Linking small-scale farmers to supermarkets and other quality chains

Final Superchain report

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Dao The Anh (CASRAD)
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2009

Hanoi, CIRAD, Superchain working paper
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Project summary:

Superchain project helps small farmers to promote new quality food items in Vietnam and Laos

Paule Moustier (CIRAD), Dao The Anh (CASRAD), Silinthone Sacklokham (National University of Laos)

The Superchain project aims at bringing more stable business income to small-scale producers in Vietnam and Laos and at the same time guaranteeing better quality food for urban consumers. To achieve this, the project has established new forms of information and co-operation among producers and between producers and distributors who are looking for products of a specific quality. In Vietnam, the project has focused on “safe” vegetables in the province of Hanoi, Hoa Vang sticky rice from Hai Duong province and Mong beef from the Cao Bang highlands; in Laos, on the production of vegetables without insecticides in Xiengkhuang province. The two-year project has been funded by the IFAD from May 2007 to May 2009. It was implemented by the MALICA consortium in Vietnam and the National University of Laos, with co-ordination by CIRAD.

For the different commodity chains studied by the project, research has been conducted on consumer and retailer demand, mainly with regard to quality criteria. The findings of the studies have been disseminated through consultation meetings involving producers, traders, representatives of consumers and the public authorities. They point up a need for producers to promote the origin and specific characteristics of their products which are not always known to their customers. For vegetables, a safety certificate is required by large volume distribution purchasers in Vietnam, as well as sufficient variety of the proposed kinds (over ten). For sticky rice, what is looked for is the aroma and cooking quality. For beef, people want certification that the animal was in good health and was raised on natural food. In Laos, people are looking for vegetables grown without the use of chemical pesticides. In all cases, consumers and retailers are not familiar with the origin of the produce, nor are they familiar with the specific characteristics of quality inherent in the different production sites.

In response to this needs identification in Vietnam, producer groups were set up for vegetables (total of seven groups, 143 producers and 6 hectares), sticky rice (3 groups, 120 producers, 6 hectares), and beef (4 groups, 103 producers, 300 head of livestock). Members of the group agree to follow production specifications, especially with regard to the use of chemicals, type of seed or breed of animal, procedure for fertilisation or feeding, treatment of disease. The co-ops of Tien Le and Phuong Bang were given certificates upon meeting conditions for safe vegetable production, issued by the Provincial Agriculture and Rural Development Department. Vegetable group leaders were trained in the new VietGAP certification procedure, based on producers registering their practices and internal and external inspections of different standards relating to safety at the production and post-harvest stages, and VietGAP certificates were granted to two groups.

Numerous contacts were developed between vegetable producers and distributors in Hanoi. However, they are confronted with the lack of produce variety. For this reason we are supporting the formation of an alliance of certified vegetable production and distribution units in Hanoi province. Three meetings have been held to date with representatives of 33 producer groups and businesses that got together to complement one another in the supply of a variety of produce for which there is a market demand. An inventory of safe vegetable production groups with their contacts has been drawn up and a Web site of safe vegetable groups has been prepared.
The Hoa Vang Sticky Rice Production and Marketing Association in Hai Duong was officially formed in December 2008 with 134 founding members. Sales are picking up with a variety of purchasers (supermarkets, stores, export companies, etc.). Sticky rice quality control is ensured through several mechanisms: at the group level, inspection by group leaders and differentiated purchase prices (such as according to the type of seed stock used); control by the Hai Duong Province Health Department, which gives special attention to the cleanliness of the rice.

In November and December two seminars to introduce vegetable produce and rice were held with 200 members of the Hanoi Association of Women Consumers.

We have improved the traceability of beef by having labels put on mountain beef. However it is currently very difficult to garner the co-operation of slaughterhouses in Hanoi to make sure that the labelling stays on right up to the retail stage. We have recommended to move the slaughtering stage closer to the production zones and to get the distribution groups involved in the cold transportation of meat from the abattoir to retail shelves.

An assessment of the efficiency of different forms of vertical co-ordination (relationship between sellers and purchasers) has been made by means of surveys of producers and vegetable group leaders representing the different types of co-ordination: non-contract selling to collectors (65 people surveyed), employment by a production and distribution company, contract with a supermarket or distribution company (44), direct sale to consumers (30). Results show that the most profitable strategy for producer groups is direct sales to consumers in their own outlet stores, followed by different contracts with supermarkets and canteens. The project developed guidelines on good trading practices. Good trading practices are here defined as practices providing satisfactory conditions of transactions for the farmers with adequate reward, and at the same time acknowledging the necessity of providing satisfactory conditions of purchase to sellers who are considered as long-term partners. A training on GTP was organized on April 24 in Son Phuong commune, Hoai Duc district. It gathered nineteen leaders of vegetable groups (belonging to five cooperatives), as well as four officials of the agriculture and trade departments of the district.

In Laos, a seminar was held in Phonsavann on November 6, 2008 to outline the findings of the Xiengkhuang province vegetable and sticky rice market studies to a panel of producers and local authorities. Labelling activities highlighting the origin were launched for three types of vegetables (cabbage, cauliflower and Chinese mustard). An assessment of the forms of co-operation between vegetable producers showed that these were effective in terms of contact with purchasers, but they have to be made official, especially for quality control. Training sessions on organic agriculture were held with producers in co-operation with a project being carried out by the NGO Helvetas.

The results achieved by the project will be used as a basis for hands-on intervention guidelines in order to more effectively link small-scale producers with city markets. This will also be helpful for provincial officials involved in agriculture and economic development. A wrap-up seminar has been held in on May, 22, 2009 in Hanoi. Superchain documents are available on Malica website (www.malica-asia.org).
INTRODUCTION

Paule Moustier, CIRAD, Dao The Anh (CASRAD), Silinthone Sacklokhham (National University of Laos)

Summary

The objective of the Superchain Project is to improve the livelihoods of small-scale farmers in Vietnam and Laos by enabling their access to new high-value food chains in the domestic market. In Vietnam, the project is focusing on “safe” vegetables in the province of Hanoi, hoa vang sticky rice from Hai Duong province and Mong beef from the Cao Bang highlands; and in Laos on vegetables in Xiengkhuang province. The choice of these areas and products is based on inclusion of poor households, location advantages for specific quality, existing market linkages with cities, and IFAD project intervention area. The project is based on a value chain approach, and a combination of technical and institutional innovations. Major activities of the project related to the evaluation of buyer demand; stakeholder information and networking, including supermarket buyers; testing new good farming and quality control practices; evaluation and promotion of farmer organisation and intra-chain coordination; and guidelines on good trading practices.

I - Rationale

In the last ten years the food sector in the region has undergone profound changes due to: (i) market liberalisation; (ii) urban growth; (iii) market segmentation in the domestic and export sector based on consumer income and quality preferences. Some data on urban and economic growth in the region are presented in Table 1.

Table 1 – Some demographic and economic indicators in the region

<table>
<thead>
<tr>
<th></th>
<th>Vietnam</th>
<th>Laos</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanisation rate (2005)</td>
<td>26.4</td>
<td>27.4</td>
<td>32.3</td>
</tr>
<tr>
<td>Urban growth rate (2000-2005)</td>
<td>3.13</td>
<td>6.02</td>
<td>1.49</td>
</tr>
<tr>
<td>GDP growth rate in 2007</td>
<td>8.5</td>
<td>7.5</td>
<td>4.8</td>
</tr>
</tbody>
</table>

In Vietnam, consumers are especially concerned with the quality of food, quality referring mostly to freshness, taste and safety. A recent survey, conducted in 2005 on 800 consumers (500 in Hanoi and 300 in Hai Phong) shows that 75 percent of consumers are extremely concerned with the safety of food (Luu Hong Minh et al, 2005). For 57 percent of consumers, problems of safety mostly relate to the presence of chemical residues in or on food. Food safety is of primary importance in vegetables, fruit and meat, together with the freshness of these products.
The modern retail sector has developed in parallel with the overall economic development, and also with consumer concerns about food safety. Modern trade, including supermarkets and convenience stores, is estimated to have grown by 20 percent per year between 2001 and 2006 and to represent 12 percent of food distribution 2007 while it was inexistent in the beginning of the 1990s (USDA, 2007).

In 2005-2006 the MALICA group\(^1\) conducted a study on the participation of the poor in supermarket-driven chains, under the Markets for the Poor Project (Moustier et al, 2006). The study focused on vegetables, litchi and flavoured rice value chains supplying supermarkets. One conclusion of the studies was that no poor households were directly involved in supermarket-driven chains, except in flavoured rice chains. On the other hand, small-scale family farmers, with less than 0.5 ha of land, may be involved through farmer groups promoting products of special quality and joint labelling. Farmers in groups delivering to SM chains get higher incomes than in conventional markets thanks to higher prices and regular quantities sold. Yet farmer groups face a number of difficulties which make their long-term involvement in supermarket chains precarious: the way quality is controlled lacks rigour and credibility. Moreover, the quantities and diversity of products are irregular.

In Laos, consumers still buy the bulk of their food in open retail markets. An increasing number of small shops and restaurants are observed. Products of differing origins (Laos, Thailand) and quality characteristics, e.g. safety, are not clearly distinguishable and recognisable by retailers and consumers (Moustier, 2006).

In the project, in line with sustainable livelihood approaches (SLA), not only do we consider that the poor are to be viewed as deprived of resources, but we should build on their strengths and opportunities, including their specific skills. In ‘livelihoods focused’ development efforts, a key objective is to remove constraints to the realisation of potential (DFID). In the case of Vietnam and Laos, the poor have some specific advantages in supplying specific quality products (low use of inputs, labour availability, location in mountainous areas). Developing these advantages requires improved information and coordination in the value chains.

II - Objectives

The goal of the project is to improve the livelihoods of small-scale farmers in Vietnam and Laos by enabling their access to new high-value food chains in the domestic market. The specific objectives are as follows:

1) Inform farmers, extension workers and decision-makers of the technical and institutional conditions for inclusion in high-value food chains of small-scale farmers

2) Support farmer decisions on different marketing options

3) Improve modern retailer assurance regarding the safety of food supplied by farmer groups and

4) Improve consumer assurance regarding the safety of food sold at retail distribution points.

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\(^1\) MALICA (Markets and Agriculture Linkages for Cities in Asia) is a consortium on food marketing providing an umbrella for CIRAD, IPSARD and VAAS.
III - Selection of areas and products

The project focuses on the following commodities and areas in Vietnam: IPM/safe vegetables in Hanoi province (Hoai Duc and Thuong Tin districts), Hai Duong sticky rice and Cao Bang beef. The project also operates in Laos, focusing on chemical-limited vegetables and sticky rice from Xiengkhuang province. The choice of these areas and products is based on inclusion of poor households, location advantages for specific quality, existing market linkages with cities, and IFAD project intervention area.

Cao Bang province is a mountainous region characterized by a high prevalence of poverty: 39.6 percent in 2006 compared with 26 percent at the national level (Hoang Xuan Truong, 2009). It is home to IFAD-funded project “Developing Business with the Rural Poor Programme” (2008-2013). Seventy percent of the poor are of the Hmong and Nung ethnic minorities. The main source of income for these ethnic groups is cattle raising and maize growing. The production of cattle is presently supported by various national and international projects (Helvetas, IFAD, Luxemburg). Cao Bang beef has special quality characteristics in terms of texture, colour, taste and weight, in particular due to the natural feeds. But these receive little recognition in the market due to the mixing of beef of different origins.

The Red River Delta is considered to be one of the most developed areas in Vietnam with low ratio of poor families. Yet the absolute number of poor families (2,203,000 in 2005) is very high (even higher than that in the area with the highest poor family ratio in Vietnam) (Le Thi Nham, 2008). While the poverty rate of Hai Duong province is quite low (5.2 percent), it is home to some communes of high poverty, such as An Phu commune, with a 13.1 percent poverty rate (Pham Cong Nghiep, 2008). The major source of agricultural income of the province is rice. In An Phu commune, sticky rice accounts for 25 percent of total rice income. The income from sticky rice is higher than from ordinary rice for the same unit of land. Yet this income is still limited by the fact that different kinds of sticky rice are mixed in the market, while the “true” hoa vang rice originates from Kinh Mon district. As for vegetables in the Red River Delta, they generate higher incomes than rice, but are subject to low and unstable prices. Hoai Duc district in Hanoi Province was selected because of its proximity to the Hanoi market, and strong support from the agriculture department for the production of safe vegetables.

In Laos, Khoune district in Xiengkhuang province is among the poor districts considered as priority by the National Statistics Centre in 2003 (Silinthone Sacklokham, 2008). It has benefited from IFAD road infrastructure projects. Chick rice and green vegetables represent important sources of incomes for the poor (more than 60 percent of the income in the production villages), and they are also special in terms of quality characteristics. Vegetables are grown without pesticides, but when they are sold to Vientiane market, they are mixed with vegetables of other origins.

IV - Collaborating institutes

The project is coordinated by CIRAD, operated in Vietnam by MALICA, a consortium made up of CIRAD, CASRAD (Centre on Agrarian Systems Research and Development), FAVRI (Fruit and Vegetable Research Institute) and IPSARD/RUDEC (Rural Development Centre), and in Laos by the Faculty of Economics and Agro-processing of Nabong University. The project is implemented in close collaboration with the provincial departments of agriculture, as well as private stakeholders in the selected commodity chains.
V - Method and activities

A) General approach

The different activities are summarized in Figure 1. The major objective of the project is to help small farmers to have access to new buyers in Hanoi concerned with produce quality. To do this we need an approach centred on the value chain. The term value chain, used in a broad sense, corresponding roughly to the French term “filière,” includes the full range of activities that are required to bring a product (or a service) from the initial stage through the different phases of production to its delivery to final consumers and disposal after use (Kaplinsky, 1999). The final food quality, as well as farmer incomes, are dependent upon the practices of farmers, traders, processing and transport enterprises and final consumers. To better meet the requirements of the market, especially in terms of quality, the project combined technical and institutional innovations. Changes in techniques have to be embedded in institutional changes, in particular as regards access to resources, e.g. credit, inputs, land, labour, technical and market information (Dorward, Kydd and Poulton, 1998).

B) Evaluation of buyers’ demand

A first step of the project has been to identify the organization of the value chains for the selected products, and to evaluate buyer demands. We concentrated on the buyers as both individual consumers and retailers, as they are the ones with the most demanding quality requirements relative to others in the chain (see Table 1).

