups, small and large production scale group. The list of all households in Vinhxuan commune was used for members in a group discussion to identify which household should be in the small or the large production scale group.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Relatively large scale</th>
<th>Small scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land allocation</td>
<td>Relative consolidation (3 plots)</td>
<td>Fragment (5-6 plots)</td>
</tr>
<tr>
<td>Land area for cultivation</td>
<td>Relatively large area (7 saos(^{16}))</td>
<td>Small (3-4 saos)</td>
</tr>
<tr>
<td>Investment on net house</td>
<td>Most cultivation area</td>
<td>None or scattered</td>
</tr>
<tr>
<td>Investment on irrigation system improvement</td>
<td>Upgrading irrigation canal</td>
<td>None</td>
</tr>
<tr>
<td>Pump</td>
<td>Buying water pump</td>
<td>None</td>
</tr>
<tr>
<td>Employment</td>
<td>Household and Hired employment</td>
<td>Household employment</td>
</tr>
</tbody>
</table>

Source: Focus Group Discussion, Vinhxuan commune, September, 2007

In reality, the group recognized that some households did not meet all indicators in a certain group. In this case, farmers discussed more as to which group was suitable for those households. Depending on those criteria above, there are 16/84 households which were considered large production scale, equivalent to 19%. In the analysis the two groups were analyzed separately.

Mapping supply chains of SV was also conducted in the group discussion. They were asked to identify every link in their supply chains, and discuss constraints and opportunities in each chain. People who know SV and characteristics well were selected for this group discussion. The outcome of this group discussion was presented to two farmer groups separately, one of large scale producers and one of small scale producers. This aimed at knowing their perceptions more in detail and to pick up any ideas which were different between the groups.

FGD, in this research, was carried out with small and larger farmer group as classified in the first focus group discussion separately. Objectives of those FGD are to (i) explore the reasons for moving toward safe production practice were explored by the two farmer groups, (ii) revise strengths and weaknesses of SV production which was obtained from the GD and (iii) explore perception of farmers on how they could meet market demand, which support they need and what they could not do.

FGD was also conducted with local staff after finishing the fieldwork with farmers. Members were invited including staff in the SV production cooperative management board and staff of the district locality who are responsible for SV production. It was to cross check information farmers gave about characteristics of the study site and the development process of SV production. In addition, it was to explore how locality and cooperative management board can solve constraints farmers raised and how they can cooperate with farmers and other members in the supply chain to meet market demand.

\(^{16}\) One sao equivalent with 500m²
4.1.2.3 In-depth interviews

In-depth interviews were used to get detailed information and understand respondents’ perception deeply. Sometimes, several respondents did not feel easy to explore their perceptions in a meeting. In this case, in-depth interviews were more helpful to get information.

In-depth interviews were conducted with all members in the supply chains including staff of the commune, district, DARD, PPD, extension service centers, cooperative management board, farmers, managers of supermarkets, sellers in wet markets and input suppliers. Open-ended questions were used for interviewing all the time. Checklists were prepared carefully for different respondents. Selection of respondents depended on their responsibility in SV development and their willingness to take part in an interview.

In-depth interview is especially useful for mapping value transformation in a value chain. To obtain this information, key respondents in each chain will be interviewed to collect data on input cost and revenue. However, due to some barriers, researchers can not access all kind of data for two supply chains including supply chains of supermarkets and wet markets. Only data on value transformation of supply chains of SV shop is presented and analyzed.

4.2 Data analysis

4.2.1 Quantitative analysis

Microsoft Excel was used to analyze data from the market survey.

4.2.2 Qualitative analysis

Qualitative analysis was applied for analyzing supply chains of SV in the study site. All information from the field work, desk study and market survey was used for analyzing following the analysis framework below.

In reality, there was no clear boundary between quantitative and qualitative analysis. For example, in the questionnaire, most questions were qualitative questions but results were presented as numbers in the tables. Value added in each chain of SV supplied chains was estimated and presented as numbers also but this information was obtained from in-depth interviews.

The below framework describes a value chain that may be appropriate to the objective of the study. In fact, the characteristic and complexity of every value chains is different. It may include a “product design” chain and/or post-selling service or exclude a “processing and packaging” chain. Indirect actors may comprise donors, local authority, consultants, extensionists and policy makers. Direct actors who are involved in the “distribution to consumers” chain may include wholesalers, retailers, supermarkets or only farmers who sell their product to market directly by themselves.

How was the framework used?

Consumers are always members in all supply chains when they purchase a commodity. This research began by analyzing consumer’s requirements on diversity, price, selling location, quality assurance and quality criteria. Depending on the analysis of the market demand at the beginning, the research analyzed constraints and opportunities members in the supply chains may have while responding to market demand. Those constraints and opportunities may be reality and some may be their perception. As mentioned in VCA, the operation of one member is affected by that of others in backward and forward chains. Thus, the analysis of constraints and opportunities are put in the context of the operation of the supply chain. Besides, the research presents value transformation in value chain of SV in the study site also. From this information, analysis of which chains are most profitable, risky or/and need much investment will be explored. A limitation of using VCA framework in this research is that although a value chain analysis approach is applied, it does not analyze all constraints and opportunities in all chains the value chain but only highlights some which explored from market demand survey.
Figure 2: Analysis Framework
5 FINDINGS AND DISCUSSION

This chapter focuses on analyzes of constraints to and opportunities of SV production development in Nghean province through case study research. Demand site analysis is the first section of this chapter. The following is an analysis on how members in SV supply chains can respond to market demand. The SV supply chain is drawn by farmers and constraints and opportunities will be analyzed from input supply to the distribution chain. In the input supply chain, issues related to natural conditions, infrastructure, variety and pesticides supply and technology transfer will be analyzed. In the production chain, the research focused on constraints to and opportunities for product diversity improvement to meet buyers’ requirements on diversity. In the labelling chains, problems coming from institutional regulations will be explored, mostly focusing on the safety certification system and quality control activities. Lastly, with an analysis of the distribution chain, challenges and opportunities of some potential distribution channels of SV will be presented.

Though it seems that analysis is done in each chain separately as mentioned above, in fact analysis of constraints and opportunities in this chain comprises analysis in other chains. It is because the function of members in this chain affects the operation of members in other chains. For example, requirements of buyers in the distribution chain affect on the capacity of farmers in improvement of their products, etc. Thus, the division of each chain to analyze is relative.

To have a better understanding of SV development perspective in the study site, the study uses a comparative analysis between what happens in the study site with other places that are successful or fail with SV production. It helps readers to have an overall picture about SV production development in the study site in the context of SV production in and outside Vietnam currently, not only a stand-alone view.

5.1 Market demand analysis

This section will analyze final consumer’s concerns about food safety and requirements on quality, price, diversity, retailing location and safety assurance through the survey of 100 respondents. Samples were selected randomly and scattered over all wards of Vinh city, the major market of vegetables in the study site.

5.1.1 Final consumer’s concern on food safety

Most respondents express their concerns on food safety in recent years and their needs for real safe food, especially vegetables. Vegetables get the highest concerns (68%), followed by fruit and meat (20%). Fish seems the safest food to consumers as only one percent shows that he/she pays most attention to its safety and 74% show the lowest concern about the safety of this food category.

<table>
<thead>
<tr>
<th>Type of food</th>
<th>The highest concern (%)</th>
<th>Relative high concern (%)</th>
<th>Moderate concern (%)</th>
<th>Lowest concern (%)</th>
<th>Illness case related to food consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable</td>
<td>68</td>
<td>20</td>
<td>8</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>Fruit</td>
<td>21</td>
<td>52</td>
<td>21</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>Fish</td>
<td>1</td>
<td>5</td>
<td>20</td>
<td>74</td>
<td>4</td>
</tr>
<tr>
<td>Meat</td>
<td>20</td>
<td>22</td>
<td>52</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>76</td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

The survey looks at the perception of consumers on food safety issues. According to them, 76 illness cases are recorded with 64 households, most of them relates to fruits and vegetables. Although only 39% of interviewees thought that they have suffered health problems from vegetables, 68% show their highest...
concern about vegetable. This means that not only consumers who think they have suffered health problems caused by vegetables considers this food group the most risky but also consumers who suffered health problems from others and consumers who have not suffered health problem pay highest concerns to vegetables. They say that they are worried about vegetables not only because it causes immediate health problem but also they fear adverse impact in the long-term when they have to eat unsafe vegetables with much pesticides and plant protection residuals everyday.

5.1.2 Consumer’s response to the fear of food born disease

Table 5: Consumer’s measure against the health problems caused by food (n=100)

<table>
<thead>
<tr>
<th>Options for preventing health problems caused by food</th>
<th>Priority level</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Buying products having quality certification</td>
<td>48</td>
<td>27</td>
</tr>
<tr>
<td>Buying product with sound origin</td>
<td>24</td>
<td>49</td>
</tr>
<tr>
<td>Buying product from credible sellers</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Reducing amount of products having caused illness</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Applying special processing methods</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Cultivation for household consumption</td>
<td>27</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

Although all consumers fear health problems caused by food, only 5% of them consider that reduction of the food that caused the health problems is the two first choices. Instead, they tend to purchase products having quality certification and sound origin. Almost half (48%) of the respondents consider buying products that have quality certification as the first priority and 27% consider it the second priority. Many of them said that they do not have enough ability to check the quality of products and do not have time to get information related to the quality of products, so that they believe quality certification of competent organizations such as PPD, DOH or DARD.

Purchasing products with known origin is the second choice of consumers with 49% respondents who consider it the second priority and 28% consider it the first priority. They said that if they know the product’s origin well, they may know if the product is safe to health. Consumers believe that when they know the origin of products, it forces producers to become more responsible to ensure the safety of their products in an effort to maintain regular and attract new buyers and avoid trouble from buyers when they get sick from food.

However, it seems that the concept of “quality certification” is vague to some consumers. Those people said that “the origin of the product” has to be added in “quality certification”. Actually, “the origin of the product” always adheres to “quality certification” of all products.

Other choices that seem relatively popular include applying special processing methods and cultivation for household consumption. One special processing method is cleaning with salt many times or using deoxidizing machines. Those machines have been advertised to get rid off chemical residuals in fruits and vegetables recently but only some consumers use them. One fifth (21%) of the respondents who consider applying special processing method the first priority show that they do not believe other options including quality certification because they do not think competent organizations do a good job. They said even of they can get certificated products, they will still apply those methods. For households having home gardens, cultivation for household consumption is the best way.

Consumers seem not to believe in the reputation of sellers and producers. Only 11% considers it the first priority, 11% consider it the second priority. Consumers who trust in sellers/producers recognize they have long relationship and have not suffered from health problems when using their products.
5.1.3 Consumer’s viewpoint on quality of SV

Four options of criteria to assess quality of vegetables were offered including appearance, safety, maintenance and package and information. Respondents were asked to choose what criteria mentioned they thought should be used to assess quality of products. They could choose 1, 2, 3 or 4 options. Besides, open options were offered as well if respondents had other criteria. However, no respondent added different ideas from four offered options.

Table 6: Consumers’ viewpoint on quality criteria of vegetables (n=100)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Proportion (%)</th>
<th>Importance level</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Appearance</td>
<td>22</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Safety</td>
<td>98</td>
<td>98</td>
<td>2</td>
</tr>
<tr>
<td>Maintenance</td>
<td>72</td>
<td>5</td>
<td>59</td>
</tr>
<tr>
<td>Package and information</td>
<td>60</td>
<td>5</td>
<td>31</td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

“Appearance” refers to what the products look like (freshness, attractiveness, beauty, signals of worms and insects). “Safety” refers to residuals of chemicals organics and plant conservation protection that may harm human health. About “maintenance”, in this research, we just raised the issue of the “cool” stored maintenance method and acceptable duration for maintenance. There are two reasons for this. Firstly, it is because this maintenance method has not been presented in the wet/traditional market, it is only seen in modern retailing systems such as supermarkets. Secondly, many Vietnamese prefer to get “alive” products rather than cool stored products. “Package and information” refers to packaging of and labels attached to the products. However, some respondents may have not bought food that is refrigerated and have not known about information attached to those foods. Therefore, their rankings about priority of quality criteria may be skewed.

Appearance seems to be least important to consumers when 71% respondents rank it the worst importance criterion. Following are maintenance, package and information. Safety is the most important criterion to assess quality when most respondents rank it the most important criterion to access quality of SV.

5.1.4 Preferable retail locations

The study offered three options of retail location as the following table shows. In addition, respondents could have other options if they want.

Table 7: Preferable retail location (n = 100)

<table>
<thead>
<tr>
<th>Retail location</th>
<th>The first priority</th>
<th>The second priority</th>
<th>The last priority</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailing shops in traditional market</td>
<td>36</td>
<td>27</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Safe vegetable shops</td>
<td>50</td>
<td>45</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Supermarket</td>
<td>8</td>
<td>31</td>
<td>55</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

Looking at table 7, we can see that “safe vegetable shops” is the most preferable delivery location according to consumers with 50% considering it the first priority and 45% considering it the second priority. Consumers think that SV shops are the places where vegetables are the main product and labelled
with safety. Those people who find safe vegetable shops the most preferable location think that sellers may take responsibility to ensure the quality of their products. For them, safety is the most important aspect when they decide to purchase vegetables. However, they also recommend that safe vegetable shops should be opened in many places in the city to make them easy to get to.

Retailing shops in traditional markets is the second choice of consumers. Those who consider it the first priority put the convenience of travelling as the most important thing. They said they have to go to market everyday and it is very convenient for them to get the traditional markets near houses or offices to buy safe vegetable and others food also. Those who consider retailing shops in traditional markets as last choice said they do not believe in the quality of sold products and do not trust these sellers.

Supermarket is not a preferable buying location when only 8% respondents ranked it as first priority and 55% ranked it the last priority. Consumers find it not convenient to go to supermarkets and do not believe in the supplied vegetables. Some people said supermarkets had a lot of things to do with many kinds of sold products so that they may not have enough ability to ensure the quality of safe vegetables. People who consider supermarket the first choice believe in their prestige which can be seen as the assurance of quality. Besides, they can get other products when they go to supermarkets.

Some attention should be given to “other choices”. Several consumers said they prefer “house-delivery”. It means that they make an order to believable producers than ask them deliver at home. Those consumers said that it is very useful because they are too busy to go to the market. They also said this way helps them have chances to communicate with producers directly that may enforce and encourage producers to ensure the quality of supplied products to retain regular buyers.

### 5.1.5 Requirement on diversity

The question “According to you, what products should be sold in a selling location of safe vegetables” was raised to explore the requirement of consumers on diversity. The study classified vegetables into five kinds including (1) leafy vegetables, (2) fruit vegetables such as cucumber and tomatoes, (3) beans, (4) roots such as potatoes and carrots, and (5) herbs. In additions, fruits and other kinds of foods were offered as options. Generally, consumers asked for greater diversity of products as most of them wanted leafy vegetables, cucumber and tomatoes and beans to be sold in selling vegetable locations. About 10% of interviewees wanted fruits and other foods to be sold in selling vegetable locations which could be seen as “one-stop shopping place”.

### 5.1.6 Quality assurance factors

To understand what make consumers mean with quality of “safe” vegetables they have purchased or will purchase in future, the study offered one open option and six fixed options. Respondents were asked to rank the priority level of each option. The results are shown in the table below.
Looking at Table 8, we can see that consumers seem to believe in the first and the second option. A high 90% respondents rank “Quality certification” and 83% rank “Supervision, monitoring and strict punishment of competent departments” as the two first priorities for quality assurance of safe vegetables. However, as interviewed, consumers said that those options should be done simultaneously. Competent departments and related organizations have to supervise and monitor the production and distribution of safe vegetables regularly as well as have strict punishments to those who break the regulations. These activities have to be shown in public through mass media. That makes them believe in the quality certification granted by those departments and organizations, and prevent sellers and producers from breaking the regulations in production and distribution of safe vegetable.

Prestige on supplying quality standard products of sellers and producers were ranked after the two first options with about 70% respondents who consider them the third and the forth priority. Following is the fifth and the sixth option.

### 5.1.7 Importance level of criteria under consumer perception

After exploring consumers’ perception on importance level of criteria related to quality, price, maintenance, package and information needed, delivery location, diversity and quality assurance of safe vegetables, respondents were asked to assess importance level of each criterion when they decide to buy those products. The following table takes up all criteria that have been analyzed above together and consumers can have general comparison among those criteria.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Extremely important</th>
<th>Really important</th>
<th>Moderately important</th>
<th>Not important</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>73</td>
<td>26</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Appearance</td>
<td>0</td>
<td>0</td>
<td>65</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>Diversity</td>
<td>18</td>
<td>37</td>
<td>43</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Package and information attached</td>
<td>9</td>
<td>34</td>
<td>49</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Price</td>
<td>4</td>
<td>10</td>
<td>76</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Location</td>
<td>4</td>
<td>21</td>
<td>59</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Maintenance method</td>
<td>2</td>
<td>16</td>
<td>72</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>99</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The two most important criteria to consumers when they decide to buy safe vegetables are its safety and quality assurance. Almost all (99%) respondents consider quality assurance as an extremely important
criterion. A high 73% respondents consider safety extremely important criterion and 26% consider it really important criterion.

Diversity and package and information attached are ranked the second important criteria with about 80% considering them moderately and really important criteria. This percentage equals with that of location criterion but referring to location criterion, nearly 60% considers it moderately important, higher than that of maintenance method and package. Therefore, we rank location and diversity criterion the third important criterion.

Although price is more important than appearance, we group them into the forth important level group. Price is less important than location as 76% consider it moderately; meanwhile that ratio is only 59% for location criterion. Appearance seems something that is not getting much attention of consumers as 32% consider it not important and 65% consider it moderately important.

Sub-conclusion

There is an increasing demand for safe vegetables as consumers are highly concerned about the safety of vegetables. For them, safety is the most important criterion and safety certification and quality control activities of competent organizations are the most believable assurances for the safety of vegetables. Consumers require high diversity of SV, not only leafy vegetables but also beans and fruit vegetables. In general, they prefer to buy SV in safe vegetable shops rather than in wet markets and supermarkets. Although high price is considered a constraint to sale promotion, with appearance, they are ranked the least important criteria when consumers make purchasing decision.

In the next sections, the research will analyze constraints and opportunities that members in safe vegetable supply chains including supporters, farmers and wholesalers can have while responding to the requirements consumers mentioned above.

5.2 SV production site characteristics

5.2.1 Vinhxuan cooperative

Vinhxuan vegetable production cooperative was established more than twenty years ago when the very first farmers came here from many areas, mostly from QuynhLuu district of Nghean province. The cooperative was founded in an effort to create an organization for all farmers in the site. The cooperative takes charge of allocating resources such as electric power, water source and land effectively as well as cooperating production activities and implementing policy of district. Most farmers became members of this cooperative.

In 2001, Vinh locality introduced safe vegetable production in this site for the first time. In 2005, with many efforts to develop SV production in this site, Vinh locality wanted to create a trade mark for SV in the city. Vinhxuan named it “Safe vegetable production cooperative” at that time. All members in Vinhxuan vegetable production cooperative became members in Vinhxuan safe vegetable production cooperative automatically. However, most of them had to commit their safe production practice orally. Now it comprises about 80 households that are involved in SV production in Vinhxuan commune.

5.2.2 Production site characteristics

Production site characteristics were obtained from the first focus group discussion. They were asked to draw current supply chains of “safe” vegetables including: (i) listing all activities in each chain, from input supply to distribution, (ii) identifying members and their interaction in the chains and (iii) analyzing strengths and weakness along the chains.
Table 10: Main issues along the supply chain of “safe” vegetable in the study site

<table>
<thead>
<tr>
<th>Item</th>
<th>Strengths</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Input supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Labor</td>
<td>Enough available labor force</td>
<td></td>
</tr>
<tr>
<td>- Variety</td>
<td>Many alternative types to chose</td>
<td>Difficulty in choosing good enough variety</td>
</tr>
<tr>
<td>- Plan conservation &amp; pesticide</td>
<td>Many alternative types to chose</td>
<td>Difficulty in choosing good enough types</td>
</tr>
<tr>
<td>- Safe vegetable production technology</td>
<td>Many training course on technology → relatively good knowledge in theory</td>
<td>Lack of practice knowledge</td>
</tr>
<tr>
<td>- Net house</td>
<td>50% supported from Vinh locality</td>
<td>Serious downgrading currently</td>
</tr>
<tr>
<td>- Water supply</td>
<td>Enough conserved water</td>
<td>Bad irrigation system</td>
</tr>
<tr>
<td>- Land characteristics</td>
<td>Sandy soil → easy to cultivate</td>
<td>Undulating geography → difficult to irrigate and draught, just only suitable for several vegetables</td>
</tr>
<tr>
<td>- Climate</td>
<td>Severe climate and natural disaster every year</td>
<td></td>
</tr>
<tr>
<td>2. Production</td>
<td>More than 20 years of well experience</td>
<td>Land fragmentation</td>
</tr>
<tr>
<td>3. Harvest, packaging and transportation</td>
<td>No idea</td>
<td>No idea</td>
</tr>
<tr>
<td>4. Labeling</td>
<td></td>
<td>No certification of safety currently</td>
</tr>
<tr>
<td>5. Distribution</td>
<td>- Near the Vinh market → easy to maintain and save transportation cost</td>
<td>- Only two wholesalers in Vinh market → price is reduced</td>
</tr>
<tr>
<td></td>
<td>- Vinh market can purchase large amount and many kinds of vegetables → easy to sell all</td>
<td>- There is not another affordable marketing channel</td>
</tr>
</tbody>
</table>

Source: Focus Group discussion, Vinhxuan commune, September 2007

In the input supply chain, enough available labor force is strength as farmers say. About technology, although they got some knowledge on SV production, they found some difficulties in practice and were confused when asked to choose suitable variety and pesticides. This problem will be analyzed more deeply in the next sections. Along with technology transfer, Vinh city locality gave financial support for farmers in the site to build net-houses. In 2001, it granted 50% cost for building net-houses. But due to financial limitation, only 25% households could take this chance and only 20% cultivation area has been covered by net-houses.

Severe climate, too much rain in rainy season, extreme heat in the summer and typhoon or storm happens every year. It is a constraint to agricultural production in general, and especially for safe vegetable production. Besides, as farmers recognize, although sandy soils makes cultivation more easily in this site, it is just only suitable for some leafy vegetables such as green cabbage and salad vegetables.

Water supply is a constraint also. Although there is enough reserved water even in summer, a poor irrigation canal system does not ensure the irrigation in summer and drainage in rainy season. In addition, undulating geography is a factor that makes the problems more serious. Those factors, with severe climate are destroying net houses. As farmers said, they are downgrading seriously and many of them were destroyed totally by historical serious storm in 9/2007.

In the production chain, farmers raised the disadvantage of land fragment. Land area is allocated to all households depending on number of people in each household. Each household has several plots with different fertility aiming to ensure the equality for every household. The fragment of land discourages the development of net houses because farmers prefer to build a big net house instead of many small ones. Besides, land fragment prevents them from improving the irrigation canal system for their field and investment on water pumping machines individually.

For distribution, all farmers think that proximity of a major wholesale market is a strength that helps them reduce cost for transportation and maintenance. Besides, farmers find it easy to sell their products
although they just only have several different kinds of vegetables due to high purchasing power of Vinh market. However, the problem of how price is determined reduces farmers’ benefit. They find that there are only two wholesalers in Vinh market setting the price for all growers in the study site. In this case, farmers do not have any power to negotiate selling price with wholesalers. They have always to sell the price set by wholesalers in Vinh market because they can not find alternative marketing channels.

5.2.3 Safety of “safe” vegetables produced in the study site

In spite of farmers always confirming the safety of their products, it is not trustful all the time. Like many SV production sites in the country, as mentioned in the overview section, technology adoption of farmers is not believable all the time. According to the result of a quick testing method recently which just only can detect some chemical residuals, only 20% of samples meet the MRL\(^{17}\) although farmers always confirm about the safety of their products. It may lead to an assumption that, if a testing method can analyze all chemical residuals in accordance with Decision of MARD, more samples will not respond to the MRL. Thus, a confirmation of producers on the safety of their products is not a believable safety assurance.