Table 1 – Market surveys

<table>
<thead>
<tr>
<th>Product</th>
<th>Number of buyers surveyed</th>
<th>Institute in charge</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>10 supermarkets (out of 27 selling vegetables), 10 shops (out of 53), 5 canteens</td>
<td>FAVRI</td>
<td>Use of the survey of 800 consumers in Hanoi and Haiphong in Luu Hong Minh et al (2005)</td>
</tr>
<tr>
<td>Beef</td>
<td>300 consumers in Hanoi 17 restaurants, 12 slaughterhouses, 3 supermarkets, 2 shops</td>
<td>RUDEC CASRAD</td>
<td>Random choice in districts of varying socio-economic characteristics</td>
</tr>
<tr>
<td>Sticky rice</td>
<td>300 consumers in Hanoi</td>
<td>RUDEC</td>
<td>Random choice in districts of varying socio-economic characteristics</td>
</tr>
</tbody>
</table>

C) Information and networking

This information was fed back to farmers and public authorities supporting farmers by the way of stakeholder workshops, including a panel of farmers, traders, consumer representatives and public authorities (see Table 2). In the special case of vegetables, further workshops were organized to establish a network of safe vegetable groups, as it was found that cooperation between groups was necessary to ensure an increased diversity in vegetables supplied, especially for supermarkets. These were held on July 1, September 19 and November 13, 2008. An inventory of safe vegetable production groups with their contacts has been drawn up and a Web site of safe vegetable groups has been prepared.

Regular contacts were organized between farmer organizations and potential buyers, including supermarket and shop vendors and distribution companies. The difficulties in reaching final agreements were documented. Packages with labelling including information
on place of production were designed and disseminated, as well as leaflets presenting the farmer organizations, the production and control protocols.

Table 2- Stakeholder workshops on the results of buyer surveys

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Date</th>
<th>Number of participants</th>
<th>Number of private chain stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>Nov 7, 2007, Hanoi</td>
<td>34</td>
<td>8 farmers, 7 retailers (including 4 supermarkets), 2 consumer representatives</td>
</tr>
<tr>
<td>Beef</td>
<td>March 31, 2008, Cao Bang</td>
<td>36</td>
<td>10 farmers, 3 collectors, 1 consumer representative</td>
</tr>
<tr>
<td></td>
<td>May 22, 2008, Hanoi</td>
<td>27</td>
<td>1 farmer, 1 supermarket retailer, 1 hotel caterer, 1 consumer representative</td>
</tr>
<tr>
<td>Sticky rice</td>
<td>June 10, 2008, Hanoi</td>
<td>42</td>
<td>6 farmers, 7 supermarket retailers, 6 shop retailers, 5 processing companies, 1 consumer representative</td>
</tr>
</tbody>
</table>

D) Quality guarantee systems

Production protocols were designed, aimed at getting stable product quality in line with the potential of the area and the demand of the final buyers. Control protocols were also designed, based on internal control organized by members of farmer organisations. All these documents were designed in a user-friendly way, and incorporated the feedback of farmers gained by various meetings. These production and control protocols were then disseminated by way of farmer training. Contacts were developed with local administrations to organize external control (plant protection department of the province and Favri for vegetables; department of health of the province for sticky rice).

E) Farmer organizations

Institutional innovations related to farmer collective action, intra-chain coordination and public-private partnerships for provision of public goods and services. Collective action reduces uncertainty related to quality in different ways. Farmer organizations pool together resources to build and signal quality, including training, access to inputs, access to buyers, and communication on quality. They provide incentives to put effort into achieving quality. In farmer organizations, there can be the dual impact of the supply of adequate inputs and joint contacts with buyers (which may be referred to as inter-linkages between input and output markets). Farmer organizations also involve inclusion and exclusion mechanisms: the commitments of farmers to follow regulations, sanctions enforced in case of non-compliance. The farmer organizations developed in the project are presented in Table 3.
Table 3 – Farmer organizations developed in the project

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Hoai Duc district, Hanoi province</th>
<th>3 groups</th>
<th>Total: 143 farmers; 6 ha</th>
<th>Joint production protocol, packaging and labelling, Internal control system, External certification, Common collector in charge of shop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sticky rice</td>
<td>Kinh Mon district, Hai Duong province</td>
<td>3 groups, 60 members/group, 2 ha/group</td>
<td>Joint production protocol, packaging and labelling, Joint contacts with shops in Hanoi</td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td>Ha Quang district, Cao Bang province</td>
<td>4 groups, 25 to 27 members/group (total = 103 members), 2 to 7 head/household</td>
<td>Joint production protocol and label, Credit for stock</td>
<td></td>
</tr>
</tbody>
</table>

F) Intra-chain coordination

Developing and guaranteeing food safety involves additional costs and investments for farmers, which are lost if farmers cannot sell to buyers who value these quality efforts. Securing outlets is facilitated by farmer collective action, and also by intra-chain coordination, i.e. regular dealings between the stakeholders in the value chains, exchanging information and various services in addition to the market transaction. During the course of the project, we preferred contacts and contractual arrangements between the groups and new buyers, including supermarkets, and shop vendors.

An assessment of the efficiency of different forms of vertical co-ordination (relationship between sellers and purchasers) in terms of farmer incomes was made by means of surveys of producers and vegetable group leaders representing the different types of co-ordination: non-contract selling to collectors (65 people surveyed), employment by a production and distribution company, contract with a supermarket or distribution company (44), and direct sales to consumers (30).

The project developed guidelines on good trading practices (GTP). Good trading practices are here defined as practices providing satisfactory conditions of transactions for the farmers with adequate reward, and at the same time acknowledging the necessity of providing satisfactory conditions of purchase to sellers who are considered as long-term partners. A training on GTP was organized on April 24 in Son Phuong commune, Hoai Duc district. It gathered nineteen leaders of vegetable groups (belonging to five cooperatives), as well as four officials of the agriculture and trade departments of the district. Finally, the project is developing guidelines on access of the poor to high-value food chains, which can help to replicate the pilot organizations developed in Superchain project.

The results of all these activities will be developed in the following chapters.
Figure 1 – Summary of project activities

Quality guarantee systems:
- Training on production protocols
- Training on internal control protocols
- Organisation of external control and certification

Farmer organizations
Intra-chain co-ordination

Information and networking:
- Multi-stakeholder workshops
- Farmer-buyer contacts

Buyer demand: quality criteria
- Quality and origin control
- Labelling

Farmers
(Collectors)
(Wholesalers)
Retailers
Consumers
VI - References


Le Thi Nham. 2008. Rationale for the selection of safe vegetables in Hoai Duc and Thuong Tin districts, Ha Tay province. (Red River Delta)


Silinthone Sacklokham. 2008. Reason for choosing green vegetables and chick rice in Xiengkhuang Province (Lao PDR) as target project products, CIRAD. Superchain working paper.

Part 1 – Results of market studies
Consumers’ demand for beef in Hanoi

Hoang Vu Quang and Nguyen Ngoc Luan, IPSARD/RUDEC

Summary

This research identifies the consumer demand for beef in order to develop a specific strategy for the product as well as for cattle breeding in Cao Bang. The survey was conducted on 300 consumers, including 200 consumers interviewed at four marketplaces and 100 consumers interviewed in 2 supermarkets. The urban demand is growing in parallel with income. Among consumers with a good income, there is a high demand for good-tasting, safe beef. Four factors affect the choice of beef, including freshness, tenderness, color of the meat and the consumer habit of purchasing beef at places they are familiar with. The higher the income of the consumers, the more concerned they are with the beef they consume and its safety. From the standpoint of consumers, safe beef must be light red in color, have a good texture and be fresh, sourced from animals that were healthy at the time of slaughter, and the point of sale must be clean. High-income consumers are more interested in certified safe beef, free from growth hormones and antibiotic residues. Consumers are willing to pay for better quality, certified safe beef at a price 10 percent higher than the regular price.

I - Introduction

Cattle breeding plays an important role in the economic activities of ethnic minorities living in Cao Bang province. According to research done by Helvetas in 2005, the income share from cattle breeding varies between 23 percent and 43 percent in the total annual income of the households there. The development of cattle breeding can therefore help increase the income, improve the livelihood and reduce poverty for rural inhabitants, especially the ethnic minorities (Luc Duc Xuan, 2005).

Beef from cattle raised in Cao Bang is mainly sold in provincial markets and in the northern provinces through different channels (Nguyen Van Huong, 2007). Consumption outside the province accounts for about 40 percent of the beef production from cattle grown in Cao Bang. The markets in Ha Tay, Thai Nguyen and Hanoi are targeted for this surplus.

The objective of cattle breeding development for the poor in the northern mountain regions of Vietnam supported by IFAD is to assist farming households in Cao Bang province to develop their cattle breeding in order to improve their living conditions and increase their income. The strategy of this support aims at creating a product that satisfies the market demand and has a higher added value in the areas of food quality and safety. The activities are also designed in detail to ensure the quality of beef for the targeted market. Therefore, it was necessary to conduct a market survey to know what consumers look for when they purchase beef. The producers of Cao Bang beef declare that the beef has specific characteristics—the animals are fed naturally, the environment in unpolluted—and this makes the beef especially good tasting, tender and safe. We did not know if these pluses were recognized by Hanoi consumers.
II - Objectives

The purpose of this study is to define what Hanoi consumers look for in terms of food safety and quality when making purchases of beef.

The detailed objectives are:

1. Study consumer demands when they purchase beef.
2. Clarify factors influencing beef buying decisions and evaluate beef quality and food safety.
3. Identify the knowledge of Hanoi consumers regarding Cao Bang beef.
4. Assess the willingness to pay a higher price for quality, safe beef.

III - Method

In order to assess Hanoi consumer requirements for beef, we used secondary data of Vietnam Living Standard Survey (VLSS) in different years (VLSS 1992-1993, 1997-1998, 2002, 2004) as well as direct interviews. We surveyed 300 consumers, of which 200 were interviewed at four marketplaces and 100 in two supermarkets. We chose four districts, namely Ba Dinh, Long Bien, Cau Giay and Dong Da since they have two large-scale central markets and two smaller peripheral markets. In terms of supermarkets, we also choose one large and one small supermarket. At each regular market and supermarket, 50 consumers were interviewed randomly.

Apart from information on the quantity of beef consumed, we also collected information on their point of view regarding quality, food safety and willingness to pay a higher price for good beef, as well as other information on their consumption habits (see the questionnaire in the annex). In this report we separate the notions of food safety (defined by FAO as the absence of hazards that may make food injurious to the health of the consumer) and food quality, defined as the set of attributes giving satisfaction to consumers (other than food safety).

IV - Main results

A) Quantities and source of purchase

In Vietnam, beef consumption per person increased slowly only from 1.5 kg in 2002 to 1.6 kg in 2004. Usually, consumers with higher income are with more beef consumption. The consumption of the highest income quintile is 2.6 times higher than that of the lowest income in 2004.

Hanoi consumers eat beef more than the national level. Ninety-five percent of the Hanoi households interviewed buy beef every week. And most consumers prefer lean meat such as fillet and muscle (66 percent of households buy this kind of meat each week in the survey). Regarding the quantity, the average household consumes about 1.02 kg beef per week in which lean beef accounts for approximately 83 percent (0.85 kg) and the rest is beef of lower quality. Similarly, the higher the household income, the greater the amount of beef is consumed. The amount of beef that the higher income households over 15 million dong/month eat per month is 2.65 times higher than that of the lower ones with 2 million dong/month. In addition to having beef on their menu at home, 53 percent of interviewees consume beef outside occasionally during the month.

The consumers buy beef in both regular markets and supermarkets. However, most households (81.7 percent) only buy beef at regular markets, never in supermarkets; 18.3 percent of consumers surveyed have bought beef meat in both supermarkets and regular markets. Although there are various reasons preventing consumers from buying beef
in supermarkets, inconvenience is the most important one selected by 73 percent of interviewees because supermarkets are far from their homes and it takes much time to go there. Another 35.9 percent of interviewees stated that beef in supermarkets is not as fresh as that in the regular markets since the beef in supermarkets has been stored for some days. Furthermore, the high price of supermarket beef is the reason why 20 percent of consumers do not buy beef there.

Taking income into consideration, the factors for not choosing beef at supermarkets are quite different. Consumers with high income buy more beef at supermarkets and 40% of them earn more than 8 million dong/month. Only 6 percent of consumers with 2-5 million dong monthly income buy beef in supermarkets.

Due to the higher price, those who buy beef at supermarkets state that they buy only 31 percent of the total quantity of beef there; the other 69 percent is bought at the regular market or from vendors. Price also limits the quantity of imported beef sold in supermarkets. When shopping in supermarkets, 29 percent of consumers choose imported beef and its quantity only accounts for an average of 17 percent of total quantity consumed. All of the consumers buying imported beef state that this kind of beef tastes much better than domestic beef and 25 percent of them think that it is safer than domestic beef. Most imported beef in Vietnam comes from Australia, New Zealand and the United States.

Those buying beef at supermarkets indicate that the beef sold there is tastier, more hygienic and safer thanks to better quality control; its quality is much higher and it is kept in cold storage. In addition, supermarkets also sell imported beef. Furthermore, these consumers go to the supermarket to buy not only beef but also other things at the same time. For 60 percent of them, food safety is the most important reason for buying beef at supermarkets.

B) Criteria of choice

The choice of beef depends on many factors and the most important ones include freshness (90 percent), tenderness and texture (76 percent), color (61 percent), familiarity with seller (50 percent). Only 23 percent of consumers declare spontaneously that they are concerned with the safety of the meat.

There is little difference in the criteria for buying beef according to income level or occupation. Yet buying from a familiar vendor is less important for households with a monthly income over 15 million dong/month. Besides low-income laborers are very concerned about the price (27 percent) compared with people of other occupations.

When consumers were asked to rank the reason for their choice of beef, we find that the factor which most often ranked first is freshness of the meat. It can be noted that food safety is not considered as an important factor of choice when consumers answer spontaneously, while it appears much more important in the questions focusing on food safety (see next section). Another explanation of this result is that freshness, tenderness and familiarity with the seller are considered as indicators of food safety by the consumers interviewed.

C) Concern for food safety

For Vietnamese consumers, food safety has recently been a hot topic because of a series of food poisoning outbreaks and programs targeting unsafe vegetables, fruit and meat that were given widespread coverage by the media.

When asked about beef safety, 53 percent of interviewees say that they are very concerned with beef safety. For the rest, they did not show their concern because they trust the sellers (75.5 percent), never heard of cases involving unsafe beef (30.2 percent) or feel the sanitary conditions of the shop are acceptable (28.8 percent).

Although there is little difference among the various income brackets towards the matter of food safety, managerial level staff are still concerned more (67.9 percent are concerned
with beef safety) than others. This may result from their higher education level, which gives them a better understanding of and access to information on food safety. This is also proved by the analysis on the level of concern for food safety according to education level.

In terms of factors affecting food safety, three of them are considered as the most important ones including beef from a disease-free animal at time of slaughter (87 percent), untainted meat (67 percent) and hygiene of point of sale (42 percent). Besides, the sanitary conditions of the slaughterhouse are also a crucial factor and selected by 31 percent of consumers.