5.3 Constraints to safe vegetables development

Responding to market demand is difficult for growers and sellers. Problems not only come from the input supply and production but also from distribution channels and the certification system. In each chain, ineffective activities and poor interaction among members are factors that contribute to the difficulties of SV development. Weak vertical integration in the supply chain of “safe” vegetables, for example, weak relationship between producers and wholesalers and retailers or between supporters and farmers, between consumers and growers, are other reasons that cause many problems hindering SV development.

5.3.1 Reason for moving toward safe production practice

Although market demand is considered a very important driver that envisages the operation of all members in the value chains, especially when vertical relation is tighter and tighter, it is not a main factor changing the production practice in the study site. In farmer group discussions, farmers say that the most important factor that encourages them to move toward a safe production practice is their awareness of adverse impact of traditional production practice on their own health. As farmers say, they have experienced a long time with vegetable production and using too many pesticides and other chemicals. They themselves know how it affects their health directly when they use those for their farming. Therefore, changing to safe production practice with using organic fertilizers as much as possible and limitation of chemicals is their want, for themselves firstly. Besides, when the price of chemicals is increasing, safe production practice is an effective way to cut down production cost.

Farmers also recognized that government supports is important to stimulate change in production practice. They do not know how they can do at the beginning to change production practice which may be better for their own health. Support of local authorities in irrigation improvement, building net-houses and technology transfer are very useful at first. That support is considered a lever that supplies farmers with their needs in changing production practice. It makes their want come into practice more easily and earlier.

Many in-country studies\(^{18}\) show that working with safe vegetable is more profitable than with normal vegetables. It is said that although the cost for safe vegetables is higher than normal ones as sellers and collectors have to pay higher business tax, telephone charges and transaction cost, the final balance sheets show it is more profitable due to higher price. They present some successful safe vegetable production cooperatives such as Phuctinh, Tangmy and Vantri cooperatives in Hanoi and consider it the respond of

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\(^{17}\) The analysis was done in 10/2007 by PPD of Nghean
\(^{18}\) SUSPER (2005); Maarten Siebe van Wirk, Nguyen Anh Tru & Pham Van Hoi (2005)
farmers in an effort to meet market demand on safe vegetables. It seems that such research tries to convince farmers to develop safe vegetable production because it can give them more benefit.

Outside Vietnam, for example, Thai producers and retailers put efforts into promoting safer fresh food19. However, one thing to pay attention is that their study sites are places where SV production is relatively developed and market dynamics are different from the study site of this research. For example, Hanoi is the first area having SV production sites and consumers’ income is the second highest in whole country. Due to many differences related to market and production condition, higher profitability of SV production has not been recognized by farmers in the study site.

Opposite to farmers’ response to market demand on safe food in many places, farmers in the study site did not consider it of much importance although they recognized health problems caused by unsafe food and increasing market demand on safe fresh products through mass media. Firstly, on the aspect of profitability, they mostly were not sure if safe vegetable production was more profitable. They did not believe in the success of those cooperatives and the safety of the products either. Secondly, farmers recognized that they are relatively good with their farming, regardless of safe or unsafe production practice. Thus, they did not see a need of responding to market demand on safe vegetables.

Box 1. Farmer’s perception of the profitability of safe vegetable production

|“I have produced safe vegetables for several years. I see that annual cost for safe vegetables production is not much higher than for normal ones. However, the cost for infrastructure such as irrigation system and net-houses, and cost for management is much higher. If producers want to prove their products to be safe, they have to get safety certification to distinguish between safe and unsafe vegetables. Cooperatives produce many kinds of products. Thus, if they want to get safety certification for all kinds, I am sure that they have to pay much money. In addition, these products must be packed with label and attached information. Those fees make the price of safe products much higher. At current price for safe vegetables, usually is about 50% higher than the same kinds, I think they can not get more benefit. It is my experience when I did business with safe vegetable shops. If they say that they get more benefit, it may happen in case their products have not certification and are not packed either. If not, I do not believe their products are safe and I think neither do consumers. If government wants to have safe vegetables, it is better to invest in “conscience” of farmers rather than establishing a range of regulations to cut down the administrative cost, so safe vegetables’ price can be reduced.” |

Source: In-depth interview with a farmer in Vinhxuan commune, September, 2007

As a result, there is not any enough strong and believable factor that forces farmers to do safe production practice all the time. For market demand, clearly, farmers tend to respond to traditional market demand as they have been doing for a very long time, which they know and believe in its benefit rather than taking adventurous action to respond market demand on SV which they are not sure about its benefit and perceive more risky. SV production just only depends on the awareness of growers which is not believable as mentioned in production characteristic section.

5.3.2 Problems in input supply chain affect safety

Problems that come from the input supply chain makes SV production difficult at the beginning. As the research describes in the section of site characteristics (See Table 10), poor irrigation systems and destroyed net-houses due to severe climate are constraints to the development of SV. Land fragmentation that prohibits investment on infrastructure for SV production has not been solved.

Another constraint comes from ineffective technology transfer. As said in the farmer group discussion, a training course on IPM is held 3-4 times per year but farmers criticize the training method a lot as it focuses only on theoretical knowledge and ignores practical skills. It means that trainers do not go to the field and work with farmers and farmers do not have many chances to have discussion with trainers about differences between in reality and theory. This issue is also acknowledged by trainers. They say that they

19 Wimboompongse, A. & Sriboonchitta, S. (2004); Buurma, J. and Saranark, J. (Year not clear)
do not have enough funds to have more time to work with farmers on the field. And due to the lack of trainers they can not communicate with all farmers well and thus help them solve the problems happening on the field and clarify what makes them confused. For example, there are many varieties and types of pesticides on the market, meanwhile farmers and trainers do not have enough time to discuss this in the theoretical courses and work together on the field. Farmers sometime find difficult to choose suitable varieties and pesticides because what they get in theory courses does not relate to what happens in practice.

While farmers can not contact with trainers to choose suitable pesticides for safe production, they are more confused when pesticide sellers can not give them good consultation. Thus, they raise the idea of the diversity of pesticides and difficulties to chose. As in-depth interviews with input suppliers show, in case they are pesticide sellers, they recognize that although they supply pesticides for safe vegetable production site, they do not always know what kind of pesticides they are allowed to sell. In addition, there is no inspection of their business so that they do not know if they break the regulations. Besides, there are more and more kinds of pesticides over time, so they can not know all their usage and impacts although they are trained how to use some popular ones by Vinh city extension center and PPD staff.

We can see that, along with poor infrastructure and severe climate, ineffective functioning of competent organizations in technology transfer and popularization and inspection of regulations on pesticide business that make SV seem to be not safe at the first part of its supply chain.

5.3.3 Diversity improvement - Challenges in the production chain

While diversity of products is an important factor as analyzed in the Demand side section, finding a chance to improve it faces many difficulties. It is the problem that happens at many safe vegetable production sites. In some cases, several safe vegetable cooperatives have found an effective way through contract farming to solve this problem but it seems impossible in the study site.

“Diversification” mentions about the activities supplying many types of SV to consumers. In general, there are two ways to improve diversity of SV. The first way is that sellers can collect different kinds of SV from different growers who only grow several main products. The second way is that sellers can buy many kinds of SV from several main growers who can grow many kinds of SV. However, the research only analyzes the potential for the second way, how farmers in the study site can supply many kinds of SV, because it is a requirement of supermarkets which are potential sellers in the study site and in whole country.

5.3.3.1 Farmer in other sites- success with diversification

In- and outside the country, farmers in many sites have been successful in responding to market demand on diversity with contract farming to improve their product diversity and avoid risk of unsold products.

In the country, as shown in VEGSYS research and the study in the LEISA magazine, farmers in the study sites establish cooperatives or groups of safe vegetable production to diversify products. In Phuctinh cooperative, the chairperson decides which vegetables members should produce. At that time, Phuctinh has contract farming with five institutional clients who buy 700kg/day. In Nam Hong commune, DongAnh district, a peri-urban of Hanoi, an “inter-groups” was established from six small groups. It is a solution to a difficult circumstance in which small groups could not satisfy the buyers’ requirements on product diversity and large and stable amount of products supplied.

Another example for the success in diversification is Hungthien company in Dalat. The manager is a researcher on safe vegetable production also. He is responsible for technology transfer to farmers, supply information on which farmers can choose what kind they should produce and purchase all their products. Now, the company supplies about 80 kinds of safe and organic vegetables for supermarkets, restaurants, hotels and export.

Outside the country, the success of SV production in Thailand is an example. Farmers may become full time suppliers or wholesalers, or farmers are suppliers simultaneously. The leaders of groups are

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responsible for having contracts with buyers. Depending on the market information, he will estimate how much should be supplied. Then, he will decide which households will produce certain kinds of product with certain volumes and purchase all products of farmers in the group. Relying on that, he not only responds to market demand on diversity but also avoid the risk of unsold products.

5.3.3.2 Farmers in the study site respond to market demand on diversity

Difficulties in diversity improvement

Contrary to successful examples above, market requirements on product diversity seems not easy to respond to in the study site. Small and large production scale presents the similar reasons for it in Farmer group discussions as follows.

Firstly, product diversification will make guaranty for safety more difficult and reduce profitability due to land fertility. As mentioned on last section, soil characteristic in the study site is not suitable for many kinds of vegetables especially fruit vegetables. In addition, the climate here is not favorable for many kinds of vegetable, high moisture, too hot in summer, too cold in winter and many floods. According to farmers’ experience and knowledge, growing those kinds of products takes much investment in labor, fertilizers and pesticides because with unsuitable natural condition makes vegetables much easier to suffer from plant disease. Thus, ensuring the safety of those products is very difficult. In addition, low profitability, partly due to low productivity, partly due to long-time of cultivation, partly due to high investment prohibits farmers to produce those kinds of products. Ultimately, they prefer their current practice with several leafy and short-time vegetables rather than investment on others.

Box 2: Farmer opinion on the perspective of safe vegetable development in term of product diversity

“Climate here is very severe. In summer, vegetables seem to be fire on the sun and get dry due to Lao wind. In winter, it is so cold that even human seems to be difficult to live. Especially, high moisture is favorable condition for insect and plant disease to develop. In other regions, such as Dalat and Ha Noi, climate there is an favorable factor that make farmers can grow many kinds of vegetables in whole year, including off-season ones. With the severe climate like that, growing real on-season safe vegetables is difficult, let alone off-seasons ones”. Therefore, product diversity is too high in comparison with our reach.

Source: Farmer Group Discussion, Vinhxuan commune, September, 2007

Another reason which farmers show is small land area and land fragmentation. To diversify safe vegetables, farmers analyze two potential ways. Firstly, each household produces many kinds of vegetables. Secondly, each household grow one or two types of vegetables so that cooperatives or farmer group will have many kinds of vegetables. The first way can be called inter-cropping. With small land area for cultivation, inter-cropping will lead to difficulties in production arrangement and the development and spread of insect and plant diseases. As a result, it will put the guaranty of safety and profitability in a difficult circumstance. Thus, farmers find it is impossible to do. The second way, which has been done in successful examples above, may face with the problem in equality insurance among every household with different kinds of products in term of profitability. However, farmers still find a chance to do it with support from locality.

Challenges in guarantying safety and profitability due to natural condition and land fragmentation are not unique reasons that make improvement of diversity more difficult. Another important reason is fear of risk of unsold products. Farmers say that, with higher investment in low profitable vegetables, competition with similar ones is more difficult in terms of price. Thus, for low profitable vegetables, they will face the risk of unsold products if they sell at the price ensuring benefit or bear the loss of benefit it they sell at market price. Meanwhile, farmers say that they can sell all their products to Vinh market easily although they sometime may face with low price. Ultimately, as they say, they prefer to grow some traditional ones, short-time and high profitable vegetables rather than grow other kinds of vegetables which may be more risky.
Although those reasons mentioned above are recognized by two grower groups, the relatively large and the small production scale group, responses between the two are very different.

For the small production scale group, a smooth income source is the main reason that prohibits them to diversify their products even if they are supported and subsidized. The main reason they raise is lack of money for daily expenditure if they grow many kinds of vegetables including off-season and long time products. As described in the study site section, most households grow short time and on-season vegetables. When they do farming with short-time vegetables, they can get money more frequently. Small farmers also say that, if authority subsidizes for low profitable and long-time cultivation products, it takes so long to get money from authority and from selling those products. This makes their life difficult because they need money for household consumption and production every day while they only have little savings.

**Chance for diversity improvement**

In spite of those challenges to diversity improvement above, there is a chance for diversity when the large production scale group agrees to diversify the types of vegetables if it is policy of local authority and some of their initial requirements are met.

According to farmers, establishment of farmer groups or organizations to manage the production and marketing of all members is needed because no individual household can supply all kinds of products that consumers want. Firstly, farmers say they agree to diversify products if it is the policy of government or locality but they ask support for or investment in or subsidies for low profitable vegetables. They do not accept benefit sharing among members in groups or cooperatives. It means that, if some households grow low profitable products, others who grow higher profitable products will not share their benefit with them.

Farmers say it is the local authority’s responsibility and they should do it by giving subsidy to farmers. Secondly, all their products must be purchased through long-term contract with stable price. This is a strategy farmers need in order to cope with the risk of unsold products that was explained above.

We can see that, diversification, for farmers, if it will be done, is to satisfy local government requirement rather than for their own benefit, and its purpose is to follow certain policy rather than trying to meet market demand to increase their benefit.

However, according to local authority, giving subsidy and purchasing all products is out of their capacity and responsibility. The conflict in the viewpoints of farmers and local authority put diversification in safe vegetable production at hold.

In-depth interviews aiming to get information on the capacity and responsibility of local authority were carried out with two staff members of DARD of Nghean province and Economic Department of Vinh city. In general, they agree with farmers on the difficulty in safety guaranty and low profitability of some products due to natural condition.

About subsidy, they say that subsidy for product diversification as farmers request may face with several socio-economic problems. Investment for one household may lead to the objection of the others who do not get investment. A scenario may happen in that many households want to grow vegetable of the types which are on the investment list. As a result, efforts to diversify may cause contrary effects ultimately. “Even we have financial sources to subsidize, the solution to those problems are out of our capacity”, said them. They also say that ensuring the sale of safe products is impossible. They may think of giving several types of marketing supports but this can not ensure the sales fully.

However, those ideas are just assumptions of authority. Actually, at present, authority acknowledges that supports mostly focus on technology. SV development in Nghean province now is in the very first period with most attention to change perceptions and production practices of farmers through training courses and propaganda on the adverse impact of unsafe production practice. They also say that in the near future, there is no strategy for stimulating diversification in all safe vegetable production sites in the whole province and farmers must arrange this by themselves.

While finding cooperation between authority and farmers in product diversification an obstacle, there are not favorable conditions for participation of the private sector in safe vegetable development either.

Going back to the examples of successful cases, we recognize that the participation of the private sector to ensure the sales of products is vital to encourage product diversification. Thanks to the guaranty of sales
and benefits, farmers are willing to follow the decision on product diversification by the chairman or managers. However, those cases happened in regions with favorable conditions. In terms of the development process, Dalat is the region that developed safe and organic vegetables earliest in Vietnam, and Thailand is the country with highest export value of fresh fruit and vegetables in ASEAN countries for a long time. Therefore, they may have many experiences in production arrangement and dealing with risk. In terms of natural conditions, Dalat has the most favorable climate in Vietnam and is suitable for many kinds of vegetables the whole year. In terms of socioeconomic conditions, in Thailand, the market economy has developed for a long time in comparison with Vietnam. It is a favorable economic condition for the participation of private sector. In comparison with those regions, Nghe an is in the first stage of safe vegetable production and has no advantages in terms of the development process, natural and socioeconomic conditions. Thus, there is no favorable foundation for the participation of the private sector in safe vegetable development.

Sub-conclusion

As analyzed, the research shows that farmers prefer to respond traditional market demand with several on-season and short-time products rather than respond to market demand on high diversity which they perceive more risky and less profitable. Besides, the mismatch between farmers’ needs and local supports to diversify products make improvement of diversity more difficult. In addition, when cooperation between local government and farmers is not found, there is no signal and favorable condition for the participation of the private sector in SV development. Thus, a potential way to improve diversity of SV in the study site has not been found.

5.3.4 Institution issues - problems in labelling chain

As shown in the Table 9 in the Demand side section, safety is the most important criterion in all criteria. The strongest assurance of safety, according to consumer viewpoints, is safety certification. Buying certificated products is first priority to prevent health problems caused by unsafe vegetables. Thus, to make consumers believe in the safety of products, safety certification is of vital importance for producers or/and sellers doing business with safe vegetables. It can make up a trademark which is said to raise price and increase value added for labeled products. However, institutional problems put safe vegetable development in a difficult condition and those should be solved not only by provincial authority but by the whole country. It is not only related to the difficulties in getting safety certification but also to the incredibility of the certification. Institutional problems will be analyzed in this research as it relates to safety certification. Quality control activities including supervision, inspection, and punishment are considered the important factors that make safety certification credible in consumers’ views.

5.3.4.1 What happens in the whole country?

Safety certification – far out of the reach of producers

After about 10 years since the beginning, the certification system of safe vegetable production should have been issued clearly and systematically. In reality, the non-transparent certification system pushes getting safety certification further and further away from producers’ reach.

The report of SUSPER on “Safe and Organic Vegetables Fair”, held in 2003, in Hanoi, presents the change in the quality management system, from a range of non state organizations taking charge of granting certification for safe vegetables. It is said that this change make farmers very confused and make it difficult to apply for safety certification.

From 1999 - 2001, there were many types of safety certification granted by many organizations such as Department of Science, Technology and Environment (DOSTE), Hanoi Extension Center, Natural Technology University, Farmer Union, General Department for Quality Control (GDQC). Certification granted by DOSTE was valid after one year and up to 9/2002 all certifications expired. For certification granted by GDQC, only IFFV got it. Other types of certifications granted by the rest of organizations depended on the participation of producers in training courses on safe vegetable production.

After a period of having too many types of “safe vegetable certification”, farmers are faced with contrary circumstances, no responsible organization to certify, when DOSTE of Hanoi stopped granting
safety certification. The department itself said that is meaningless because they only test the sample without supervision if farmers follow the technology requirement on safe vegetable production. From that time, producers can not get certification even if their products meet regulations on safety because they can not find any organization which has responsibility to do it. Only five of 50 organizations joined in the fair got safety certification granted by local PPD, of which two cooperatives got “safety certification” from local PPD because the safe vegetable production plan was under the co-operation between cooperatives and local PPD. Other production units run independently did not have any certification although they market themselves “safe vegetable production cooperative”.

After more than two years of no way to apply for safety certification, farmers can now have a new chance. In an effort to fill the “hole” of certification system, in 2004, DARD issued a resolution that PPD is responsible to check and control the quality of safe vegetables. If a unit wants to produce safe vegetables, it has to submit its profile and proposal to PPD. In case the proposal is approved, PPD will tell DARD to give a certification that permits the unit to produce safe vegetables. PPD has responsibility for checking the quality periodically (Engels, Year not clear; Maarten Siebe van Wirk et al, LEISA magazine, No 21.2, 2005). However, in reality, inconsistence on who takes charge of granting certification in different areas is criticized. It is granted by Plant protection Department in some areas, in others it is granted by Technology Department. (Nhan Dan newspaper, 03/08/2007)

The high cost for analysis seems to be a constraint to getting safety certification and increase in sold volume of SV. For the early period of development, fees for analysis were always supported by government (Bui Thi Gia et al, 2003, www.vegsys.nl; Phan Thi Giac Tam & Le Thanh Loan 2005). In the latest Decision of MARD, it is said that this fee will be paid by suppliers. Now, it takes relatively large amount of money, more than 2 millions VND to analyze one sample. Although there are some studies that imply that high price is not a constraint when it states that buyers (including wholesalers, retailers and consumers) are willing to pay higher price for real and certificated safe vegetables (Cuong et al, 2004; cited by Phan Thi Giac Tam, 2005), those statements have not been approved because they have not pointed at the price at which buyers can pay and if the price can cover the cost for getting safety certification. In addition, some studies states that higher price due to high cost analysis lead to reduction in sold volume. Thus, the question if costs of getting safety certification are incremental has not answered in general. It may be different among certain places and what happens with study site will be explored in next section.

Besides, the long time to get analysis results and safety certification are recognized. Usually, it takes more than one week to get analysis results. If the analyzing organization and certification organization is different, farmers will have to wait until the administrative procedures have finished getting safety certification.

In an effort to establish a sound certification system, MARD issued The Decision No.4, 1/2007. It opens an opportunity for all organizations to grant safety certification if they meet its requirements. When an organization wants to do business on safety certification, it has to submit its profiles to DARD. If its profile is approved, DARD will issue an operation license for this organization. Organizations granted safety certification is responsible to the law about their certification. However, this “opening” may be ineffective in reality because it has no encouragement for the participation of the private sector meanwhile the operation of state organizations has not been effective for many years.

The public sector, with a lot of financial and technological supports from Government and NGOs, is expressing its weakness through a range of violation on safety of many safe vegetable production units and the continuous change in the certification system as mentioned before. Even Hanoi Department of Science and Technology itself acknowledged that it could not ensure the safety of products in “safe” production sites because it can not supervise and monitor the practice of farmers.

Without encouragement and support from government, the private sector will have many difficulties if it wants to do business in certification system. Firstly, it may face with the lack of modern equipment to analyze chemical residual when investment for such equipments needs a lot of money. Secondly, high cost for analysis is a constraint. If one can not find a way to cut down analysis cost in comparison with current

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22 Engels, R. (Year not clear); Maarten Siebe van Wirk, Nguyen Anh Tru & Pham Van Hoi (2005)
23 Phan Thi Giac Tam, Ngo Thanh Loan, Trinh Thuc Hien & Hoang Thi Thuy (2005)
cost, its business may not work well because farmers perceive they are not willing to pay such large amounts of money. Thirdly, it may face with constraints from the public sector. The public sector does not always show constructive attitudes in creating facilities for the private sector to participate in certification system. For example, the “Green Group”, a private organization, in an effort to establish an interdependent certification organization, failed after more than two years of discussion with relevant ministries such as MARD, MOE and MOH but MARD was not willing to co-operate at all.

Ultimately, after much effort in improving safety certification, farmers still face many obstacles coming from institutional problems if they want to get safety certification. Firstly, it is difficult for them to apply for safety certification because of the sudden change in responsible organizations to do it. Secondly, the cost for analysis of chemical residuals is too high for farmers and takes a lot of time. Thirdly, participation of the private sector is not encouraged while the public sector has not functioned effectively. Besides, lack of inconsistence on criteria for testing leads to different results and may make consumers lose believes in the safety of certificated SV.

**Ineffective quality control activities**

Besides the chaotic certification system, quality control activities including supervision, management, inspection, and punishment are administrative problems of safe vegetables production that make consumers not believe in the safety of SV. As mentioned in the Demand side, these are important factors that make safety certification meaningful to consumers but these activities have not been done regularly and effectively.

The first aspect the research mentions is supervision. An obvious example for the failure in operation of a competent organization while carrying out supervision and management activities is Ministry of Science and Technology. They admitted that they could not supervise the adoption of farmers, so that they can ensure the safety of “safe” vegetables. This issue is also raised in the reports by SUSPER and LEISA magazine. Most safe vegetable production cooperatives in Hanoi peri-urban districts do not have official quality control systems, including internal and external ones, even with successful cooperatives as Phuctinh. Although PPD is responsible for checking and improving the vegetable safety level, it does not have any action to carry out its function. Safety guaranty depends only on the trust between members in the cooperatives. In this case, social belief plays a role of quality control system. However, effectiveness of social control varies depending on the size of cooperatives. The larger they are, the weaker the social control. Samples will be tested by its institutional customs only when health problems happen. In spite of consumers accepting the safety of those products there is a health problem in the long term caused by small chemical residuals that are not detected.