The priority of each factor differs with income, education level and occupation. Generally, households of high income are much more concerned about food safety than those of low income. Especially, consumers with a high income are likely to pay more attention to the certificate of food safety. Fifty-two percent of households who earn from 8 to 15 million dong/month are concerned about a certificate of food safety, while consumers whose income is lower than 2 million dong/month are not at all concerned with this. Those of high education show more concern for the certificate of food safety than others. The sanitary condition of the slaughterhouse is a matter of much concern for post-graduate respondents.

D) Information on Cao Bang cattle

In the survey, less than 3 percent of interviewees knew about cattle being raised in Cao Bang, and knew about it mainly because the beef seller told them about it. 1.5 percent of consumers say that they have bought Cao Bang beef but they had no way of confirming whether its origin was Cao Bang province or not.

In brief, the consumers in Hanoi do not have much information on beef from Cao Bang. This is probably because: (1) Beef from Cao Bang province is not well-known in Hanoi since it is not recognized as a specialty and does not have distinct reputation. (2) Consumers mainly buy beef from retailers at usual marketplaces where there is no indication of the geographical origin of the beef. What they are more concerned about is that it is actually beef, not waterbuffalo, or that it is not horsemeat being sold misleadingly as beef. The quality of beef from Cao Bang has not yet been advertised in the media.

E) Willingness to pay a higher price for quality beef

To evaluate consumers’ willingness for premium, fillet was chosen for the evaluation since it is a premium cut of beef.

The survey shows that 56 percent of consumers are willing to pay for beef with a certificate of food safety at a price about 8.4 percent higher than the normal price, while 60 percent of consumers were willing to pay for beef of better quality (fresh, tender, soft, red) at a price 9.4 percent higher than the regular price. If the beef is of both of high quality and guaranteed safe, 71 percent of consumers are willing to pay an additional 9.7 percent for it compared with the current price.

Only 5.7 percent of consumers confirm that they will pay for Cao Bang beef at a price that is 9.6 percent higher than the regular price. This can be explained by the fact that only a few consumers have information on Cao Bang beef. However, if it is proven to be good tasting, they will be more willing to pay a higher price for it.

Generally, consumers in the high income bracket are more willing to pay a higher price for good tasting beef with a certificate of food safety, rather than consumers in the low income bracket. The price they accept is 9 percent higher than the regular price.

V - Conclusion

The food demand of the Vietnamese in general and in Hanoi in particular is constantly increasing. The higher the income, the greater the demand for beef. Consumers prefer lean
beef cuts such as fillet and muscle. The regular market is the primary place at which Hanoi households get their supply of beef. High income consumers tend to buy beef at supermarkets because it is considered to be safer than beef sold in the regular markets. Due to the high price, only a small number of consumers purchase imported beef, although its quality is viewed as much higher than that of domestic beef. Most households who do buy imported beef are those in the higher income bracket.

When choosing beef, consumers consider four major factors, including freshness, texture, the color and familiarity with the seller.

Fifty-three percent of consumers are concerned about food safety. The higher their income and level of education, the more they are concerned with food safety. The food safety standards for beef that consumers are most interested in that the animal be healthy at the time of slaughter, that the beef be untainted and that it be sold in a clean place. Apart from that, consumers of a higher income level also are concerned with growth hormone and antibiotic residues in beef as well as the meat having a certificate of food safety.

According to the consumers, many criteria reflect the level of food safety of beef, and these can be classified three groups according to level of concern, as follows: (1) the beef is bright red in color; (2) it has a good texture; (3) it is fresh, untainted. The second most important set of standards includes: (1) health status of the animal at the time of slaughter; (2) cleanliness of the equipment and point of sale. The set of criteria of least importance to consumers is as follows: (1) the beef has a veterinary certificate; (2) the beef does not contain any growth hormone or antibiotic residues; (3) the beef is packaged and labeled; (4) the meat is kept in cold storage.

Despite the fact that Cao Bang beef is marketed in Hanoi, many consumers do not have any information about its origin and are unfamiliar with the difference in quality between this beef and beef of other origins. This can be explained by the fact that the reputation of Cao Bang cattle for the quality of the beef they produce is not widely known and this quality has not been highlighted in the media.

The concern about food safety is seen in the willingness to pay a higher price—10 percent more—for better quality beef and with a certificate of food safety. The fact shows that there are only a few of consumers willing to pay Cao Bang beef at higher price, however, if it has better quality and a certificate of food safety, Hanoi consumers will pay much attention to it, because the higher income, the higher price consumers are willing to pay for better beef of ensured food safety.

References:

Consumers’ demand for sticky rice in Hanoi

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(IPSARD/RUDEC)

Summary

A survey was conducted of 300 Hanoi consumers (200 buying at markets, 100 buying at supermarkets) in order to identify the present level of sticky rice consumption and the major criteria for buyers when purchasing this commodity. The most important criteria of consumers when buying sticky rice are shape, aroma and shine. Secondly, having sticky rice packed and labelled is not at present considered as an important factor of choice by the majority of consumers. Consumers would like to pay a premium to purchase sticky rice with the desired flavour, shine and shape. They have little knowledge of the origin of hoa vang sticky rice, and it is not a major concern for them. It is important to help consumers make the connection between the origin of the rice and its characteristics in terms of flavour and cooking qualities.

I - Objectives

Small farmers in Vietnam and Laos face numerous constraining requirements to supply supermarkets, including regular volume and quality. But supplying supermarkets and other quality chains such as shops and restaurants may also generate increased income opportunities for small farmers if they take advantage of their specific location and savoir-faire in terms of food commodities of special quality (Moustier, infra).

As part of the Superchain project, the research objective of the sticky rice chain development is to support the decisions of Vietnamese farmers on different marketing options to reach consumer demand. To achieve this goal, we decided to study the consumer demand in order to identify the level of consumption and the criteria that are important for buyers when purchasing such goods. The analysis of the results for the sticky rice demand also has implications for chain stakeholders.

II - Method

A structured questionnaire was designed for the survey. The main topics focused on quantities purchased, present suppliers, quality preferences, knowledge of and preference for varieties and origins including hoa vang sticky rice. But in the following analysis, when consumers talked about hoa vang, it may not really be hoa vang due to lack of knowledge of its origin and ways to recognize it.
In the survey, 300 consumers were interviewed randomly by an IPSARD/RUDEC team (Rural Development Centre) from December 2007 to March 2008. Among them, the majority are female due to women being chiefly responsible for purchasing food. Consumers shopping both at markets and supermarkets were targeted in the survey as supermarkets in Vietnam are seen as places selling high quality products, whereas markets are where people by more common food stuffs. The questionnaire was designed by CIRAD and RUDEC. A total of 200 and 100 consumers were selected at markets and supermarkets respectively. As for the markets, 2 of them are located in Ba Dinh district and 2 in Long Bien district. The supermarkets chosen were Big C located in Cau Giay district and Intimex located in Dong Da district. The descriptive method was used to do the following analysis.

III - Main results

A) Consumer characteristics

The household size varies greatly from 20 to 1 person in one family. The average household size shopping in supermarkets and markets is close, both around 4 persons. The average expenditure on food per capita is 943.7 thousand VND and consumers’ expenditure when shopping in supermarket is 12 percent higher than that in market. In general, persons shopping in supermarkets are younger than those in markets. The average age is 35 and 41 years old respectively.

Nearly 80 percent have a household income equal or lower than 8 million VND per month (i.e. 2 million VND per capita). The household income of consumers shopping in supermarkets is higher than that of those shopping in markets, with 32.6 percent of interviewees shopping in supermarkets with a household income from 8 to 15 million VND.

B) Household consumption of sticky rice

Of the 300 people interviewed, 93 percent declare that they or their family consume sticky rice and the average quantity is 4 kg per year per capita. More than 90 percent of the interviewees declare that when they buy sticky rice, it is hoa vang sticky rice. The rest mentions upland sticky rice and Thailand sticky rice and the consumption varies greatly.

For 44% of consumers, the price of how vang sticky rice averages 12,000 VND/kg (7,000 VND/kg to 20,000 VND/kg) and for another 44% of them, it averages 13,000 VND/kg and more.

152% of the interviewees buy the hoa vang sticky rice at the market or from sellers delivering rice to homes. Only 2 people 0.7% buy hoa vang sticky rice in supermarkets.

Limited consumption of sticky rice is observed: people consume cooked sticky rice occasionally, once to few times a week (30 percent of interviewees) or a month (36 percent).
Sticky rice can be eaten in the whole year. Yet more people (59 percent) said that they consume sticky rice in February. Less people consume sticky rice in April and July. The frequency of sticky rice consumption of consumers who know its origin is more than the average level.

C) Criteria of choice

Grain shape (82 percent of respondents), aroma (79 percent) and grain shine (50 percent) are the top three criteria when people choose sticky rice. Besides, buying from frequent seller and rice variety are other important factors. It is interesting that neither price nor rice packaging and labelling are important for Hanoi consumers. Only 11 people chose price and 6 people chose rice packaging and labelling, and their percentages are very low, 5% and 3% respectively.

However, there are still many consumers, 28% of interviewees, willing to pay a premium for the package and label. The average premium for package and label is 2,120 VND/kg ranging from 2,000 VND/kg to 10,000 VND/kg (around 16 percent of purchase price). Consumers also show their willingness to pay a premium for uniform and shiner grain (31 percent of respondents; 13 percent premium), becoming fragrant and sticky after cooking (38 percent of respondents; 16 percent premium) and for these three criteria (39 percent of respondents; 19 percent premium).

D) Knowledge of origin of sticky rice

Hoa vang sticky rice originating from Hai Duong province has a high quality due to the special climate and traditional planting pattern there. Thus, identification of origin on hoa vang sticky rice would help consumers recognize the genuine commodity. However, only 20 percent of the respondents know that hoa vang sticky rice originates from Hai Duong province. People buying in markets are more aware of this origin than those shopping in supermarket. Among the people who know its origin, 87 percent of them buy in markets; only 13 percent of them buy in supermarkets.

For people who know its origin, 48 percent of them get the origin information from the seller. Thirty-six percent of them were told by their friends and/or relatives; 26 percent learned of the origin from the mass media. Sellers would be an important channel to spread knowledge on the origin of sticky rice. The majority still cannot be sure and also lack a method and information to confirm the origin.

Usually, people who had consumed hoa vang sticky rice had a positive assessment of its quality. Nobody thought it was bad. Of the 20 percent of respondents who know the origin, 57 percent agreed that hoa vang sticky rice is of good quality, accounting for about 12 percent of the total sample. Eight percent of the people evaluated the quality as average. The remaining 34 percent did not know or did not pay attention to the quality of sticky rice.

When people go shopping for sticky rice, 43 percent who know its origin would like to find nep cat hoa vang sticky rice, accounting for nearly 9 percent of the total sample. Among the 61 people who know where hoa vang sticky rice is produced, only 16 of them (26 percent) try to find nep cat hoa vang sticky rice from Hai Duong, 10 of them
(16 percent) try to find *nep cat hoa vang* sticky rice but did not care whether it was from Hai Duong or not. A small group of consumers (about 5 percent) tries to find *nep cat hoa vang* sticky rice from Hai Duong, but indicated that most people lack knowledge of the origin of sticky rice.

There is little variation in the knowledge of origin of hoa vang sticky rice according to education or income level.

**IV - Conclusions and discussion**

From the above analysis, it can be concluded that the most important criteria of consumers when buying sticky rice are shape, aroma and shine. Secondly, the packaging and labelling of sticky rice is not at present considered as an important factor of choice by the majority of consumers. Thirdly, consumers would like to pay a premium to purchase sticky rice with the desired flavour, shine and shape. Fourthly, consumers have little knowledge of the origin of *hoa vang* sticky rice, and it is not a major concern for them. Finally, it is important to help consumers make the connection between the origin of rice and its characteristics in terms of flavour and cooking qualities.

As for the chain stakeholders including farmers, farmer organisations, markets, supermarkets, etc., how to make *An Phu hoa vang* rice origin (An Phu is the key commune of Hai Duong from which *hoa vang* sticky rice originates) and quality characteristics better recognized in the market should be thought out, planned and a suitable strategy developed. For retailers, especially the sellers in markets, they could be an important channel to spread knowledge of origin since consumers usually trust them. And more priority activities need to be conducted for retailers to have *hoa vang* rice origin better known. Except for the traditional markets, various types of rice distributors should also be given priority consideration in the rice marketing strategy.
I - Overview

There is an increasing demand for quality and safe food by urban consumers. Fresh vegetables safety is a major concern for consumers as producers grow them in polluted areas and use a lot of chemicals. The concerns increase as there is a lot of information about poisoning cases due to vegetable consumption broadcasted on the mass media. According to the information from the Department of Trade in Hanoi (2000), the demand for vegetables in Hanoi is huge, 0.3 kg per consumer per day corresponding to a total daily demand of 1,200 tons. The actual number is probably even higher. With regard to the vegetables safety, the consumers consider vegetables as the most concerning food: 90% of interviewees expressed their worries on the issue, especially about residues of pesticides (Figué, 2003). In fact, the consumers can only identify the safety of vegetable by (1) direct observation, for instance smelling the vegetable; (2) indirectly choosing vegetables labelled with marks of origin or buying in safe vegetable shops or supermarkets supposed to sell safe vegetables.

Most of vegetables, including safe vegetables, sold in Hanoi are produced in the surrounding districts of Hanoi; the remaining part is supplied by the other provinces. The safe vegetable area of Hanoi has increased since the end of 2007 and it is estimated to cover 6,350 ha out of 79,275 ha (Plant Protection Department of Hanoi). However, not all the safe vegetables are sold with safe vegetable marks. Most of these vegetables are sold as normal vegetable on the market. On one hand, the farmers would like to find a rewarding market for their safe vegetables; on the other hand the consumers look for safe vegetables but are often unable to find reliable suppliers. This is a paradox. Another issue is that vegetable producers and vegetable collectors have few opportunities to meet each others. They are in need to access information of their partners in order to match their interests and to satisfy the needs of consumers.

Moreover, safe vegetable production in Hanoi as well as in other provinces is still small-scaled and farmers face a lot of difficulties and obstacles to meet the requirements of modern distribution channels in order to supply vegetables to supermarkets, shops, outlets, restaurants, and canteens that require regular supply in terms of quantity and quality. The vegetable producers need to grasp the demands of safe vegetables from the mentioned buyers and utilize the geographical characteristics to produce quality vegetables in order to enhance their incomes. Based on the above findings, we conducted a study on the way safe vegetables are currently sold and on their demand by supermarkets, shops, outlets, restaurants and canteens. The study results will be disseminated to vegetable producers supplying Hanoi. It is expected that producers and sellers could meet and discuss about production and consumption of vegetable products in order to match the increasing demand of the consumers.