Even when control quality activities have claimed to be done, it may not be believable in many aspects. Another successful safe vegetable trade mark is Baoha SV company. Its control quality activities are analyzed in the “In-depth case study of safe vegetable cooperatives in TangMy and SonDu” (Engles, Year not clear). The researcher shows his doubt on the effective and regular operation of these activities of the cooperative and relevant organization such as DARD and PPD because of several reasons. Firstly, they are inconsistent in how these activities are implemented and they do not have any evidence to show what they have done. Secondly, they are not evasive when to be asked more details about the problem. Thirdly, fees for testing are high so that research does not believe that it is carried out regularly.

The second aspect that makes safety certification incredible is the institutional disagreement on what criteria for certification and how testing methods are done leads to “safe vegetables” which are certificated formally may not be safe in accordance with MRLs issued by MARD. It leads to the doubt of consumers on safety of certificated SV.

The criteria for certification are different between provinces. In Ho Chi Minh city, it depends on actual production results (95% of samples tested is below MRL) and the number of farmers taking training courses on safe vegetable production (95% farmers). Certification based on those criteria may lead the inexact conclusion because farmers can collect the standard samples to test. Furthermore, in many regions

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24 Engels, R (Year not clear)

25 Phan Thi Giac Tam, Ngo Thanh Loan, Trinh Thuc Hien & Hoang Thi Thuy (2005)

26 Phan Thi Giac Tam (2005)
in Hanoi, safety certification was granted only based on the participation of farmers in a training course on safe vegetable production. This is a reason why before 2001 there were many organizations taking charge of certification. Clearly, certification depending on this criterion is meaningless because the participation of farmers in training courses does not mean that they will follow the technological requirement presented in those courses. In Dalat city, safety certification is based on the satisfactory analysis of samples and the analysis is implemented by accredited institutes. The tested samples may be taken from production field, or from markets, supermarkets or other outlets. In comparison with the two certification process, the third seems to be more believable because samples are collected randomly in many chains of supply chains.

About results of testing methods, although it is a very important and popular criteria for safety certification, the result of testing methods are different. Quick testing methods are cheap and fast ways but they only can detect few types of pesticides (i.e. organic phosphor and carbonate). So that, even if the result shows that the product is safe, it may not safe in reality. Besides, there are some different residual analyses quick testing method applied in inspection that have inconsistent results.

Lastly, another important activity that makes safety certification more meaningful to consumers is punishment does not get any attention yet. Up to now, many violations on safety of many safe vegetables production sites have been reported and publicized but there is no punishment to be done. It means that individuals or/and organization violate regulation on safe production can continue grow unsafe vegetables and they are still labeled “safe vegetable”. That make consumers lose their trust in safety certification.

5.3.4.2 What happened in the study site?

Safety certification

Farmers and safe vegetable development in Nghean province have not escaped from the stuck condition either. They are facing with similar problems to the whole country. They are unclear about the inconsistent certification system, high cost for analysis and ineffective function on quality control activities.

Although Nghean province began safe vegetable development in 2001 with the safe vegetable development project in Vinhxuan commune, Hungdong district, and has implemented many projects in many peri-urban districts from 2005, there is only one safety certification. However, there are several problems around the certification.

Firstly, this certification was granted by Vinh city authority in 2005 based on the participation of farmers in Vinhxuan project site in a safe vegetable production training course. As analyzed above, this certification is meaningless. In addition, this project was funded by Vinh city local authority, so that its certification is not objective.

Secondly, Nghean has no capable organization to analyze all chemical residuals suggested in Decision No.4. Nghean PPD, the most potential organization in the province can not do that up to now. PPD can only analyze safety of vegetables by a quick testing method so they refuse to grant safety certification. The reasons they present are their limited capacity and lack of equipment. At the present, the testing method they can use is a test kit, but this method is not trustworthy. Even if the results satisfy the test, they still do not assure the safety of the product.

According to the Circular No 774, 07/30/2007, guide line for Decision No.4, if safe certification organizations are not capable to analyze chemical residuals, they can hire analyzing organizations to do it. Thus, if farmers want to analyze their vegetables, they have to take samples to the centers in Hanoi. As mentioned before, it takes a lot of time and money. In a group discussion, farmers in the study site recognize that they are not willing to pay so much money and spend much time to go to Hanoi and get analyses results for their products individually. The chance for certification is that farmers acknowledge that they may contribute a little money for the cooperatives to have group certification for all members as farmers in other sites have done.

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27 Nguyen Thi Tan Loc, Ho Thanh Son & Tran Thi Tham (2004)
28 In-depth interview Chairman of PPD, Nghean province
Quality control activities

Supervision and inspection has not been done regularly and effectively in the study site and others as well. They acknowledge that sometime they have field visits to supervise how farmers follow the safe vegetable technology requirement but it is formalism. Firstly, with only several field visits, they can not know if farmers follow the technology. Secondly, even if they detect a non-adoption, they do not know what they should do later. It is because there is not regulation on how farmer will be punished if they do not follow technology requirements

Interaction between farmers and competent organizations and responsible persons is not good enough according to the viewpoint of farmers. While the staff tend to blame the managerial system for their ineffective function, farmers complain about the way the staff do their duty. In a group discussion, farmers raise the problem of no feedback from authority about how their products meet requirements on safety. Farmers say that, sometime staff go to the field, mostly to look, but sometimes, they get some samples but farmers never know what they do with those samples because farmers have not informed them about it. It makes farmers confused about the safety of their products and prohibits further discussion on how to improve safe production practice between farmers and relevant individuals or/and organizations. Although the authority only focuses at technology this time, it seems that they have not done a good job yet.

Box 3: Farmers complain about the function of authority

“We want to know the results after applying safe vegetable production technology, whether it meets safety requirement or not. They take samples, may be for testing, but we are not sure. But no body let us know the testing results. If they let us know, we can try to explore why we did not have good enough products so we can find solutions to improve. Besides, we can know who did not follow technology requirements so we may have way to help and encourage them to do the right things. Local authority, extension encourage us to adopt safe vegetable production technology through training course, but it seems that every thing stops after the ending of those training courses. We do not have a chance to talk with them anymore, we do not know how we success after trying our best to apply new production method”.

Source: Focus Group discussion, Vinhxuan commune, September, 2007

Besides, although testing is an important activity to check if farmers practice safe production, it is only done when needed for competent organizations’ reports. Furthermore, reports are formalism because relevant departments do not have any action to respond to the problems raised in the reports. PPD and DARD staff recognize that although the authority at provincial level asks for the reports on the implementation of safe vegetable production, they have not taken any action to improve efficiency of quality control activities up to now.

5.3.5 Difficulties in development of retailing systems

As analyzed, constraints in safe vegetable development exist along the supply chains, from input supply chain, production to labeling chain. They are consequences of many factors. In the supply chain, the constraints coming from less effectiveness of technology transfer and no management in input flow of pesticides reduce the safety of vegetables. In the production chain, the constraints come from natural conditions, viewpoints of farmers on the profitability and fear of risk, poor interaction between farmers and supporters, mismatch between farmers’ need and locality’s support to diversify. In the labeling chain, the constraints result from a chaotic certification system and ineffective quality control activities. Finding a future for safe vegetable development in the study site seems to be more difficult when there are many problems in marketing chain.

The next section will focus on marketing channels of SV from 2005 up to now. Participation of supermarkets and the appearance of “safe vegetable shop” are analyzed the potential marketing channels. Wet market is a considerable retailing system to pay attention too.
5.3.5.1 Retailing system of supermarkets

The development of supermarkets in Vinh city

Like in the whole country, the development of supermarkets shows a rapid increase in number in Vinh city - Nghean province. In 1998, there was only one supermarket named Maximax. Now, there are more than 10, including the largest supermarket named Intermex, five to six G7 supermarkets and several individual independent supermarkets named AnhDuong and Van Xuan. Intermex is one supermarket in the supermarket chains that comprises seven in the whole country. G7 supermarkets are a part of the G7 supermarket chains. Most of them have just been founded in 2007 and they all do business with packed and cool stored foods. Thus, retailing systems of supermarkets is relatively new to consumers’ eyes.

Although they market themselves “supermarket”, their scales are very different. The two largest ones, Maximax and Intermex are more than 2,000 m². Individual independent ones are about 500 m² and the smallest ones, G7, about 150 m². Varying in accordance with their area is the diversity of sold commodities. Although all of them sell food, only three, including Maximax, Intemex and AnhDuong supermarket had done or are doing business with “safe” vegetables. Maximax and AnhDuong stopped working with “safe” vegetables. Intermex is in the process of developing business with it.

What surprising is that, although those supermarkets have not labeled the vegetables sold in their stores “safe vegetable” formally, consumers assume those supermarkets are selling “safe vegetables”. According to the market survey, when asked “Could you list the stores selling safe vegetables you have known?”, consumers answer those supermarkets and safe vegetables shops of Hungdong district (it will analyzed more deeply in the next section). Besides, supermarket managers also commit the safety of their vegetables and take responsibility if consumers have health problems with their products.

In-depth interviews carried out with some supermarkets show the common reasons why they do business with safe vegetables. All of them raise their awareness of increasing demand on safe food, especially vegetables. Thus, they want to do a “test” with new products. In addition, having vegetables improves the diversity of goods sold in their store. With “safe” vegetables and other cool storage foods, those supermarkets make themselves a “one-stop shopping place”. This is the most important reason to them. This is why, although they do not get much benefit and find high risk when doing business with vegetables, they still do it. Maximax did it more than six years and Intermex is trying to improve the situation. However, Maximax and AnhDuong had to stop because they did not find profitability of safe vegetables in the short term.

Marketing chains of supermarkets

This analysis will focus on two supermarkets, Intermex and Maximax because the marketing channel of AnhDuong and Intermex is similar. Maximax was founded in 1998 and worked with “safe” vegetables from the early period of its development to 2005. Intermex was founded early in 2007 and is in an effort to develop business with safe vegetables. Traditional markets are still dominant in selling vegetables. The volume sold every day by supermarkets is just a small part of all volume sold in whole city, about 0.6 - 0.7%. Usually, each supermarket sells 50 - 100kg vegetables per day. As estimated by farmers in the study site, the amount the supermarket sells per day just only equals the produced volume by one household per day.

Marketing channels of the two supermarkets are relatively simple and similar. The difference is only in the source of supplied products. Intermex collects products from Vinh wholesale market while Maximax purchases from Dalat - a most well-know region with safe vegetables and HungNguyen district - a peri urban of Vinh city. However, the problem in purchasing safe vegetable those supermarkets face is similar to what is happening in many supermarkets. It is that supermarkets sometimes, especially in the rainy season, purchase vegetables without specified farm origin and then label them “safe vegetables” (Moustier et al., 2005).

For Maximax, it had contracts with farmers directly in those regions in the early period. However, after that, because those farmers could not deliver enough requested amount and types, the supermarket stopped contracts. In spite of the supermarket said that not having safety certification make it do not believe in the
safety of products, it could not explain why it bought products from certain sites which had not safety certification either. Nevertheless, although it said that many vegetable production sites did not meet its requirements on safety, it could not give safety specific indicators to suppliers. The supermarket recognized that looking at appearance was the only way it collected the “safe” vegetables of suppliers.

For Intemex, it also raises the problems that safe vegetable production sites can not supply safe enough products and low product diversity. Thus, Intemex has not had contracts with any supplier but collects vegetables from Vinh wholesaler market.

Both of them, Intermex and Maximax classify and clean products before packaging and labeling by themselves. Staff of both supermarkets are taught plant conservation knowledge. Therefore, the supermarkets feel happy and trusting when their staff collect and process vegetables. The products are cleaned by water and deoxidized from chemicals by machine – special equipment advertised to get rid off many chemical residuals in fruits and vegetables. After cleaning and classifying, vegetables are packaged in nylon bags and labeled. However, there is not any information about origin and safety of the products on the label. The label is only to confirm that the products are sold by the supermarkets.

As described above, one important thing we can see is that there is no interaction and cooperation between traders (in this case supermarkets) and growers currently. Supermarkets purchase vegetable from Vinh market, not from growers. Supermarkets do not give farmers any criteria for purchasing their products either. Besides, supermarkets do not have permanent suppliers in Vinh market. Their staff buy vegetables accidentally with small volume in many kinds and label them without certification or testing. Thus, safety of “safe” vegetables sold in the supermarkets seems to be incredible because they do not have control quality activities from production to distribution, just only base on perception of their staff.