II - Objectives

The objective is to assess the way safe vegetables are currently sold and on their demand by supermarkets and other channels. Opportunities will be identified in order to help farmers to gain access to more rewarding market for their products. The information will be transferred to researchers, decision-makers and producers.
III - Study methodology

1) Access statistics and secondary information in order to have a list of safe vegetable facilities currently in operation holding the safe vegetable trading license in July and August 2007 in Hanoi. They are then classified according to the different trading modes.

2) Based on the list mentioned above, samples of each trading mode are selected (table 1). In particular, from the list of 27 supermarkets selling safe vegetables, the characteristics of supermarket channels are identified in order to select the sampled supermarkets. From the list of 53 shops and outlets selling safe vegetables, 10 representative facilities distributed in different areas with specific characteristics are selected for the study. For the restaurant and canteen channels the statistics are not yet available. Thus 3 representative restaurants were selected according to their quality levels: one good (regularly organizing wedding parties, conferences/workshops), one average (serving popular consumers), and one street restaurant. With regard to the canteens the sample included two of them: 1 serving a school and 1 serving a large industrial zone. The interviewees are managers of vegetable departments of supermarkets, owners of vegetable shops and outlets, managers of restaurants and chief cook or vice chief cook responsible for daily vegetable orders.

3) The questionnaire-based survey was carried out between August and September 2007. The questionnaire focused on: the origin of vegetables; their suppliers; the requirements in terms of quality and safety of vegetable; the quantity daily sold; the assortment of vegetables; the relationships with suppliers; the delivery methods, the payment methods and the provisions stated in the contracts. Furthermore other general information on supermarkets was collected in order to have an overall picture of supermarkets’ development in recent time. The study paid also attention to collect data in order to have an in-depth understanding of vegetable consumption’s pattern and development over time.

4) All collected data were analysed using Excel.

Table 1: Sample selection

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>11 - Including: 2 big; 7 middle-size and 2 small supermarkets.</td>
</tr>
<tr>
<td>Shops and outlets</td>
<td>10</td>
</tr>
<tr>
<td>Canteens and restaurants</td>
<td>05 - Including: 3 restaurants and 2 canteens</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

IV - Results

A) Safe vegetable trading channels

After listing all safe vegetable trading facilities holding the licence in Hanoi, it was found that they include:

(1) Supermarkets;

(2) Shops and outlets in alleys, streets or markets.

The detailed numbers of the channels are in Table 2.

Table 2: Number of supermarkets, shops and outlets selling safe vegetables in Hanoi

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td>27</td>
</tr>
<tr>
<td>Shops and outlets</td>
<td>53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>
Public authorities are restricting street vendors, including vegetable street vendors, and encouraging the development of safe vegetable trading facilities like supermarkets, shops, outlets in line with the “Modern, clean and beautiful city” programme and in order to meet the demand of consumers.

With regard to supermarkets they can be divided as: Large supermarkets like Metro Cash & Carry and Big C; Medium and small supermarkets like Intimex, Fivimart, Unimart… These are selling fresh vegetable since their opening.

With regard to shops and outlets, some belong to traders (52.83%) while the remaining belong to the producers themselves who open shops to sell their own products (47.17%). Most of these producers are from Dong Anh and Gia Lam districts.

The number of safe vegetable trading facilities has time variation, but in general, an increase in their number has emerged. In comparison to 5 years ago, the number of safe vegetable trading facilities has doubled.

The localization of the trading facilities is more distributed in comparison to 2002. Nowadays most districts have safe vegetable trading facilities; however, they are more numerous in some districts such as Dong Da, Cau Giay and Ba Dinh. The details are shown in the following table.

<table>
<thead>
<tr>
<th>TT</th>
<th>Districts</th>
<th>Number of safe vegetable trading facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dong Da</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Ba Dinh</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Cau Giay</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Hoan Kiem</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Hai Ba Trung</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Thanh Tri</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Hoang Mai</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Thanh Xuan</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Tu Liem</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Tay Ho</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Long Bien</td>
<td>2</td>
</tr>
</tbody>
</table>

The increase in number of safe vegetable trading facilities is shown in Figure 1 and Figure 2:

Figure 1 shows the increase in number of supermarkets in Hanoi in recent times. The number of supermarkets has increased, and consequently the number of supermarkets selling safe vegetables. In 2002, there were only 13 supermarkets selling vegetables but at present,
there are 27. As far as the nature of supermarkets is concerned, there are some large supermarkets like Metro Cash & Carry and Big C. These are joint venture supermarkets with fresh vegetable sale areas of hundreds of square meters. The medium and small supermarkets are owned by local investors as well as by joint-ventures (e.g. Unimart). They have fresh vegetable sections of various sizes. Event supermarkets belonging to the same chain can have very different fresh vegetable’s area sizes. Among the Vietnamese supermarkets, Intimex, open in 1993, was the first supermarket chain. At present, this chain consists of 5 supermarkets in Hanoi, all of them selling safe vegetable. FIVIMART supermarket chain was established by Nhat Nam Joint Stock Company later in 1997 and it now controls 7 supermarkets, all of which sell safe vegetables. In next years these companies will open more supermarkets (10 are already planned). Besides, other supermarkets like MARKO, Unimart... also sell fresh vegetables since their opening.

As shown by Figure 2, the number of fresh vegetable shops and outlets has considerably increased. In 1996, there were only 2 shops but in 2002, the number had increased up to 22 (Nguyen Thi Tan Loc, 2002) and in 2008, they were more than double (53).

From the study of safe vegetable chains, a diagram of safe vegetable supplying system in Hanoi was developed (Diagram 1). From the study results, most of safe vegetable sold in Hanoi are produced in the surrounding districts while the remaining comes from mountainous areas of the North and from Dalat region.

Diagram 1: Some main safe vegetable supply chain in Hanoi

B) Demand for safe vegetables by supermarkets, shops, restaurants and canteens

In order to appraise the demand of safe vegetables by supermarkets, shops, restaurants and canteens, a specific questionnaire was developed.
1. **Demand of safe vegetables by supermarkets**

What emerged from the interviews to managers of vegetable sections of 11 supermarkets is:

a) The most important leafy vegetables sold at the time of the interviews (August and September - rainy season) are morning glory, lettuces, katuk, pot-herb, amaranth while among fruit vegetables squash and luffa prevails. They consist of 60 - 80% of daily vegetable sales.

b) Supermarkets prefer to buy vegetables from farmer cooperatives. They would like to diversify their supply but only few of them sell off-season vegetables. They are not very confident about the food safety of these products as they believe that off-season vegetables may contain more chemicals.

c) Strategic criteria of selection of suppliers are showed in the order of importance in table 4. In 2007 the issue of vegetables safety was of great concern on mass media after a series of food poisoning cases. As a consequence the safety of vegetable was the most important criterion. This results differ from what emerged by previous analogous studies.

d) The managers of vegetable sections in supermarkets said that there were a lot of suppliers offering their vegetable products but in order to develop a contract between suppliers and supermarkets, the producers must provide a dossier with the following requirements:

- Certificate by the Plant Protection Department - DARD proving that the supplier has vegetable area adapted for vegetable production and a proper facility for preliminary processing
- Analysis results of main products provided by reliable laboratories
- Legal status of the facility (this is an important condition for signing the contract with supermarkets)
- The supplier should be able to issue financial receipts

Once the dossier is completed, the supermarket visits the vegetable fields before deciding to sign contracts. There were cases that the supermarkets, although the certificate had been regularly provided, have found the vegetables quality below their expectations and they refuse to sign any contract. With regard to the analysis of product quality, each supermarket has its own requirements. Analyses are expensive and thus they cannot be conducted for every crop. Some supermarkets want to share the lab analysis’s fee with the suppliers asking just 10% of the total fee. The supermarkets desire that the suppliers have sample analysis in modern and large labs with professional technicians to get trusted results.

e) The appearance of vegetables is also of importance. Most of the supermarkets have detailed requirements for the vegetables provided by suppliers. Especially the two big supermarkets have very detailed requirements for each kind of vegetables: the leafy vegetables should be fresh, neither yellow nor too green and they prefer them having some small signs of insects or diseases in order to look more natural.

f) The supermarkets also pay attention to packaging. Between the supermarkets and suppliers, there is an agreement where packaging’s materials and sizes and information on the labels are specified. All the packaging costs are born by the suppliers.

g) Purchasing price: the supermarkets set the prices considering the market prices and other criteria. The price of safe vegetables sold to supermarkets is often higher than in traditional markets, but never higher than 20%.

h) Relationship between suppliers and supermarkets: supermarkets would like to maintain a regular relation based on signed contract. The validity of the contract is normally 1 year. The contract contains commitments on product quality, delivery modes, payment conditions, and even risk sharing mechanism if the vegetable are not sold out. Most supermarkets have direct
and regular information exchange with suppliers for good delivery. Some suppliers use email. Others use telephone or fax for communication.

2. **Demand of safe vegetables by shops and outlets**

The study has shown that:

a) Shops and outlets sell more diversified vegetables than supermarkets. Their daily quantity sold varies depending on their supply and distribution system. For example, in the safe vegetable shop of the Food Company located in Luong Dinh Cua Street, the quantity of vegetables sold is just one tenth of the quantity sold by the safe vegetable shop of the Van Noi cooperative located in the near Kim Lien market. This is because the price in the cooperative shop is lower than other shops and the consumers believe that buying from the farmers’ shop would be safer as they know the origin of the vegetables.

b) All shops want to sell main-crop and off-season vegetables, but actually only half of them sell off-season products. In fact, all shops prefer to buy vegetable directly from farmer cooperatives but the cooperatives mainly supply main-crop products, and rarely, few kinds of off-season products. Thus the shops, in order to get off-season products, have to buy from different suppliers.

c) Requirements of the shops/outlets: the vegetables should be cleaned; leafy vegetables have to be bound into big bunches (for lettuce: 5 kg bunches) while for other vegetables small bunches are preferred (mustard greens, morning glory, katuk, amaranth). Some vegetables like mini tomato and okras must be packed.

d) The criteria for the selection of suppliers by the shops and outlets are basically identical with those used by supermarkets. The safety is the most important and the price is the least important criterion. The main difference about supermarkets and shops is related to the appearance criterion (much less important for the latter).

e) Big companies (e.g. HADICO) deliver vegetable by truck while smaller suppliers use motorbike.

3. **Demand of safe vegetables by restaurants and canteens**

a) They would like to get all kinds of vegetables that they order. Each restaurant, based on their guests’ preferences or on other characteristics of the restaurant, uses certain kind of vegetables. For instance, hot-pot restaurants mostly ask for lettuce of all kinds while street restaurants mostly herbs. For canteens, the cook often agrees with the suppliers on the menu for the whole next week. Depending on the requirement of each canteen, the suppliers deliver vegetable once or twice per day.

b) Like for supermarkets and shops, the safety of vegetables is the first criterion for the canteens. The criteria on variety and price are of equal importance and rank third. For the canteens in big companies, the prices are carefully negotiated as the vegetables must represent less than 10% of total meal cost. The price should be reasonable but not at expense of safety as the suppliers bear the responsibility if any problem rises. However, the legal status of the suppliers is not as important as for supermarket and shops.

c) Most suppliers use trucks for vegetable delivery to canteens. Some use motorbike to deliver vegetables to the small ones. Timeliness is of high concern as the canteens may reject the good arriving late and, in some cases, suppliers have to pay 100,000 VND in case of delayed delivery. Most of the suppliers use motorbike to deliver vegetables to restaurants.

The selection criteria of suppliers of the above groups are showed in the following table.
Table 4: Criteria for selection of supplier in priority order

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Supermarket</th>
<th>Shops/Outlets</th>
<th>Canteens and restaurants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Quantity</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Appearance</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Variety</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Legal status</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Average selling quantities of the 3 groups are shown in table 5.

Table 5: Purchasing capacity of each kind of outlet

<table>
<thead>
<tr>
<th>No</th>
<th>Group</th>
<th>Categories</th>
<th>Purchased quantity (kg/day/unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>From</td>
</tr>
<tr>
<td>1</td>
<td>Supermarket</td>
<td>Large-size</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium-size</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small-size</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Shops/outlets</td>
<td>Of farmers</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Of traders</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>Canteens and Restaurants</td>
<td>School canteen</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Company canteen</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small restaurants</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium restaurants</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Big restaurants</td>
<td>60</td>
</tr>
</tbody>
</table>

The above quantity is less than the amount the producers would like to supply. On the other side, at present, the trading facilities require both higher quality and off-season vegetables. This is a great opportunity for producers able to grow the lacking vegetables. Another reason for the limited quantity of suppliers is the impact of weather and the fact that producers sometimes do not have enough planting area.

According to the statistics from the DARD in Hanoi, 26.3% of the 3,000 households producing safe vegetable hold a safe vegetable trademark. Total supply of safe vegetables in Hanoi covers only 5% of total vegetable supply.

The vegetable amount supplied by the outskirt districts represents only 40% of total vegetable supply to the city. Thus a considerable amount comes from other neighbouring provinces. At present, provinces in the Red River Delta like Hung Yen, Ha Tay, etc are implementing the safe vegetable production programme in large scale. The strategy of the provinces is investing on large scale production, therefore, farmers are trained on IPM practices and some localities implemented the Decision number 03/2007/QD-BNN dated 19/01/2007 on “Safe vegetable production management and certification”. However, so far, many provinces don’t issue the certificate yet, thus, causing difficulty in selling the safe vegetable products.

Based on current situation and study results, it is recommended that the DARDS urgently completes and implements the certification scheme on safe vegetable production in compliance with the Decision 03/2007/QD-BNN of the MARD. In the meanwhile farmers producing safe vegetable in provinces that don’t have yet a certification scheme should, if possible, hire shops to sell their vegetables directly to consumers in order to increase their income and collect market information for adjusting their production plan in accordance to the consumer demand. If
unable to hire a shop, they should contact shops, outlets, restaurants or canteens to sell their products. However the farmers have to prove that they apply proper farming practices and have suitable internal control systems in order to gain the customers’ trust and develop their own reputation and, eventually, trademark. In a second phase, once the production facility have enough experience to meet the different requirements, it can contact supermarkets in order to sign long-term contracts to supply large quantity of its products.

V - Conclusions and recommendations

A) Conclusions

The marketing of safe vegetables in the city has increased in last 5 years. However, the number of safe vegetable trading facilities is still small and the amount of vegetables sold in each facility is limited compared to the city’s demand. There is great demand of safe vegetables in supermarkets, shops, outlets, restaurants and canteens. Due to stronger competition among producers, standards and requirements for safety and quality of vegetable increase. There is even a greater pressure on the traders as the consumers also require higher food safety. Currently, safety is the most important criteria for selecting the suppliers of vegetables. The buying-selling activities are based on written contracts. Among the 3 groups considered in the study, supermarkets have higher requirements on package, packaging method and labelling. Based on the results of the study, the research team has organized workshops in research institutes and in some provinces in order to facilitate the exchange of information between vegetables’ producers and traders. Decision-makers and researchers have taken part in the events in order to give their contribution for the best development of safe vegetable production and relevant trading practices.

B) Recommendations

The present study aimed not only to assess the state of safe vegetable distribution in Hanoi but also to collect suggestions and recommendations from different stakeholders involved in the safe vegetable’s value chain. Some recommendations are reported below.

1. Quality control in vegetable production and trading

DARD and MOT of Hanoi should maintain a proper system of delivering and monitoring the certificate for safe vegetable production, preliminary processing and trading facilities. These are steps of overwhelming importance for the safe production certification. Similar efforts should be done in the outskirts of Hanoi in order to strengthen the linkage between safe vegetable production and consumption’s localities.

Government should invest for infrastructures and capacity building of human resources of functional agencies and research institutes in charge of quality testing and control in all stages: production, transportation and distribution. Partial coverage of the cost for laboratory analysis should be provided to the newly established production facilities which may face several difficulties. If properly done this can improve the analysis of risks and thus the confidence of consumers.

2. Development of mechanism promoting the development of shops, outlets and supermarkets selling safe vegetables

The development of the mentioned safe vegetable facilities should be taken in consideration. In coming years, supermarkets will take advantage of encouraging policies and their number is expected to increase. Special attention should be paid in supporting the development of safe vegetable shops and outlets in markets, alleys and residential towns. The enforcement of the new regulation on street vendors will result in more difficulties in purchasing vegetables. Therefore, street vendors should be assisted in hiring market stalls in order to adapt to the new situation.
3. Development of the relationship between producers/suppliers and distributors

The relationship between suppliers and distributors should be further strengthened. They should become long-term counterparts and have commitments on product quality, quantity for daily delivery and other delivery conditions. Simultaneously, the distributors should provide the producers with updated market information.

4. Dissemination of the information on mass media

Disseminating through mass media the issue of food safety and of the risk to human health caused by low quality vegetable, providing specific educational programme on food safety and information about hygienic quality, especially on vegetables, can increase consumers’ awareness about these problems and boost their demand for quality products. This can put a pressure on producer/suppliers and distributors to comply with the relevant regulation on production and trading.

5. Strengthening of marketing capacity to access supermarket and other outlets

It is suggest to development marketing opportunities for safe vegetables through advertising campaigns on quality vegetables, their characteristics and origin. The sellers should be trained in order to be able to provide information about the origin of vegetables, their characteristics and their production and processing conditions.

6. Price information and harmonization

There should be more cooperation among cooperatives to set more harmonized pricing policy.

VI - References


I - Introduction

The main objective of the study is to assess the demand for selected products of Xiengkhuang Province by Vientiane consumers and retailers, mostly in terms of quality. The feedback of this information to farmers and local authorities enables a better adjustment of the local production with the final demand. In a first step, consumer and retailer surveys were organized to demonstrate the market potential of garlic, vegetables, and khainoy rice. In a second step, surveys focused on khainoy rice in minimarts, as well as green vegetables in traditional markets. We will present the results of these two steps, with a focus on the second one.

II - Results of preliminary appraisal

In Vientiane, consumers mostly buy their food from traditional retail markets. The most important are Thongkhankham (in the north), Thatluang (in the west) and Kuadin (in the southwest). Minimarts and supermarkets represent a new mode of distribution which has emerged in the last ten years. There are about 50 minimarts in Vientiane municipality and one supermarket. The larger ones are located in the centre of the city. Minimarts are characterized by supplying only non-fresh products, such as cosmetics, sanitary and hygiene products, processed foods, beverages, etc. However, since 2000, some minimarts have started to sell fresh vegetables and fresh meat, and other perishable products including bread and milk (Ph Manivong, 2005).

Besides, the touristic sector develops fast. In 2003, there were 132 hotels and 755 guesthouses and resorts. Sixty percent of hotels and guesthouses are located in Vientiane municipality, Luang Prabang and Champasack province (NSC, 2004). In 2003, the number of restaurants doubled compared with 2002, with 589 restaurants (fast food, street restaurants and specialty restaurants). A third of the restaurants are located in Vientiane province in connection with the Vangvieng tourist zone, followed by Vientiane municipality (14 percent) and Luang Prabang (11 percent). (NSC, March 2004).

In September and October 2007, a total of 100 buyers were surveyed, including 50 market retailers, 15 minimart, 15 restaurants, 5 hotels and fifteen shops and stalls. A total of 200 customers were interviewed, 100 in wet markets and 100 in public places (shopping malls, trade fairs, minimarts, administration places, etc.). The interviewees were selected in a random way by taking one out of every five peoples until obtaining the total interviewees.
Sixty per cent of consumers buy khainoy rice, from 20 to 120 kg per month; garlic is consumed by 94% of interviewees (3 to 5 kg per month), and green vegetables by 98 per cent of them (1-2kg per day).

When considering the interest of buyers in handling products which they do not yet sell, khainoy rice in minimarts look the most promising: minimarts do not yet trade it, while eleven out of sixteen are interested in this product. The major constraint relates to the seasonal supply (the product is only available from January to March). As regards garlic, its flavour is appreciated relative to the imported garlic by 40 per cent of consumers, but its supply is quoted as irregular by retailers as well as consumers. Five products are associated to Xiengkhuang according to the interviewed consumers: fruits (37% of answers); garlic and shallot (23%); khainoy rice (21%); vegetables (12%), including pakchoi, Chinese cabbage, cabbage, Chinese spinach, asparagus, pepper; and dry chilli (5%). In the second step, we decided not to consider garlic because it is presently in a situation of surplus production and sharp competition with Vietnam (Sacklokharm, 2008).

III - Vientiane Marketing Opportunities for Xiengkhuang Vegetables

A) Objectives and method

The objective of this study is to assess the market situation for vegetables (cabbage, Chinese salad and cauliflower) from Xiengkhuang province in Vientiane City as an input for further planning of the SUPERCHAIN project. The questionnaire surveys and in-depth interviews collected information from 130 traders and 250 consumers. The interviews took place in five retail markets (Thatluang, Khudain, Thongkhankham, Thongphantong and Hoakhoa) that are differentiated by various levels of consumer popularity and the availability of the respective vegetables. The total of 250 consumers were selected at random by taking one of every three people until obtaining the total number (50 consumers per market). The interviews related to general information about the household, present sources of supply of the selected vegetables, appreciation and preferences of Xiengkhuang vegetables, with a focus on quality and labeling characteristics. Among of 250 consumers interviewed, two third of the interviewees were women. In the majority, those interviewed were 30-49 years old. Three major occupations are state employee (29 percent), business owner/trader (23 percent) and Unemployed (20 percent). The average household size is five members, three of whom work. The average household income is less 200 USD per month (quoted by 53 percent of interviewees). 30 percent of them had about 201 to 400 USD per month. 11 percent of them earn about 401 to 800 USD monthly income.

For the survey on market vendors, the groups targeted were market collector, wholesaler and retailer selling at least one of the selected vegetables (cabbage, Chinese salad and cauliflower). Considering that the differentiation between traders is difficult and the number of them changes day by day, we decided to interview 10 market collectors, which were the traders that we met in early morning (4 to 8 am). The wholesalers and retailers were selected at random by taking one of every two traders on the list established in December 2007 by the author (comprehensive census of the traders selling the selected vegetables in the five markets). When we designed Activity, we decided to interview 130 traders including 100 retailers, 20 wholesalers, and 10 market collectors. But in fact only 97 traders were interviewed. Thirty-three traders (25 percent of sample) didn’t answer the question because they were busy in their activities. Seventy percent of sellers investigated are market retailers, followed by wholesalers (20 percent) and collectors (10 percent).
The time of interviews took place in early morning (4 to 8 am) and during daytime (10 to 12 am and 1 to 3 pm). The interviews lasted between 20 to 30 minutes. The following topics were investigated: general information about the retailer, upstream supply (suppliers, quantity of supply, criteria of choice), problems of supply and nature of customers.

The study was conducted between December 2007 and September 2008 by three lecturers from the Rural Economic and Food Technology Department of the Faculty of Agriculture of the National University of Laos.

B) Main results

The marketing chain is quite complex with a lot of factors to be considered. There is no clear delineation between the growers, wholesale and/or retail traders. These activities are often combined due to the uncertainty of demand for product in the marketplace, as well as the variance in availability and diversity of the supplying areas. The different types of actors found were:

**Local collectors**: Those who buy and transport vegetables from production areas to the market place. They sell wholesale to a market collector who also acts as a wholesaler. Some of them also produce vegetables. Their activity is carried out from 10 pm to 2 am.

**Market collectors**: Those who stay at the market place and buy vegetables from a local collector and then sell to other wholesalers and some consumers. Their activity lasts from 2 am to 6 am when the night market is active.

**Wholesalers**: They buy multi-vegetables from the market collectors and sell them to retailer and some consumers. Their activity lasts from 3 am to 10 am.

**Retailers**: Those who sell vegetables retail to consumers from their market stalls. Their activity lasts from 6 am to 8 pm when the day market is open. They rent a handcart to carry their commodities inside the market where we found their stalls.

The main vegetable suppliers of Vientiane market are also the producers from the peri-urban area of Vientiane municipality. Only 3 to 4 percent of surveyed vendors sell vegetables that were included in the survey, from Xiengkhuang province.

This statistic is small compared to the claims of the village collector. This points out a problem regarding the traceability of Xiengkhuang origin products sold in the Vientiane market. Chinese salad and cauliflower were sometimes imported from Thailand in the rainy season when local production cannot keep up with the demand.

**Table 1: Quantities (kg/day/trader) and price transaction (currency: kip/kg)**

(Declaration in February 2007 of estimated average prices in a standard year)

<table>
<thead>
<tr>
<th>Type of traders</th>
<th>Cabbage</th>
<th>Chinese salad</th>
<th>Cauliflower</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>Price</td>
<td>Margin</td>
</tr>
<tr>
<td>Local Collector</td>
<td>840-1200</td>
<td>1700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.5 - 7.5 T)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market Collector</td>
<td>240 -570</td>
<td>2000</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>(0.96 T)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesaler</td>
<td>90 -108</td>
<td>2500</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>(0.96 T)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retailer</td>
<td>12-24</td>
<td>3500</td>
<td>40</td>
</tr>
</tbody>
</table>

(1 USD = 8663 kip. 10/02/08) - Figures between brackets refer to total quantities in the market
Among three selected vegetables, Chinese salad was found less in market than other types of vegetables. Only half of the traders sold it. On the contrary, traders of cabbage were found the most (quoted by 92 percent of total traders). Traders purchased only the quantities that they estimated to be sold because vegetables are perishable. The quantities transacted by each actor in the supply chain are quite small. At collection stage, we estimated a daily supply of about 5.5 to 7.5 T of cabbage, 1.8 T of cauliflower and 1 T of Chinese salad sold in the Vientiane market. One local collector purchased and transported about 840 to 1200 kg of cabbage (maximum 2 T, equivalent of 1 load).

Seasonal variation leads to a period of both surplus and shortage in market supply which determines the quantities and prices transacted. The value per kilogram was double or triple during the shortage period surveyed. For example, the wholesale price of cabbage may change from 2000 kip/kg in February to 6000 kip/kilo in August.

Local production could not keep up with the demand in the rainy season, which requires importing from Thailand. The portion of imports accounted for 33 percent of total products sold in Vientiane markets. However, the favorite places of production according to traders as well as consumers are Vientiane City and Champassak province rather than Thailand.

We noted that suppliers are currently the key source of information about product origin. Traders felt they did not need any mode of control to guarantee the origin, as their personal knowledge was sufficient. Presently, traders identify the origin of vegetables by recognizing the packaging and appearance of products (size, shape and color). When uncertain about the matter, they asked their suppliers.

1. Vegetable Consumption

Out of 250 consumers investigated, nearly all consumers interviewed purchase at least one of selected vegetables (cabbage, Chinese salad and cauliflower) for home consumption and two-thirds buy all. There are two categories of consumers: the small consumer of less 3 kg per month and the medium consumer using 4 to 6 kg/month (see Figure 1).

![Figure 1: Quantity of Vegetables purchased by consumers](image-url)
The choice of vegetables bought by consumers depended on four major criterions: price, appearance, taste and mode of preparation (see Figure 2). They looked for “fresh vegetables”. Five percent of consumers chose vegetables according to their origins.

**Figure 2 : Criteria of vegetables considered by consumers**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>31%</td>
</tr>
<tr>
<td>Appearance</td>
<td>28%</td>
</tr>
<tr>
<td>Taste</td>
<td>19%</td>
</tr>
<tr>
<td>Mode of use</td>
<td>15%</td>
</tr>
<tr>
<td>Origin</td>
<td>5%</td>
</tr>
<tr>
<td>Packaging</td>
<td>2%</td>
</tr>
</tbody>
</table>

A third of consumers is concerned about the origin of vegetables bought, especially for cabbage and cauliflower. They preferred the product from Vientiane municipality and Champassak province because the vegetables from both areas had a good visual quality, freshness and low price.

The retailers have an important role in identifying the origin of products because they are currently the key source of information accessible to consumers. Therefore, 46 percent of consumers trust their advice and 12 percent repeatedly buy vegetables from their favorite retailers. The other 42 percent of consumers use their own knowledge to identify the origin of their favorite vegetables. Nearly half of consumers say it would be good to have labels on the vegetables indicating that they are pesticide-free. Consumers proved to be concerned about the chemical residues in the product. More specifically, Lao consumers are demanding more information about where the food they are buying comes from and what pesticides/chemicals have been used to produce it. Traceability, especially in regard to food safety, has become increasingly important for consumers.

2. Xiengkhouang Vegetable Knowledge and Consumption

The number of traders selling Xiengkhouang vegetables is small, only 14 percent of the sample. This low figure is due to the survey period because the supply from Xiengkhouang province lasted between September to December. It might have been too late to find vegetables from there.

During the survey, we found two opposite opinions about Xiengkhouang vegetables. On the one hand, market collectors who buy the Xiengkhouang origin, said that vegetables from there had a quality requested by consumers (crunchy, good shape, big size, long shelf-life). But there was damage with the long transportation. Therefore products lose their freshness, which is the quality requested by consumers. Xiengkhouang origin has to improve the handling of products during transportation to maintain quality. On the other hand, retailers complained that the cabbage of Xiengkhouang origin was too small compared with the other origins, while we only saw big cabbage (more than one kilo) in the field in Xiengkhouang province.
This illustrates a problem of traceability of Xiengkhuang origin vegetables in the Vientiane market.