Setting price of supermarkets depends on their perception on purchasing power of consumers, not depends on the perception of high profitability. Price of vegetables sold in supermarkets in Vinh city is similar to other ones in whole country. It is 1.5 times higher than normal ones in traditional markets. At this price, supermarkets perceive it low profitable but they have to set this price because they see it reasonable to consumers at present.

5.3.5.2 “Safe vegetable shop”, an unsuccessful experience

The two safe vegetable shops were founded in 2005 in an effort of Vinh locality and farmers in the study site to establish new marketing channel for safe vegetables in Vinh city. However, its failure after 6 month operation shows many problems in safe vegetable development. The chain analysis oriented approach as following will help us understand why it failed. The Figure 3 describes value chains of “safe” vegetable in the study site. As noted in the methodology section, the members listed above are direct actors, and the ones listed below are indirect actors.

Input supply chain

Vinh locality gave technical and financial supports for safe vegetable production in the study site. IPM training courses were offered to all farmers by Vinh extension center. For improvement of infrastructure, Vinh locality upgraded the irrigation and electricity system. In addition, if households in the site wanted to build net houses, it took 50% of the total cost. Coordination for carrying out training courses and
Figure 3: Value chains of “safe” vegetables in the study site
Source: In-depth interview SV shop keepers and supermarket, 9/2007
infrastructure improvement was implemented under the co-operation between Vinh locality and Vinhxuan cooperative. However, farmers criticize the lower effectiveness of technology transfer when training courses have been done theoretically, not through practicing in the field.

**Production chain**

Although Vinh locality and Vinh extension center took responsibility to implement the safe vegetable production development, they did not have any recommendations on how and what kinds of vegetable farmers should grow. Farmers themselves decided on their production without demanding information from them.

Another issue in this chain was that the practice and adoption of farmers was not supervised and inspected. Vinh locality and PPD did not have regular and effective quality control activities. As mentioned before, these activities were just formalism. Besides, there was not any internal quality control system applied in the site. However, farmers said that they believed in the technology adoption of others and ensured the safety of their own “safe” vegetables as well. Owing to some constraints analyzed before, this site just grew a few types of vegetables, mostly field cabbage and some herbs.

**Collection chain**

Collection of vegetables was conducted by two farmers who were assigned to take responsibility for shop management. They were collectors, sellers and managers at the same time. They collected “safe” vegetables in the site, bought and transported them to the shops. In this process, there was no involvement of the cooperative and other relevant organizations such as PPD or Vinh extension center in supervision and inspection. Purchasing only depended on the decision of shop keepers without interference of any organization. “Safety” of purchased products depends only on the perception of collectors and they acknowledged that they did not have any clear indicator for collection, just only depended on their experience and their belief in growers.

Purchased volume every day changed in accordance with the sold amount previous day. Shop keepers did not have any market information supplied by cooperatives and local authority. If they sold large amounts this day, they would buy more the next day and vice versa.

In the first period, fees for collection and transportation were drawn from the benefit from doing business with the shops. However, because the business did not work well, Vinh locality supported small money, about 300 thousand VND/month (about 20$).

**Packaging, labeling, selling and marketing activities**

“Safe” vegetables were packed in nylon bags and labeled with “Vinhxuan safe vegetable” by the two shop keepers. About labeling, although the chairman of the cooperative wanted to make sure that the safety of the products are credible by confirming the usual inspection on safety of Vinh extension centers, sellers and staff of Vinh extension center recognized that they did not do this regularly. In fact, staff of Vinh extension center acknowledged that some time they just came to have a look. They did not take any action to test the safety of “safe” vegetables sold in the shops although they granted “safety certification” to the cooperative.

Fees for marketing activities were funded by Vinh locality budget. The opening of “safe” vegetable shops was advertised in TV several times. Farmers said that this cost was relatively high, about 2 millions VND (130$) for each show and if it was not paid by Vinh locality, they would not be ready to pay for that.

The price of “safe” vegetables sold in the shops was 1.5 times higher compared to the same products which were not labeled “safe” vegetables in wet markets. Usually, the two shops sold about 50-100kg per day. Unsold products were sold to wet markets with lower price.

**Value added analysis**

If we assume that production cost is 100%, cost added in each upstream chain is estimated in comparison with production cost for per sao\(^2\). Added value in each chain is equal to accumulation revenue minus accumulation cost. Due to lack of information, the research can not give value transformation the

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\(^2\) One sao is equivalent with 500m\(^2\)
value chain of wet markets and supermarkets, only that of SV shops is presented. As seen in the Figure 4, value added in production chain is lowest (100% higher than cost of input supply). However, as farmers said in FGD, they prefer to sell to wholesalers after production because they can have more time to do other works. Value added in grading and labeling chain (130% higher than input cost) is only higher than that of production chain (See Appendix 4 for more details). In addition, cost for grading, labeling, management, etc is highest and sold volume in supply chains of SV shops is very small. Further more, doing business in retailing, as farmers perceive, is very risky. That is a reason why farmers prefer to work in the chain of producers rather than moving the chain of sellers.

5.3.5.3 Reasons for failure of supermarkets and SV shops

Those supermarkets such as Maximax and AnhDuong stopped doing business with safe vegetables and the close of “safe” vegetable shops shows that there are many constraints those units have not found effective ways to solve

Table 11: Reasons prohibit consumers from buying safe vegetable (n=40)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Retail location is inconvenient</th>
<th>High price</th>
<th>Low diversity</th>
<th>The safety of sold products is not trustworthy</th>
<th>Consumers can cultivate for themselves</th>
<th>Attached services are not pleased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion</td>
<td>70%</td>
<td>23%</td>
<td>80%</td>
<td>94%</td>
<td>20%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

Things that prohibit consumers from buying safe vegetables where they are available, was explored through the consumer survey. The information in the table comes from 40 respondents who have known where “safe” vegetables are sold.

Supermarket managers and farmers agree on many issues that limit the sold volume of safe vegetables. They are inconvenient location, low diversity, low market demand, purchasing custom of consumers, no safety certification and high selling price. The sellers suppose that higher price is a reason for low market demand for safe vegetables in general. They also think that consumers still prefer to buy fresh foods in traditional markets rather than buying cool storage foods. Therefore, it is more convenient to them to get vegetables there rather than going to shops or supermarkets. Back to analysis of preferable purchasing location in Demand section, we can see that sellers’ perception and consumer’s choice is the same when consumer prefer to buy safe vegetables in “safe vegetable shops” and wet markets rather than in supermarkets.

Beside, supermarkets seem to be right when they blame “not having safety certification” a reason that limits the sales of “safe” vegetables in their stores as well. Back to table 9, we can see that according to consumer, safety certification is the most important thing that ensures the safety which make the safety of product credible most to consumers. Also, in the above table, we also see the problem of not having safety certification when 94% respondents who know where “safe” vegetables are sold do not believe in their safety.

High price is considered a constraint to sale promotion by sellers. It seems to be right. Although price of “safe” vegetable sold in Vinh city is equal with that in Hanoi and Ho Chi Minh city GDP of Vinh city is just equal with one-second of that in Hanoi and Ho Chi Minh city. So that, consumers in Vinh city can not purchase as large amounts as consumers in Hanoi and Ho Chi Minh city do. As seen in Table 12, only about 65% consumers are willing to pay for the price set by supermarkets and “safe” vegetables shops.

More difficult, as sellers say, this price may become 75% higher if they have to pay cost for fees relates to safety certification and improvement of diversity. This point is recognized by producers also. As farmers said, while they did business with SV shops, they did not have to pay money for certification and transaction and just sold high profitable vegetables. The price at that time was 1.5 times higher than normal ones. If they have the certification and have to invest more in low profitable vegetables to improve

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30 Farmer Group discussion
diversity, they, in their opinion, accept that a price for safe vegetable is 75% higher than normal ones. At that price, only 10% consumers can access. It shows that the cost for certification and diversification is not incremental because consumers are not willing to accept. However, they recognize that they have not had any solution to this problem. Farmers and supermarkets suppose that consumers have to accept this price if consumers want to get real safe vegetables.

Table 12: Acceptable price of safe vegetable to consumers (n=100)

<table>
<thead>
<tr>
<th>Acceptable price of safe vegetables in comparison with same product</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 % higher</td>
<td>35</td>
</tr>
<tr>
<td>50 % higher</td>
<td>54</td>
</tr>
<tr>
<td>75% higher</td>
<td>3</td>
</tr>
<tr>
<td>Double</td>
<td>8</td>
</tr>
<tr>
<td>Total:</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Market survey, August, 2007

One thing supermarkets may be mistaken about is when they think that their reputation is an important factor that makes consumers to believe in the quality of what they sell. Actually, consumers just consider prestige of sellers the third priority for safety assurance of safe vegetable after safety certification and quality control activities of competent organization. (See more in Market analysis, Chapter V). Thus, continuing business with safe vegetables only depends on their reputation in near future may put supermarkets in high risk because consumers will not believe in the safety of sold vegetables.

In general, farmers’ opinion on the failure of safe vegetable shops in the past is similar with what supermarkets raised. However, farmers criticize a lot the managerial capacity of the cooperative and they suppose that it is a reason for the failure of the business. Firstly, farmers think that only two farmers taking responsibility for all activities from collection to selling can not make every thing works well. They say that cooperative and shop keepers did not have effective marketing method to access to new customers such as restaurants, schools, etc. Secondly, some farmers suspect that shop keepers purchase vegetables depend on their relationship rather than on the quality. They ask more obvious regulations on safe vegetable collection if cooperative wants to develop safe vegetable shops more effectively and commercially.

Farmers’ opinion on low managerial capacity is supported by locality at commune, district and province level. They say that farmers are just only accustomed to production. Participation in activities of retailing system such as collection, distribution, and marketing seem to be “strange” to farmers.

Besides, farmers and the cooperative complain about mismatch between their imperative needs and local support. While they need support for marketing activities most, locality just only focuses on technology transfer. Back to the description of value chains from production chain, collection chain to marketing chain, we can see that competent organizations did not have any supporting activity on market information. Farmers themselves had to decide on types and volume product should be grown. They had to decide the purchasing volume without any consultant and recommendation from competent organization.

However, one important thing buyers (farmers and supermarkets) and competent organizations do not recognize is that no publication of their supervision and punishment on the safe vegetable production, collection and distribution make consumers not to believe in the safety of safe products even when they are certificated. This is analyzed deeply in the Demand side section. In that case, consumers seem to be right when they have this perception. As shown in the description above, safety certification Vinh locality gave to the cooperative was just only a tricky marketing activity because in fact they did not have supervision, inspection and testing either so that they themselves did not know for sure about the safety of “safe” products.
5.3.5.4 Future for development of SV retailing systems

Three safe vegetable retailing systems the study focuses to analyze their constraints and opportunities including safe vegetable shops, supermarkets and traditional markets. Finding future for the development of safe vegetable retailing system needs solutions to the problems causing the failure of business of supermarkets and safe vegetable shops. In this section, the study will analyze constraints and opportunities relates to the each issues mentioned above including product diversification, high price and safety certification.

Why supermarkets? Although vegetable sold by supermarkets is still small according literature review and case study site in Vinh city, we have to recognize that their participation in fresh product retailing systems is increasingly important. In addition, there is no unit ready to do business with safe vegetables currently. Therefore, up to now, finding a way to respond to supermarkets’ requirements is a chance for SV distribution.

Why safe vegetable shops? Firstly, development of safe vegetable shops is a strategy of government. Secondly, farmers in many areas have developed this as a major outlet for safe vegetables. Thirdly, safe vegetable shops had been established in the study site and analyze its potential development in future may give a chance for safe vegetable development.