The products were mainly sold in the Vientiane municipality, especially in Khuadin and Thatluang markets where we found the main market collectors of Xiengkhuang vegetables. In the Vientiane municipality, about 70 percent of products have been directly delivered to personally known wholesalers.

**Figure 3: Quality of Xiengkhouang Vegetables as perceived by consumers**

![Quality of Xiengkhouang Vegetables diagram]

One-fifth of those surveyed were familiar with Xiengkhuang vegetables, and one-tenth was actual consumers. The qualities of Xiengkhuang vegetables are: non-chemical residue and good tasting. The quantity purchased by consumers was about 1 to 3 kg/time. The place of purchase was at wet markets. Typical consumers of Xiengkhuang vegetables were State employees, 40-49 years old with 401 to 800 USD of monthly income. When they buy vegetables the four criterions of quality are: appearance, taste, origin and pesticide free (organic). Once again, whether chemical pesticides were used or not, was the most requested information regarding Xiengkhuang vegetables.

Faced with five propositions: chemical-free, province of production, name of producers, name of village producers and phone number of producer, nearly half of the traders and consumers say it would be good to have a label on the vegetables indicating that they are pesticide-free, and also name of province and producer group.

3. **Xiengkhouang Vegetables strengths, weaknesses, opportunities and threats**

Factors that are in favour of Xiengkhouang vegetables are related to its reputation of having no chemical residue. In addition, the vegetables are well known for their flavour. Even if the consumers are not from Xiengkhouang, they are curious to use the vegetables because they trust the area’s outstanding reputation on food safety.

However, identifying true Xiengkhuang products in the Vientiane market is a severe problem. Very few people can recognize items having the real Xiengkhuang origin. In fact products lost their identity at the collection stage where the true origin of products was confused with other areas in Vientiane province. The reason is that traders called, all products from the north region of Laos (Vientiane, Luangprabang, Xiengkhuang) as “Vientiane” vegetables.
C) Conclusions/recommendations

For the vegetables selected from Youn cluster village in Xiengkhuang province, the seasonal periods of shortage when main traders cannot be supplied, presents market opportunities. Cauliflower and Chinese salad seem to have more opportunity than cabbage because of the small number of growers (less competition). Moreover, their deficit seasons are longer than that of cabbage.

However, this perspective should be taken with caution, as one vegetable can be substituted by another one, and the substitutes are quite numerous. Moreover, Xiengkhuang identified products had a severe problem of traceability in the Vientiane market. There is a demand for indication of origin. The commercial promotion of Xiengkhuang-origin vegetables should be accomplished, through communication, control and labeling.

IV - Vientiane Marketing Demand for Glutinous rice in minimarts

A) Objective and method

The evaluation of the domestic market demand for small khainoyen rice from Xiengkhuang province in the capital city Vientiane was carried out in December 2007 and January 2008. The objective of the assessment was to appraise the opportunities for small khainoyen rice in the new distribution channel (minimarts). The methodology of the assessment was a survey using a questionnaire of 150 customers in the five most frequented minimarts (Bounthavi, Khramkong, Vshop, Tantfrère and Am).

To establish the size of sample, a preliminary interview was made with the owners of mini-marts in December 2007 to understand the time variation of consumer’s frequency and appraise the rush hour of mini-marts. Finally, the interview has been carried out twice (once on Friday, once on Saturday) according to the time variation of consumer’s frequency. The time of interviews took place at 16 to 18h00 (rush hour). The interview lasted between 15 to 20 minutes.

The interviewees are selected in a random way by taking one every three people until obtaining the total numbers of sample. We made some rational sampling by selecting around 30 people per mini-mart (15 people per day). The questionnaire contains opened and closed questions in four separate parts: interviewee’s information, rice consumption, khainoy consumption and the motivation of rice purchased in mini-mart.

Two third of the interviewees were women. In the majority, those interviewed were 21-39 years old. Three major occupations are business owner/trader (35 percent), private employee (25 percent) and state employee (13 percent). The average household size is five members, three of whom work. The average household income is 201-400 USD per month (quoted by 45 percent of interviewees); 28 percent of the families earn about 401 to 800 USD per month and 17 percent of them earn less that 200 USD monthly.
B) Rice Consumption in Vientiane City

There are two types of rice being traded in minimart in Vientiane City: non-glutinous rice (white rice) and glutinous rice (sweet rice). During the survey we found 6 available varieties in minimarts including 4 varieties of non-glutinous and 2 varieties of glutinous. Each of these has been distinguished on Table 2.

<table>
<thead>
<tr>
<th>Type of rice</th>
<th>Origin</th>
<th>Attributes</th>
<th>Percentage found on shop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hom Mali Thai</td>
<td>NG Thailand</td>
<td>Long grain, transparency</td>
<td>82</td>
</tr>
<tr>
<td>Hom Mali Lao</td>
<td>NG Centre region</td>
<td>Long grain, transparency</td>
<td>67</td>
</tr>
<tr>
<td>Japanese rice</td>
<td>NG Centre region</td>
<td>Short and round grain, yellow white</td>
<td>22</td>
</tr>
<tr>
<td>TDK</td>
<td>NG Centre region</td>
<td>Long grain, white</td>
<td>60</td>
</tr>
<tr>
<td>Thai sticky rice</td>
<td>G Thailand</td>
<td>Long grain, white</td>
<td>35</td>
</tr>
<tr>
<td>Khao Khondam</td>
<td>G Centre region</td>
<td>Long grain, white</td>
<td>17</td>
</tr>
<tr>
<td>Khao niaw lao</td>
<td>G North region</td>
<td>Medium and round grain, white</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: (1) NG: Non glutinous (White rice); G: Glutinous rice (Sweet rice)
(2) Long grain: > 6 mm, Medium grain: 4 to 6 mm, Short: 2.5 to 4 mm
(3) Number of traders having the reference/Total number of traders

Out of 150 people interviewed, 114 bought rice for home consumption, this portion accounting for 76 percent of total interviewees. When consumers buy the rice, they are concerned with taste, price and appearance (see Table 4) They look for the following characteristics: long grain, white color and aromatic. After cooking, the rice has to be soft and to taste good. Consumers buy their preferred rice in quantities ranging from about 48 to 96 kg per month. Consumers accepted to pay a little bit more if the quality of rice was guaranteed (quoted by 10 percent of total interviewees), but we did not ask how much. They wanted more information about where the food they bought came from and what has been done to it. Food safety, especially traceability, has become an increasingly important issue for them. This may be an opportunity for khainoy rice to reach this healthy niche market because it has a good reputation with regard to quality and public awareness.

Figure 4: Criteria of rice purchased
When we asked the question “Are you concerned with the origin of rice bought?”, 63 people declared that they paid attention to the origin of the rice. The result of a correspondence analysis method between multi-variables (importance of origin, age, occupation and household income), the origin of the product was more important for people aged 21 to 29 than for the other age brackets. In terms of occupation, business owners/traders and private employees with 400-800 USD of household income are also concerned with the origin of the rice.

C) Khainoy rice Knowledge and Consumption

Out of 150 people interviewed half know about khainoy rice and one fifth consumes it. Consumers of this type of rice are aged between 21 and 29, including private employees and unemployed. Their households have seven members and their monthly income ranged from 200 to 800 USD. The quantity purchased is about 12 to 24 kg/week. Khainoy rice consumers are very interested in the origin of product.

For the consumers of khainoy rice, the quality of this rice variety depends on three variables (see Figure 4). The most important is taste, the second softness and the third fragrance. Their favoured place of production was Xiengkhuang province (quoted by 90 percent of khainoy rice consumers). This production area has a good reputation with regard to quality and safety. When they buy the rice, price and taste are the most important criteria of choice. The appearance of the rice (long grain, white colour) and fragrance are not taken into account.

**Figure 5: Quality of Small Khainoyen Rice according to consumers**
To control the quality of khainoy rice and guarantee the origin of products, retailers play an important role because they are currently the key source of information accessible to consumers. Two thirds of consumers therefore trust their advice. The other third use their knowledge of khainoy rice to identify their favoured origin. They observe the appearance of the rice (size, shape and colour). Compared with the other rice varieties, the grains of khainoy rice are smaller, round and light yellow.

Despite its quality, khainoy rice also has a weakness. Out of 87 people who know this rice, 57 do not consume it. The most frequently cited objections which may arise with khainoy rice are related to eating habits and preferences. Consumers have certain preferences for rice types such as long grain and white colour. Half of them don’t want to change the rice types that they consume and the other half don’t like the appearance of khainoy rice (small, round grain).

We asked consumers if they would like to have the origin guaranteed when they buy the rice, and 84 percent said they would like to have an indicator to identify their favoured origins. Figure 6 shows the information requested by consumers when we proposed the following five options: Chemical-free, name of province of origin, name of village producer, name of producer and phone number of producer.

Figure 6: Information needed by consumers for small chicken rice

<table>
<thead>
<tr>
<th>Information Requested</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical-free</td>
<td>55%</td>
</tr>
<tr>
<td>Name of province</td>
<td>23%</td>
</tr>
<tr>
<td>Name of producer</td>
<td>19%</td>
</tr>
<tr>
<td>Phone number</td>
<td>2%</td>
</tr>
<tr>
<td>Name of village</td>
<td>1%</td>
</tr>
</tbody>
</table>

Chemical-free was the most requested information (quoted by 55 percent of total interviewees), followed by the name of the province of origin (23 percent) and the name of the producer (19 percent). Consumers prove to be very concerned about chemical residues in the product.

D) Khainoy Rice strengths, weaknesses, opportunities and threats

In this sample, 10 percent of interviewees (16/150 people) purchase rice occasionally at minimarts. They are private employees 21 to 29 years old. The quantity purchased are about 12-24 kg/week. Out of the people who buy the rice at minimarts, 10 are interested in product origin and 8 consume khainoy rice already. But they buy it at conventional markets. These people trust the retailer’s guarantee of product origin.

Moreover, two thirds people interviewed thought that minimarts could guarantee the quality of khainoy rice. They accounted for 50 percent (15 persons) of khainoy rice consumers and 50 percent (7 persons) among people who bought this rice at minimarts. It seems that khainoy rice is of small interest in terms of market opportunities. Consumers started using this rice on their own consumption. But this proportion is still small because long grain varieties remain the most important for the market.
E) Conclusions/recommendations

If the destination of product is minimarts, the quantities involved will be small. Only 10 percent of people purchase rice occasionally in these places and 5 percent will buy khainoy rice. Consumers have begun using this rice variety. But the market share is limited because the eating habits and preferences of consumers affect the choice of rice bought. This preference will change only slowly. Therefore, the introduction of new rice types will be difficult as eating habits are not easy to change. Consumers may try a new product out of curiosity but they will go back to what they are used to. Long grain varieties will remain the most important varieties for the market. Still, the study has shown a small niche market for khainoy rice in minimarts: minimarts are trusted by consumers to guarantee the origin and quality of khainoy rice. A majority of minimarts have declared their interest in trading this rice.

V - Feedback of market surveys

A workshop to present the results of the market surveys was organized on November 6, 2008. Thirty persons participated, including 10 farmers, 4 collectors of Xiengkhouang, two Vientiane wholesalers, five representatives of provincial authorities (5) and two of Khone district, five students and teachers of Nabong faculty de Khone, 1 staff of Helvetas project and 1 staff of Peig project in Xiengkhouang. The information on Vientiane market was highly appreciated. After the presentations, a visit in the fields was organized so that wholesalers could view the quality of the products. Contacts were exchanged between farmers and wholesalers for further transactions.

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Part 2 – Quality development and marketing
Promoting quality and marketing for Hoa Vang sticky rice in An Phu commune, Kinh Mon district, Hai Duong province

Bùi Thị Thải, Phạm Công Nghiệp, Ung Thị Hồng Nhung (CASRAD)

Summary
A number of traditional products with special quality are less and less present on Vietnamese markets. However, nowadays many consumers want to find the local quality special products. Hoa vang sticky rice is one of these products. At present, the area for hoa vang has declined due to low quality and productivity. Only in some purely farming areas with isolated geographical conditions, farmers are still maintaining this variety and grow it in big areas like in An Phu commune, Kinh Mon district, Hai Duong. Superchain project has selected An Phu commune as the impact area to help farmers increase income through the activities of adding value to this traditional product. During the implementation, the project has supported farmers to establish the production organization and create new linkages with supermarkets and wholesaling/retailing agents in Hanoi. In 2008, the Hoa Vang production and distribution association has been established in Kinh Mon. At present, the association is able to produce the elite seeds to supply its members and other farmers inside and outside this commune. The quality of hoa vang is upgraded through using selected seeds and applying the production protocol combined with traditional practice. The quality of the products of the association is highly appreciated by consumers.

I - Background:
Hoa vang ("golden flower") sticky rice is one of the typical products grown in the Red river delta of Vietnam. Before, most of farmers used to grow hoa vang on their household land (5% good land being allocated by the cooperative to the households). But in recent years, due to limited productivity and output, the area for hoa vang was sharply reduced. Before the renovation in 1988 (Resolution No.10 NQ/TW dated Apr 5, 1988 stipulating changes on agro-economic management), the area for all kinds of sticky rice accounted for about 10% of total area, 50% of which being for hoa vang. But nowadays, the area for sticky rice is estimated in only 1-3% of total area, and mainly for short-cycle varieties; the area for hoa vang is therefore very small (Le Duc Thinh, 2007). A survey was conducted in Hai Duong production area – one famous hoa vang area in the Red river delta. It showed that in Hai Duong province, Kinh Mon district has the largest sticky rice area with 569 ha, 329 ha of which is for Hoa Vang sticky rice (Figure 1). And An Phu is the commune producing the largest output of high quality hoa vang rice.

Hoa vang is a popular rice among consumers in this region of Vietnam. It has become difficult for them to find the real hoa vang in the market. According to a survey with hoa vang sticky rice stakeholders, consumers complain that the stickiness and aroma of hoa vang is not as good as it was in the past, and that hoa vang rice is often mixed with others. The mixing rate may be over 30% (Pham Cong Nghiep, 2007).

Figure 1
Supporting farmers with the most appropriate ecological conditions and production experiences, such as An Phu commune (Kinh Mon district), in order for this locality to become a recognized area of production of Hoa vang, may help develop this local advantage. In this commune 13.1% of population is poor, while the provincial figure is 5.2%. This support may therefore also contribute to the Superchain project objective of improving the income of small and poor farmers.

II - Objectives

The project's activities aiming to improve small farmers' approach to market include the following:

- Linking farmers to re-organize their production and increase scale. Considering sound technique as the basis to create consistent quality for individual farmers and farmers' organization as well. Increasing the product output and availability is key in order to meet customers' demand.
- Designing and completing the protocols and specifications for planting, post harvest and marketing to ensure the expected special quality.
- Establishing new retailing chains (through supermarkets and safe products shops) which will allow to increase the product value and diversify the relationship with buyers.
- Organizing collective activities in order to reduce production and transaction costs.
- Restoring and developing the local specialty products, preserving the local culture.

III - Methods:

The implementation of the survey applied the following methods:

- The supply chain approach (Perez, 1991), linking the technical protocols, the economics and the organization and strategy of involved stakeholders
- Institutional analysis to help farmers have better access to inputs and outlets, economics of scale for special products (Olson, 2000; Bosc and al., 2001; Egg and Moustier, 2006)
- Organization of stakeholders' workshops, including consumers, producers, local leaders, etc.
- Analysis through SWOT matrix to help farmers recognize their advantages, difficulties, opportunities and challenges to set their production and marketing strategy.

IV - Results

A) Introduction: Project area and product's characteristics

An Phu commune is the lost farming-oriented commune of Kinh Mon district. Farmers' incomes are mainly derived from cultivation. Poor people represent 13.1% of the population (Pham Cong Nghiep, 2008). An Phu is the largest
and most famous hoa vang sticky rice production area. The commune produces about 200 ha of sticky rice every year, 90% of which is hoa vang sticky rice. The commune is surrounded by two big rivers. Until 2000, this commune was almost isolated due to low terrain and difficult transport conditions without bridges over the rivers. That geographical disadvantage may be the reason why this commune still retains a lot of sticky rice fields. On the other hand, the surrounding environment with mountains and rivers has given An Phu a very favourable setting to keep a rather big area under sticky rice cultivation. Local farmers have the tradition of growing rice and the seeds of the special Hoa vang variety are produced here (this variety is being restored by the project).

Hoa Vang rice owns some typical characteristics. This variety can be grown only one crop per year (winter crop). Hoa Vang requires a long time of cultivation, about 150 days since sowing. The rice plant is high and can bend down easily. It is famous for its good flavour. Due to its long growing time, this rice variety is often harvested late. For this reason its aroma is attributed to be attractive to rats, pests and diseases. Hoa vang sticky rice has a low productivity (60% of hybrid sticky rice variety n° 415). If the cultivation practice is not based on right the production protocol and is attacked by stem borer, hoa vang sticky rice may even become impossible to harvest (30 kilos per sao). The shape of hoa vang grain is round and not broken, so in many localities it is called “nep Hoa vang” or “nep cai Hoa vang”. The rice has good flavour, especially after cooking, with stickiness and shine.

B) Establishment of the farmer organization

1. The Farmers’ Group development process and activities

* Key factors for linking farmers to markets: Selling a product with special quality aroma and stickiness, packaged with information about the farmers’ organization.

Before the Superchain project, the former department of Agrarian System - Vietnam Academy of Agricultural Sciences which became the centre of agrarian system research and agricultural development of Food Crop Research Institute had supported the establishment of a group of farmers producing and trading hoa vang in An Phu –(Kinh Mon district, Hai Duong province). This group had 36 members with a cultivated area of 63 sao, equivalent to 2.3 ha. In 2007, under the framework of Superchain project, farmers were supported to establish new groups. As a result, 2 new groups were established in An Phu commune. In late 2007, An Phu commune had therefore 3 farmers’ groups accounting to 131 members and 10 ha of land.

* Criteria for selecting members: Due to its special biological characteristics, hoa vang rice needs to be grown in one concentrated area for appropriate protection and treatment. Therefore, farmers for grouping are from the same village. To become member of the group, the household must grow hoa vang rice in the planned area, be willing to join and follow the group’s regulation. The group appoints its head and vice–head. The head of the group is responsible for designing the production plan: area, seed demand and guidance on the following of the technical protocol. The group also designs the regulations and orientations for operation. The members’ meeting has the highest authority in order to approve and make decisions regarding the group’s organization, regulation and activities.

Before establishing the association, these 3 farmers’ groups have linked to organize joint–selling and use the quality seeds from the first group to give to members of new groups. They established one marketing group of 3 members to be responsible for trading.

* Collective action: The technique (protocol for production, processing and storing) is the key element to ensure the quality of the group’s product and meet the city demand. The members are required to be trained on the collective protocol before joining the group. Some compulsory factors to have good quality are the requirements to use the seeds selected by the group, organic fertilizer, balancing between organic and chemical fertilizer. If organic
fertilizer is in shortage, the microbial fertilizer can be used instead for some but not totally (table 1).

Table 1: Some group collective activities

<table>
<thead>
<tr>
<th>Criteria</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of households using the group’s seeds (%)</td>
<td>100</td>
<td>72</td>
<td>10*</td>
</tr>
<tr>
<td>Percentage of households using the group’s microbial fertilizer (%)</td>
<td>0</td>
<td>28</td>
<td>80</td>
</tr>
<tr>
<td>Percentage of packed paddy with assessment note (%)</td>
<td>100</td>
<td>0**</td>
<td>100</td>
</tr>
<tr>
<td>Collective processing and distribution (Percent of members selling to the association)</td>
<td>70</td>
<td>70</td>
<td>50***</td>
</tr>
</tbody>
</table>

*Source: Released by the association’s leading board
*In 2008, the farmers used the seeds provided by the project in 2007
** In 2007, the marketing group did not organize the control
*** In 2008, many farmers kept rice to wait for higher price due to bad harvest.

2. Establishment of the Association:

To fix the rules in the group’s organization and to promote its marketing activities, the project consulted in 2008 and supported 3 groups in An Phu commune to choose a form of organization with legal status, either the form of cooperative or of association. This work needed time to search and discuss with the members and the local authorities. The people recommended by the people’s committee or the agricultural cooperative to be the organization’s leaders are the one already having a heavy work burden, thus they all refused to take this job. This may also be due to some other reasons that they did not answer frankly like: big responsibility, big risk and the compensation is not the same as in other communal positions. In the locality, the idea to develop as the cooperative of hoa vang production and distribution was not agreed by the communal agricultural cooperative. They think that it is not good to establish another cooperative in the commune (though it is not restricted by the law). After many discussions, the farmer groups decided to turn into the association of hoa vang producers and traders.

The association of hoa vang production and distribution in Kinh Mon was officially established according to Decision No.3651/QD–UBND of Hai Duong provincial people’s committee on 14 October 2008. The first meeting was organized on Dec 13, 2008. Some main steps to establish the association are shown below:

Step 1: Identifying the form of organization: organizing 3 meetings with the group leaders and significant farmers to select the operating board or called as the temporary creation board. This board was in charged of mobilizing, organizing the meeting and necessary arrangements for the workshop. These meetings were to discuss to select the appropriate form of organization. The regulations in the Law on cooperatives, 1996, the amended law 2003 and Resolution No.88/CP, 2003 on association organization were introduced to discuss in the meeting of operating board and mentioned members. Finally, the temporary creation board selected the form of association.

Step 2: Meetings with members of each group to discuss on the organization of the association. Introducing with members on the operation structure of the association.

Step 3: Organizing meeting with all members of 3 groups to discuss and uniform on the organization form.

Step 4: The project consulted and supported the temporary creation board to design the association’s regulations and orientation for operation.
Step 5: Organizing the member meeting to discuss and decide the association’s orientation and regulations.

Step 6: The project consulted and helped the creation board to complete papers for establishing the association according to Resolution No.88/CP to send to Internal Relation Office of Hai Duong province for approval.

Step 7: Organizing the Preparation meeting and the workshop for the establishment of Hoa vang association in Kinh Mon

The association is established from 3 farmers’ groups with 131 members located in 3 villages. The structure of the association includes the leading board and specialized groups like rice commodity production group, technical group in charge of selecting and producing seeds, monitoring the member’s practice; marketing group in charge of finding buyers and control quality of product sold to the association; accounting –financial group (see Figure 2).

Figure 2: Structure of Kinh Mon Hoa Vang production and distribution association

The process of development of farmers’ organization in producing and trading Hoa vang in An Phu is shown in table 2.
### Table 2: Some information on farmers’ organization in An Phu

<table>
<thead>
<tr>
<th>Year</th>
<th>Farmer organization</th>
<th>Number (households)</th>
<th>Areas (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>One group</td>
<td>36</td>
<td>2.3</td>
</tr>
<tr>
<td>2007</td>
<td>Three groups</td>
<td>131</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Inside:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Group 1:</td>
<td>45</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>- Group 2:</td>
<td>45</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>- Group 3:</td>
<td>42</td>
<td>3.6</td>
</tr>
<tr>
<td>2008</td>
<td>Association</td>
<td>131</td>
<td>10</td>
</tr>
<tr>
<td>2009</td>
<td>Association</td>
<td>131</td>
<td>10</td>
</tr>
</tbody>
</table>

### C) Improvement in Production

1. **Implementing collective production protocol**

   Building the technical protocol: To build the technical protocol for Hoa Vang production and processing, we conducted the survey on rice production and processing within 50 households (Pham Cong Nghiep, 2007). The result of this survey is the basis for us to design the technical protocol for farmers growing sticky rice (Production protocol, 2008). This protocol has been used to train the member farmers and improved with the opinions gained after the annual workshop, field workshop.

   One of biggest constraint to farmers in following the protocol is that they do not have enough manure. Only 10% of members use manure. We have tested to partly use microbial fertilizer instead of manure. The results are good as measured by the high hoa vang productivity in table 3.

   Preservation of basic seeds: To help farmers provide themselves their quality seeds, which are a compulsory element in the production protocol, the project helped farmers to restore the tradidional hoa vang rice according to the protocol required by Ministry of Agriculture and Rural Development (TCN395-2006) and also invited officers from the seed testing centre to check every crop the field and to analyse the quality of different rice lines in different generations. The result can be seen in the crop 2008, when the project has helped the association to restore successfully the traditional hoa vang rice. The association already has super-elite seeds available to provide for the next crops.

   Seed production: One group within the association specialized in producing seeds (4 members). It aims to supply association members’ households and the demanding communes. The seed production protocol was guided by the officer of the National seed testing centre. The association leaders and the project staffs will monitor and supervise the process. The association can produce about 1000 kilos of seeds in 2008 which are analysed and certified by the National Seed Testing Centre.

   Production of hoa vang commodity rice: Hoa vang commodity production: To help the members follow well the protocol, the project has designed the materials and trained on internal control for the leaders, inspectors and members. This internal control system defines clearly stages to be inspected, criteria for inspection, method of inspection and the person taking the duty. The leaders appoint people to visit and evaluate the protocol practice in the field of each household over each rice growing period. The information from that will be used to assess and classify the quality of household product later. If the product is not qualified, the association will not purchase.
To improve the quality, the project supported to association to buy some machines like dust filter, vacuum packaging machine.

2. **Capacity building**

Regular training in many fields for the board of leaders and the association members is an important requirement for farmers’ organizations to become more professional. In this project, we organized the trainings with the help of some external experts on some main issues and some meetings below:

- **Training technicians for the association:** Training 3 farmers with good skills to become the association’s technicians who are able to produce and restore hoa vang rice variety in the future. These technicians are directly trained and certified by the Seed testing centre, Dept of Cultivation, MARD (from 23 to 25 April 2008).
- **Training on technical protocol to produce commodity rice for members** (from 6 to 7 May 2008).
- **Training on improving capacity for the association leaders and inspectors in terms of planning, meeting chairing, monitoring the association’s activities** (27 April 4 2008).
- **Training on recording of financial book to help the leaders and accountants able to note and follow the financial transactions,** in order that the financial activities of the organization will be transparent, making it easy to check the members (22 May 8 2008).
- **Training on internal control to help members follow the technical protocol to ensure the quality** (from 12 to 13 July 2008).
- **Organizing trips to learn experiences from successful farmers in the province such as visiting the Nam Hung husbandry farm** (15 September 2008).

In addition, the project staff often worked with the association leaders to organize the regular meeting among the groups to dismantle difficulties and share experiences.

- **Strengthening the relations and communication between the association and the local relevant authorities to organize meetings, workshop with the participation of competent bodies and department (field workshop, the association establishment meeting, tasting event in Big C supermarket, etc)**
- **Communication, propaganda via mass media such as Hai Duong newspaper, Vietnam agricultural newspaper, Hai Duong television station.**

3. **Economic results**

Sticky rice production is one of household’s important activities in the region. This generates the main income for household expenses, especially in the traditional new year festival. According to experiences of farmers, hoa vang price is often high during this occasion while other winter produce of the locality (onion, garlic) do not have good selling price. They usually have high price only after Tet holiday. On the other hand, also according to producer, with the low land condition, hoa vang is the product giving highest efficiency. This is also the reason why hoa vang has been maintained and developed in An Phu for many years.

Some achievements of farmers’ organization in hoa vang production and distribution in recent years are shown in Table 3 and graph 2.
Table 3: Results of hoa vang production of the association members

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Average hoa vang land/ household (m2)</td>
<td>1002</td>
<td>1016</td>
<td>987</td>
</tr>
<tr>
<td>2. Production cost* (đ/sào)</td>
<td>300 167</td>
<td>328 020</td>
<td>429 800</td>
</tr>
<tr>
<td>3. Yield (kg/sào)</td>
<td>124</td>
<td>123</td>
<td>71</td>
</tr>
<tr>
<td>4. Productivity (kg/household)</td>
<td>323</td>
<td>335</td>
<td>181</td>
</tr>
<tr>
<td>5. Price of hoa vang sold to the association (đ/kg)</td>
<td>7300</td>
<td>7800</td>
<td>12500</td>
</tr>
<tr>
<td>6. Cash from selling hoa vang paddy (đ/household)</td>
<td>1 577 722</td>
<td>1 540 655</td>
<td>1 565 267</td>
</tr>
<tr>
<td>7. Total income (đ/sào)</td>
<td>8 941 164</td>
<td>967 887</td>
<td>887 500</td>
</tr>
<tr>
<td>8. Profit (đ/sào) (7-2)</td>
<td>593.997</td>
<td>639.867</td>
<td>457.700</td>
</tr>
<tr>
<td>9. Total household income (đ/household)</td>
<td>22.269.118</td>
<td>23.616.934</td>
<td>26.166.853</td>
</tr>
<tr>
<td>10. Percent of hoa vang contribution</td>
<td>7</td>
<td>6,5</td>
<td>6</td>
</tr>
</tbody>
</table>

*Source: Survey on 34 members of the association*

After many years, the land for hoa vang did not change much. The area for hoa vang did not expand because hoa vang rice requires a good land position and is more demanding than ordinary rice. On the other hand, some land is suitable for hoa vang, but it gives much higher economic efficiency if growing winter crops than compared with hoa vang. The 2008 winter crop productivity was low, just 71 kilos per sao or 58% compared with that in previous years. This is a year of harvest loss for long-cycle rice, particularly as sticky rice in Kinh Mon region was seriously attacked by stem borer and as flood happened just a few days before harvesting. The rice and the quality were seriously damaged. On the other hand, the selling price of hoa vang in 2008 was 60% higher than that in 2007 and 70% than in 2006. The hoa vang contributed to 6-7% of household's income. It is important as the source of cash for households. About 70% of household's hoa vang yield is sold yearly.