Why wet markets? Firstly, wet market is the most important outlet for vegetables now. Secondly, consumers still want to buy safe vegetables in wet markets rather than in supermarkets. Thus, develop retailing system of wet markets can attract many consumers.

a. Supermarkets retailing system

Cooperation between farmers and supermarkets – potential scenario

In the most famous safe vegetable production site such as Dalat, the tight vertical relationship is presented by contract farming with not only market provision but also resource provision. For examples, Saigon Co-op Mart has a plan to purchase 2 tons/day from Dalat and invest for this production there. In this year, about 100 vegetable and fruit production households in Dalat have been trained on production and maintenance of safe vegetable and fruit in accordance with EUREP GAP by Metro Cash-Carr Co-op Mart and Lamdong DARD. Go along with training course, the supermarket commit to buy 150-250 tons of fruit and vegetables in Dalat and other peri-urban district. The participation of supermarkets in supply chains not only develop in distribution chain but also expand to input supply chain shows the potential great development of supermarket retailing system.

Requirements of supermarkets for contract farming in whole country

The research of Phan Thi Giac Tam show the restriction in contract farming between farmers and supermarkets is low diversity. Only a small portion of safe products sell through contract companies and supermarkets. The rest has to be sold to traders in traditional chains at the same price as regular vegetables. A study on one safe vegetable area in HCMC – Hocmon District – found that 70 percent of the produce was sold to wet markets while only 30 percent was sold at higher prices through contract arrangements (Oanh, 2004; cited by Phan Thi Giac Tam, 2005). The safe vegetables farmers’ association in HCMC – Tanphutrung – has 60 ha with production of 30 tones per day but sells to supermarkets an amount of 700 kg per day (2.3%). Supermarkets say that contracted amount could be increased if farmers could provide more diversity of vegetables and consistent quality. Farmers also recognize that supermarkets have ordered a larger volume but with the condition that products must be safe and of the same size but they find difficult to take this chance.

What future for the study site?

Back to analysis before, the study has shown how the cooperation between farmers and buyers improve the product diversity. But, it should be emphasized that this cooperation exists in the production sites with very favorable conditions such as Dalat province in Vietnam and ThaiLan country. Even in Hanoi peri-urban districts where safe vegetable production emerged most early, there is no significant cooperation like

33 Phan Thi Giac Tam (2004)
that has been recorded. Contract farming, if exists, only includes market provision. It is not surprising that, in the Nghean province, where safe vegetable production is in the early period of development, contract farming with only market provisions is not easy to get.

**Diversity**

Similar to what happens with many supermarkets in whole country, supermarkets in Vinh city ask the improvement on diversity and enough supplied volume and safety certification to have contract farming with growers. But those requirements will not be responded in near future.

Finding an opportunity to have co-operation to improve the diversity between farmers and supermarkets is facing with disagreement on how it should be done. As interviewed, supermarkets ask farmers to diversify safe products before having contract farming with them. However, this requirement is not responded by farmers in the study site. As analyzed in the section 5.3.3.3, Chapter 5, only large production scale households agree to diversify but they need contract farming for all their products before implementation of product diversification. The constraint here is that two parties think they are right and insist on doing it their ways.

Farmers, as analyzed in the section on product diversification, ask for long term and stable price contract farming before diversification due to the fear of risk of unsold products. Clearly, with the many difficulties raised before, farmers need an “assurance” for their profitability.

From the supermarkets’ side, they do not trust farmers due to bad experiences in the past. When they had a contract with farmers in Hungnguyen district, the farmers committed to supply enough volume and kinds as terms but they could not. It caused many difficulties for the supermarket in arrangement of business. Thus, they want to see what farmers already have rather than expecting an improvement in the future after having contract. Besides, they acknowledge that purchasing all products is impossible. In this case, farmers want to shift all risk of unsold products to buyers and it seems unacceptable in this situation. With the small sales at the present, supermarkets can not put themselves in a high risk condition by purchasing large amounts of safe vegetable in near future. Referring to many safe vegetable cooperatives in Hanoi and Ho Chi Minh city peri-urban districts, many safe vegetable production cooperatives have to take a part of risk, they have to sell large amount of their product to traditional markets without contract farming and lower price in comparison with the price they have through contract with permanent buyers. For example, In Binhchanh district, among 145 ha that were certified for safe production, there were only 6.35 ha that supplied a daily amount of 700–800kg to a state company through contracts or only 150 kg per household (Anh, 2004, cited by Phan Thi Giac Tam, 2005).

With the conflict in bearing the risk and doubt between farmers and supermarkets, finding a chance for improvement of diversity of safe vegetable kinds that can develop supermarkets’ business has not succeeded so far.

**Safety certification**

As supermarkets request, safety certification is considered the prerequisite for contract farming in future but it seems that they have to wait so long. While supermarkets say that they do not have support for farmers to get safety certification in near future, farmers, as they said before, are not willing to pay much money and time for it.

Ultimately, in the current situation, members (supermarkets, farmers and competent organizations) in supply chain of safe vegetables have not had an agreement and cooperation on how to respond to supermarkets’ requirements on diversity and safety certification. Another constraint to the development of safe vegetable retailing system of supermarkets is that even those requirements are responded, it is not easy for supermarkets to sell large amount because consumers do not consider supermarkets are favorable purchasing location (See Table 7). Thus, safe vegetable retailing system of supermarket has been unable so far to find a potential development.

**b. Safe vegetable shop retailing system**

Another potential safe vegetable retailing system, safe vegetable shops, which consumers find the most favorable purchasing location has not found more perspective development in future than supermarket

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34 VEGSY and Safe and Organic Vegetable Fair in Hanoi
retailing system when market demand on diversity and safety certification are not meet. In addition, as observation and interviewing staff of competent organizations, there is no individual or organization is ready to participate in safe vegetable shop chains while farmers have not found it profitable either. Farmers, as shown in group discussion, just only want to operate in input supply and production chains as they already do presently rather than trying to move up to chain of sellers or distributors due to the fear of risk of unsold product and low price result from uncertain market and low managerial capacity especially sale promotion.

c. Future for development of safe vegetable retailing system of wet markets

While safe vegetable retailing systems of two potential ones, supermarkets and safe vegetable shops, have not found a way to develop, the last retailing system, wet markets seems to be difficult to participate in safe vegetable distribution channel due to different perception of farmers and sellers.

For safety guaranty for safe vegetables, in a focus group discussion, farmers raised the opinion that this retailing system may be unbelievable. They say that if their safe products have safety certification or trademark, they do not feel happy to distribute to wet markets because sellers in wet markets may mix sub-standard products with their products. It can harm their reputation. Farmers prefer to sell their products to believable buyers such as supermarkets and safe vegetable shops. For sellers in wet markets, they do not doubt the safety of producers’ products if certificated but they afraid of consumers may not believe in the safety of the products they sell because they have only sold vegetables without any safety certification or origin.

Another issue which prohibits the development of wet markets in safe vegetable distribution is high price that make sellers and buyers do not find profitability. Farmers say that if they have to sell their safe products to wet markets, they do not find any reason to respond market demand of safety because they can not sell at higher price. Meanwhile, sellers in wet markets, as in-depth interviewed, say that they have not though of buying safe vegetables if price is higher than normal ones. They suppose consumers will not be ready to pay higher prices for the products they do not believe in the safety or higher quality. Thus, sellers will not take an adventurous activity by doing business with safe vegetables.

Ultimately, safe vegetable development is faced with no clear way to sell to consumers. The three potential safe vegetable retailing systems do not find basic conditions for their participation in safe vegetable distribution. For supermarkets, their requirements on diversity and safety certification are not responded to. It is not for higher profitability first but for improvement of diversity of sold products in their stores. For safe vegetable shops and wet market retailing systems, the perceptions on unprofitable and more risky activities prohibit the participation of farmers, sellers in wet markets and other units and individuals in safe vegetable distribution.

5.4 Opportunities

Contrary to many constraints involved in the chain of input supply, production, labeling and distribution, there are several opportunities for safe vegetable development in the study site. They are related to price and appearance of safe vegetables, capacity to deal with risk caused by bad weather, proximity and social belief in growers.

5.4.1 High price, a constraint but can be solved

As the research analyzed before, high price is a constraint to the increase in sale volume of safe vegetable. However, sellers and growers may think of “brighter” picture for safe vegetable development when price is not so important to consumers. According to market survey, only 23% respondents who know where “safe” vegetables have been sold think the price in unreasonable to them. Besides, as consumers rank in the table 9, price is the least important criterion when they decide to buy safe vegetables. Thus, sellers and growers can improve other aspects such as diversity, safety, selling location, etc to attract consumers. It may help sellers or producers raise the price without reduction of sold volume.
Besides, high price can be solved when cost for certification may be supported. As recommended by MARD, it is said that fees for certification should be supported partly by local government or relevant organizations in an effort to help farmers market their products more easily to develop SV production more effectively.

5.4.2 Appearance, an aspect that makes safe vegetable production easier.

While some researches show that good appearance is an important factor that attracts consumers, farmers in the study site may feel happy when consumers do not find that this is important. According to Christopher Oates in his research named “Quality and safety of fruits and vegetable in Thailan”, the physical appearance of fruit and vegetables is a major factor in determining good market price. This also encourages the use of pesticides. Similar case happens with cabbage production in Lamdong province (Phan Thi Giac Tam, 2005). Good-looking products have been always sold more easily and at a higher premium compared with poor-looking vegetables. Meanwhile, as described in Table 9 in Demand side, it is the less important quality criterion and only 22% respondents consider it a criterion for quality of safe vegetables. Thus, farmers in the study site will not have much attention to improve appearance of their safe products. This helps them do safe production practice more easily and effectively because they do not have to use much pesticides and plant protection chemicals to improve appearance.

5.4.3 Capacity to deal with bad weather, strength for safe production.

Although natural condition is a weakness that makes safe production practice more difficult, safe vegetable production in the study site still has a chance to develop. Government financial supports can be considered a factor that helps farmers recover after bearing big loss after natural disaster. However, there is a difference in how they can deal with this problem between small and large scale production group. In farmer group discussion, small scale group seems to be reluctant to rebuild net house because it takes much money at one time. Instead, they tend to spend more time on the fields to take care their products. It helps them reduce cost for pesticides and prevent plant diseases more effectively. In this case, increasing human resource instead of financial capital is strategy to dealing with risk of small farmers. Mean while, large scale group are ready to do because they say that is necessary for safe production practice and it helps them reduce increasingly cost for pesticides. They say that if they only care about profitability and ignore the safety issue, it is more profitable if they rebuild net house than spending more money on pesticides in case building net-house is supported).

5.4.4 Proximity

Similar to many safe vegetable production sites in the whole country, the study site is a peri-urban district that is less than 10km from Vinh market, the major wholesalers. Proximity helps farmers save transportation cost and maintain their products more easily.

5.4.5 Social capital, a condition for contract farming

As reviewed in the literature section, belief among farmers in a group is a condition for contract farming which helps them improve the diversity of their production, cut down transact cost and tighten the relationship between producers and sellers in the supply chains. In reality, for example, the failure of Namhong commune in an effort to establish a safe vegetable production cooperative, shows the importance of social belief. Namhong and Namkhe are communes of Donganh, a Hanoi peri-urban district. They tried to merge some safe vegetable production groups in their commune to establish a safe vegetable production cooperative. According to their perception, having many households will improve the product diversity and volume. Although the social economic status of the two regions is similar, this plan failed in case of Namhong commune because farmers there did not believe in the capacity of the cooperative management board.

35 Managing Director, Agro Food Resources (Thailand) Co., Ltd., Bangkok, Thailand
36 Phan Thi Giac Tam (2004)
For farmers in the study site, although there was the suspicion in non-transparent “safe” vegetable collection of safe vegetable shop keepers mentioned above, farmers still believe that cooperative management board can do a better job if there are clear regulations. They explained that if the cooperative wants to develop safe vegetable production, they have to purchase products of many households not only those of their relatives. Thus, the cooperative management board has to encourage farmers to cooperate with them by making farmers trust in the transparency of their function.

In addition, farmers in the study site show their belief in the adoption of safe vegetable technology of others in farmer group discussion. It is basis to establish farmer group to have contract farming with buyers and ensure the quality of supplied products.
6 CONCLUSION

Generally, vegetable safety is an imperative issue which has got much attention of consumers. That is why demand for safe vegetable is increasing in whole country and in the study site. However, the potential for SV development is not in perspective because there are many constraints and few opportunities when members in the SV supply chains have not found effective ways to respond to market demand.

A very important constraint is the perception of growers and sellers on SV as a less profitable and more risky market. It is the main reason that discourages farmers from developing SV production and hinders sellers from doing business in the SV retailing system. As explored, farmers prefer to respond to market demand as they have done for a very long time rather than take adventurous activities to respond to market demand on SV which they perceive more risky and less profitable. Sellers also find difficulties to make profits from selling SV due to the small markets in the short term. As analyzed in the research, the perception of risk and low profitability is supported when costs are not incremental because the acceptable price of consumers is lower than the price at which farmers and sellers perceive as profitable. Although the value chain analysis approach can explore which linkage is the strongest and weakest and which chains need much attention, it is impossible to give a clear answer because problems happen along all value chain in this case study. Problems come from unfavourable natural conditions, institutions and lack of cooperation among members in the supply chain and small market at current situation. Even if producers implement safe production practice well, SV is not easy to deliver to consumers.

Although there are some few opportunities that members in the supply chains can take, it seems that SV production in the study site does not have favourable condition to develop due to its lower competitiveness in comparison to other areas where natural conditions are more favorable and the cooperation between buyers and producers is effective. Actually, a relatively large amount of vegetables available in Vinh market comes from Hanoi and little come from Dalat city at present. Therefore, there are several issues that should be considered when local government continues to promote SV production as follows.

Firstly, “Is SV production more profitable for consumers in case they can buy SV in those areas instead of purchasing high cost SV produced around Vinh city?” It may be feasible as infrastructure has been improved much in recent time so that transportation cost can be reduced. Thus, the question “if and so how they should develop SV in the province which give more profitable for consumers and farmers in long time” should be answered. Of which, stimulation of cooperation between growers and sellers development and expansion of SV market share is the very first importance.

Secondly, as explored, support and management of government and community management has not been successful in motivating farmers to do safe production practices for a very long time. Therefore, an issue that may be raised is what consumers can do to increase their power in forcing farmers to move towards safe production practice.

Lastly, further research is needed on how local government support for farmers in getting safety certification or trademark for SV in Nghean province in sustainable manner can be developed. Clearly, thanks to financial support in getting safety certification from locality as encouragement of central government, farmers may follow safe production because it can help them reduce cost and so increase benefits. But the question is whether farmers still to do that when the support is withdrawn. It is not only a question for Nghean province and safety certification but also for many areas in Vietnam and even EUREGAP certification (UNCTAD, 2007). Besides, the successful examples of participation of the private sector in and outside the country in sharing responsibility in having certification and insurance of selling of safe products is an important aspect that the locality should be concerned with to encourage the participation of the private sector in SV development in Nghean province.
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Appendix 1. Map of the study site

Appendix 2. Summary of PRA method

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Objects</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus group</td>
<td>Farmers who know well about</td>
<td>Reasons for moving toward safe production practice</td>
</tr>
<tr>
<td>discussion</td>
<td>SV production and villagers</td>
<td>Main characteristics related to SV production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mapping value chains (members and activities, weakness and strengths)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Classifying growers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reason for the failure of SV shops</td>
</tr>
<tr>
<td>Farmer group</td>
<td>Two group of farmers: large and small</td>
<td>Reasons for moving toward safe production practice</td>
</tr>
<tr>
<td>discussion</td>
<td>scale</td>
<td>Reason for the failure of SV shops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How can they respond to market demand?</td>
</tr>
<tr>
<td>Locality group</td>
<td>Local staff who take responsibility</td>
<td>Reasons for the development of SV</td>
</tr>
<tr>
<td>discussion</td>
<td>for SV production development</td>
<td>Policy for stimulate the development of SV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-depth</td>
<td>Farmers, cooperative managers</td>
<td>Get more details and individual perception in those issues above, mapping</td>
</tr>
<tr>
<td>interview</td>
<td></td>
<td>value chain and value transformation.</td>
</tr>
<tr>
<td></td>
<td>Input supplier</td>
<td>Changes in business activities and drivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The management of relevant organizations on their business</td>
</tr>
<tr>
<td>In-depth interview</td>
<td>Locality and staff of Cooperative managers, PPD, DARD</td>
<td>Their function, supports, policy and perception in the past and in the future.</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| In-depth interview | Supermarkets                                         | Reason for selling SV  
How they can participate in retailing sys of safe vegetable? What motive? What prohibit?  
How about the cooperation with growers in the past, at present and in the future? |
| In-depth interview | Sellers in wet markets                                | How they can participate in retailing system of safe vegetable? What motive? What prohibit? |

Appendix 3. Checklist

1. Checklist for the first focus group discussion

Objectives:  Getting general picture of SV production  
Mapping supply chain of SV (members, strengths, weakness)  
Identifying indicators for household classification and classifying households into two different groups.

Members: Key informants who know well about SV production and growers

a. Overall picture of SV production in the site  
- When did SV production begin?  
- Why do you move toward safe production practice?  
- Who grow SV? For what purposes?

b. Mapping the supply chain of SV.  
- What activities needed from input supply to distribution the products?  
- Who do what?  
- How to do? How about interaction?  
- What constraints do you find in each chain?  
- What opportunities?

c. Classifying growers into two groups: large and small production scale  
- What indicators should be used? For example: house, land area, income, etc  
- What group should be suitable for each grower?

2. Checklist for focus group discussion: For large and small farmer group

Objectives: To understand how each group can respond to market demand

Members: Large and small group (separately)

a. Why do farmers move toward safe production practice?  
b. How do they have their land area for vegetable cultivation? How many plots/households? How large each plots?
c. Do they invest in irrigation canal improvement, net-house, and pump?
d. How about commitment of safe production? Who did? Who did not? What regulations?
e. How do they think about recent supports of locality? How does it fit their needs?
   - What supports have been supplied?
   - In what way were those supports supplied?
   - What are farmers’ needs?
   - Who got benefit from supports? How many of you took training course? What training courses?
   - How does it fit farmers’ needs?
f. For whom do they sell their products? How much? How do they sell? What constraints do they find?
g. How did the supply chain of safe vegetable shop operate?
   - Who do what?
   - How did member interact?
   - Why did it fail?

h. How can they do to respond the market in terms of safety, price, diversity, package, retail locations, and quality certification as explored through market survey? Publicize the results of market survey to farmers.
   - What aspects do you find most difficult while responding market demand?
   - How can you solve those constraints? What supports needed?

Appendix 4. Value transformation along the supply chain of Safe vegetable shops

<table>
<thead>
<tr>
<th>Stages in value chain</th>
<th>Input cost per sao</th>
<th>Accumulation cost comparison with (I)</th>
<th>Accumulation revenue comparison with (I)</th>
<th>Accumulation farmer’s margin (III) - (II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Input supply</td>
<td></td>
<td>(I)</td>
<td>(II)</td>
<td>(III)</td>
</tr>
<tr>
<td>Variety</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (preparatory activities: transportation, communication, improvement infrastructure, etc)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub total</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>II. Production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticides, plant protection chemicals</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub total</td>
<td>50%</td>
<td>150%</td>
<td>250%</td>
<td>100%</td>
</tr>
<tr>
<td>III. Harvest and collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub total</td>
<td>10%</td>
<td>160%</td>
<td>270%</td>
<td>110%</td>
</tr>
<tr>
<td>IV. Transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5%</td>
<td>10%</td>
<td>170%</td>
<td>300%</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub total</td>
<td></td>
<td>10%</td>
<td>170%</td>
<td>300%</td>
</tr>
<tr>
<td>V. Storage and Labeling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fees for hiring selling places</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grading</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labeling and packaging</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management cost</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub total</td>
<td>100%</td>
<td>270%</td>
<td>400%</td>
<td>130%</td>
</tr>
</tbody>
</table>

Note: In theory, key respondents in each chain will be interviewed to get this kind of data. However, in the study site, shopkeepers are farmers, transporters, collectors, shopkeepers and managers simultaneously. Thus, the data above was just only obtained from shopkeeper in depth interview. Because sold volume per day was equal with products in one sao, cost in Storage and Labeling chain for per sao was equal with cost for one-day operation.

Appendix 5. Questionnaire
On consumers’ concerns and requirements of safe vegetable

Interviewee: Location:
Job/career: Contact details:

A. Concerning about safety of food.

Are you worried about food safety at present?
Yes • No •
If answer is Yes, please continue with following questions

1. Please rank the level of your concern about safety in term of its adverse effect on health problem (the kind of food you concern about its safety most is marked 1 in the box and so on)

   a. Vegetables •
   b. Fruits •
   c. Fish •
   d. Meat •

2. Have you or your family been getting sick from unsafe food according to your perception?
   Yes • No •
   If Yes, you can fill in one, two or three options below
   Vegetables •
   Fruits •
   Fish •
   Meat •

3. How do you do to avoid health problems caused by unsafe food? Mark from 1 to 6 in accordance with your priority. “1” is the best solution.
a. Buying certificated products (if it is available) •
b. Buying sound origin products (if it is available) □
c. Buying products from credible sellers (in your opinion) •
d. Reducing amount of type of food what caused sickness before •
e. Cleaning food by special ways (cleaning with salt, special equipment, etc) •
f. Cultivation for household consumption •

Others..........................................................................................................................................................

Why?..........................................................................................................................................................  

B. Consumers’ concerns about the issues relates to the safe vegetable production and distribution.

1. Do you know where safe vegetable production sites are?
Yes • No □

2. Do you know where safe vegetables have been sold in the city?
Yes • No □
If “Yes”, please write down these places ........................................................................................................
................................................................................................................................................

3. What reason(s) prohibit you from purchasing safe vegetables sold in the places you know? Please tick in any square(s) below

a. Retail location is not convenient •
b. The price is higher than you expected •
c. The diversity does not meet your demand •
d. The safety of sold products is not trustworthy •
e. You can grow for your consumption •
f. The attached services are not pleased •

C. Consumers’ perception and assessment of important level of criteria on vegetable

I. Final consumers’ perception on quality criteria of safe vegetables

1. In your opinion, to assess quality of safe vegetables, what criteria should be used? You can tick in any squares below.

a. Appearance of the products •
b. The safety of the products •
c. Maintenance •
d. Package and information attached •

Other suggestions:...........................................................................................................................................
2. Please rank the priority (from 1 to 4) for characters of quality (1 is the most priority)

<table>
<thead>
<tr>
<th>Characters of quality</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Safety</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Appearance</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Package and information attached</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

II. Price

What is highest acceptable price of safe vegetables in comparison with normal ones? Please tick which is acceptable to you.

1.25 • 1.5 • 1.75 • 2 • More than twice □

III. Retail location

Please rank the priority level where you want to get safe vegetables. Mark from 1 to 3 (1 means the most favorable one)

- Wet markets near house or office:
- Safe vegetable shops
- Supermarkets

Others (suggestion):........................................................................................................................................
Why?..........................................................................................................................................................

IV. Diversity

What kinds of food should be sold in the places you want to get safe? Please tick in the boxes suitable to you

1. Vegetable •
2. Bean •
3. Root •
4. Fruit •
5. Herb •
6. Other foods •

V. Quality assurance

Please show what make you believe in the safety of vegetables? Mark 1, 2, 3, and so on in the below squares in accordance with priority level. “1” means the first priority.

1. Safety certification •
2. Supervision, monitoring and punishment of managerial organizations •
3. Reputation of sellers/producers •
4. Your experience
5. Confirmation of others on the safety of the products
6. Advertisement on mass media

VI. Summary

Please tick in the squares in the table below to show what is the most important, what is not important, etc when you decide to purchase safe vegetable

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Important level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not important</td>
</tr>
<tr>
<td></td>
<td>A little bit</td>
</tr>
<tr>
<td></td>
<td>Really Important</td>
</tr>
<tr>
<td></td>
<td>Extremely</td>
</tr>
<tr>
<td></td>
<td>important</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
</tr>
<tr>
<td>Maintenance</td>
</tr>
<tr>
<td>Packaging</td>
</tr>
<tr>
<td>Price</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Diversity</td>
</tr>
<tr>
<td>Quality assurance</td>
</tr>
</tbody>
</table>

Interviewer                      Respondent