We have conducted the survey on production and distribution in 2008 – the difficult year of hoa vang to have information to compare the production efficiency between households inside and outside the association (table 4).

Table 4 shows that although the harvest was lost in 2008, households in the association still had higher productivity compared with households outside, with an increase of 11 kilos per day, 18% higher. Households in the association earn higher profits by 40% from sticky rice production. But the most important thing, according to farmers, is the better quality of rice due to the project's seeds. Therefore, the commune's price of hoa vang is always 500 - 700 dong higher per kilo compared with other communes*. The project's seeds are not only giving higher price for better quality but also higher productivity.
Table 4: Comparing production efficiency between households in and outside the association

<table>
<thead>
<tr>
<th></th>
<th>2008 Member household</th>
<th>2008 Non member household</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity kg</td>
<td>Price 1000VND</td>
</tr>
<tr>
<td>Cost/sao</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total expenses</td>
<td></td>
<td>429.8</td>
</tr>
<tr>
<td>Seeds</td>
<td>1.4</td>
<td>12</td>
</tr>
<tr>
<td>Fertilizer</td>
<td></td>
<td>259.7</td>
</tr>
<tr>
<td>Pesticide</td>
<td></td>
<td>103.7</td>
</tr>
<tr>
<td>Other services</td>
<td></td>
<td>49.6</td>
</tr>
<tr>
<td>Total income</td>
<td>71</td>
<td>12.5</td>
</tr>
<tr>
<td>Net income</td>
<td></td>
<td>457.7</td>
</tr>
<tr>
<td>Economic –social impact</td>
<td>** Increasing income for local households</td>
<td>** Keeping the regional image</td>
</tr>
</tbody>
</table>

A social impact for the local image is that the region has a special product well known by consumers.

D) Marketing

The study on hoa vang demand (see Fiaz et al., infra) shows that the city consumers have high demand of quality product and are willing to pay a high price for it (around 20 percent more with adequate criteria of shape, shine, aroma). But where to buy this rice? Since 2006 and especially under Superchain framework, we have helped the association to introduce products with the buyers in Hanoi.

1. Promotion

**Stakeholder workshop**

A workshop was organized on June 10, 2008, to foster contacts between producers and other chain stakeholders, with the attendance of farmers, supermarkets, companies, wholesaling/retailing agents, (6 farmer leaders, 7 supermarket retailers, 6 shop retailers, 5 processing companies, 1 representative of the women consumer club). This meeting showed that the stakeholders have a rather high demand of this product (about 10-30 tons/supermarket).

**Fairs**

In addition, the association participates in the yearly Spring agriculture product exhibition (from 17 to 29 Jan 2009). In March, with the support of the project and Big C supermarket, the association has organized a tasting event in Big C Supermarket in Hanoi (from 5 to 8 March 2009) and Big C supermarket in Hai Phong (from 13 to 15 March 2009) during 6 days (date). This activity shows that consumers highly appreciate the quality of the association’s product (97% of 222 consumers in Hanoi and 100% of 74 consumers in Hai Phong gave good comment about the product quality).

**Promotion materials**

The project produced a poster and a leaflet to promote the product and the organization.

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**Packaging**

The products are packed with the association’s package, containing information relating to product’s characteristics and contact persons:

- Association's name, name of product, producer, consulting body, address and
- Some information on the protocol and product’s characteristics: production under the traditional practice; 100% true hoa vang; humidity less than 14%; certified on food hygiene standard.

![Picture: rice package](image)

2. **Contacts with buyers**

Contacts were developed and transactions carried out between the farmer association and the following new buyers (see Figure 3):

- six shop vendors in Hanoi in 2007. In 2008, two shops vendors stopped buying because they said that the price of sticky rice is very high this year.
- two distribution companies
- one Hanoi supermarket (Hapromart)

![Figure 3– Indication of main outlets developed](image)

**THE MARKET OF HOA VANG STICKY RICE**

**THE ASSOCIATION OF HOA VANG PRODUCTION AND DISTRIBUTION IN KINH MON**

- 6 shops: 2.1 t hoa vang
- Consumer association: 2.3 t hoa vang
- Hoai Duc alcohol company: 5 t hoa vang
- Phu Loc alcohol company: 46 ton sticky rice 415; 3 t Hoa Vang
- Consumers: 1.9 t hoa vang
3. Economic impact

Details on quantities and prices sold are presented in Table 5.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent/shop</td>
<td>01</td>
<td>06</td>
<td>04</td>
</tr>
<tr>
<td>Company/supermarket</td>
<td>0</td>
<td>02</td>
<td>03</td>
</tr>
<tr>
<td>Sale volume (kg)</td>
<td>5000</td>
<td>12000</td>
<td>16000</td>
</tr>
<tr>
<td>Rice quantity (kg)</td>
<td>3746</td>
<td>5202</td>
<td>6126</td>
</tr>
<tr>
<td>Market</td>
<td>Hà Nội, HD</td>
<td>Hà Tây, QN</td>
<td>Hà Nội, HD, QN</td>
</tr>
<tr>
<td>Selling price (đ/kg) :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wholesaling</td>
<td>13000</td>
<td>18000</td>
<td>23000</td>
</tr>
<tr>
<td>- Retailing (trade fair, women club)</td>
<td>15000</td>
<td>20000</td>
<td>25000</td>
</tr>
<tr>
<td>Price difference (đ/kg) between hoa vang of association and other hoa vang sold in the Fairs</td>
<td>4000-5000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit of association (1000đ) per year</td>
<td>3400</td>
<td>2700</td>
<td>9500</td>
</tr>
</tbody>
</table>

HD: Hai Duong; QN: Quang Ninh

As mentioned above, with the involvement of the project in quality, the price of hoa vang rice in An Phu commune is 500 -700 (1) dong higher per kilo than other communes'. Usually, the association purchases rice from its members at the price which is 300 -500 (2) dong higher per kilo than farmers outside the association. Its members, thus, enjoy the price of 800 -1200 dong higher per kilo compared with those outside An Phu commune [it means (500-700 (1) + 300-500(2)) = 800-1200].

The rice productivity in An Phu commune is 20 kilos per sao higher than that in other same district communes. The association members have the productivity which is 10-20 kilos higher per sao compared with non-member households.

From the above results, the district people's committee has the policy and seed price subsidy for the communes with land available for long time sticky rice in order to develop the district hoa vang rice area.

E) External quality control

To have product of high quality, the association is implementing both internal and external control.

From 2006 to 2008, the Seed Testing Centre of the Cultivation Department of MARD assisted the association to check the seeding rice in the field. The interested criteria are the seed accuracy, uniformity and consistency. Also, the centre conducts some lab analysis on quality criteria such as seed uniformity, seed vitality and rate of seed sprouting. The communal agricultural coop is also involved in assessing the quality of rice in the field.
Before packaging, the association’s marketing group sends the rice samples for analysing in Hai Duong Dept of Health. After that, if the samples are qualified according to the regulation of Ministry of Health regarding quality and hygiene, the certificate on food hygiene will be issued for the product.

V - Some difficulties

A) Problems with formal transactions

The group has gained some initial results in terms of production and linking with some commercial agents in Hanoi. But the biggest difficulty of the group when accessing the market is that it does not have the legal status required to deal and sign contracts with a supermarket. The results of the stakeholder’s workshop held in June 10, 2008 and the bilateral meetings with buyers show that the groups are not yet able to meet some demands of big distributors like supermarkets, food import–export company regarding formal invoices (with VAT), tax code, product volume and availability, etc. Governmental decision No.151 grants official status to the group’s organization and activities, regulating that the group is able to sign contracts stamped by the communal people’s committee. Yet, in reality there is a gap in the role of people’s committee as a contract arbitrator between the group and the buyer. Therefore, the groups become passive in signing the contracts, which makes them loose many opportunities in marketing. The current needs of the groups are to obtain a legal status as an organization in order to be competent in dealing directly with customers.

At present, the association sells rice to one agent of Vegetexco and is not required to have invoice with value added tax. From late 2007 to early 2008, the association sold products to Fivimart supermarket and also was not required to have VAT invoice because the supermarket did not use the association’s package. This is the reason why the association stopped supplying Fivimart as this supermarket only buys rice without the association’s packaging. The project has helped the association to discuss with supermarkets on the issue of packaging which can contain information of both producer and distributor but this was impossible to do in 2008 due to bad harvest (high rice price).

To meet the supermarket requirement, farmers have to pay business tax for the whole year while their product is just seasonal. They have to pay value added tax without getting refund from the government (while supermarkets can benefit of this refund using the vouchers to show their transactions with farmers). This thus increases their marketing cost. Marketing with supermarkets makes the issue of accounting more complicated for farmers’ organizations. These concerns should be taken into account when supporting associations. This problem is not simply a question of formal documentation or of human resources capacity, but it also relates to the costs of the governmental law on taxation.

B) Problems with technical protocol

All members are trained to follow the technical protocol of production, but difficulties still remain in practice. For example, the households do not use manure as regulated. At present, not many households in the commune raise pigs as an associated economic activity. When they raise pigs, they will do at big scale (over 20 pigs per year) and they will build biogas trunks to limit pollution which reduces the household’s self supply in providing organic manure. The project conducted some tests with microbial fertilizer but this only can replace partly chemical fertilizers.

C) Problems with Organization

Farmers’ awareness on collective economy is still low. They join the association just to enjoy collective benefits, but not to take the responsibility. The production scale is small: 10 ha/association and 720 m²/household on average. Farmers are not much interested in the association’s activity due to this small scale and other factors required in the technical
protocol. The small scale limits the association's capacity to supply products to buyers. The income from sticky rice is low and unstable, which also affects the household linkage to the market. Finally, the association’s leaders are not really skilled to deal with partners and organize the association.

The association is not yet able to establish a strong relation with the buyer in order to be active in deciding the production and distribution plan. Therefore, the organization is unable to operate collective activities, especially regarding the pesticide supply to reduce risk for producers. The association does not have capital to buy the inputs when the price is low, and lacks the infrastructure for storing.

The farmers’ organizations have partly gained the trust from the local leaders in improving farmers’ income. The local government shows some interest to consider these organizations into the local development activities. The point is that the local authorities should continue to support these kinds of farmers’ organizations in the long run, developing some specific programs devoted to farmers’ organizations.

VI - Lessons learnt

To help poor farmers link with the market, it is very important in the first place to help farmers select the product to be developed, with a potential to increase the value through an improvement in the quality/safety, especially for farmers in remote areas. This will really contribute to stabilize and increase the household’s income.

The market for the product should be identified and studied from the beginning before the project intervention in order to formulate a supporting strategy. Because the project duration is often short (about 2-3 years), it is important besides establishing new chains for quality products, to improve the current chains and diversify the product marketing outlets in order to avoid dependence on the retailers.

It is also important to identify the organization form best fit to facilitate the farmers’ activities. The selection of the organization form should be based on the real conditions of farmers and the chain. Usually it should go start from the lower level, training farmers and helping them to gradually adapt the coordination and organization of collective activities.

The production protocol is the basis for the linking process, thus, it is important to recognize the factors in implementing the common protocol. It is required to distinguish between those compulsory techniques which will ensure the expected quality and which farmers must be helped to follow, and other guiding factors which are less important.

Improving farmers’ knowledge and capacity in cooperative economy and farmers’ organization is a duty and should be undertaken right from the project beginning. It is recommended to choose carefully the priority training topics, in order to have high efficiency.

Supporting farmers’ organization is required not only in terms of consulting and training, but also through a budget (as funding for introducing new technology as bio-fertilizer, marketing promotion,...) to promote the linkage between farmers and the market.

To help the organization develop more sustainably, the association’s activities should be incorporated into the local government’s development policy, so that the locality has a reliable basis to address and the organizations are also able to receive continued support when the project ends.

It is necessary to have the organization controlling the quality internally (inside the organization) and externally.
VII - Conclusion and recommendations

The association activities have gained some initial results as analysed above. The impact of hoa vang rice production is good not only for members but also to the non-member farmers. This result is suitable to the provincial program of 1000 ha for quality rice and the district program of expanding 15-20% hoa vang rice.

The association is going to develop its strength in supporting farmers to produce based on market demand. This type of production requires the supply of input services and new quality chains established to meet the market needs. Hoa vang rice is reaching the city market and is highly appreciated: 99% of consumers appreciate the quality (see Le Huu The, infra). 97% of consumers in the tasting event held in Big C Hanoi and 100% of consumers in the tasting in Big C Hai Phong gave good comments regarding the quality of hoa vang.

This traditional sticky rice variety with a special quality is being restored. Farmers are supported to build the collective production protocol. Farmers are now trained and able to produce and maintain the good seeds in order to be active high quality hoa vang aromatic rice producers. In 2008, the association has produced super-elite seeds.

More supports are needed regarding the association activities to help farmers join the market efficiently, especially in building contracts and negotiating with buyers.

These results give a foundation to build a program to develop the production area for special sticky rice in Kinh Mon – Hai Duong.

For special quality products, it is necessary to set up a system for quality control in the market to avoid the fake products– considering the issue of intellectual property.

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I. Introduction and objective

In a market economy, poor husbandry farmers usually face many difficulties due to the lack of information exchange in advanced technology and science, market and breeding experience.

In Cao Bang, the percentage of poor households in 2006 is 39.6%\textsuperscript{1}, whilst that of the nation as a whole is 26%\textsuperscript{2}. The major source of their income is mainly beef farming and the beef supplied is mainly the Mong beef coming from the farms of the Mong and Nung minorities. Therefore, the project “Linking rural poor households to supermarkets and other quality chains” has selected the value chains of Mong beef. The objective is to develop small scale Mong beef farming in groups, and link them to high value chains, in a way which is suitable to breeding conditions in mountainous areas.

From August 2007 to May 2009, together with the Department of Animal Health of Cao Bang Province, the project has established 4 groups of high quality Mong beef in Ha Thon and Ma Ba Communes, Ha Quang District, Cao Bang Province with the involvement of 103 households, in which the poor households accounts for 63%, including 70% of Mong and 30% of Nung ethnic groups. The project is implemented during a short time (24 months), with difficulties in transport to the project area, which is located in high mountainous areas of Cao Bang Province, over 360km away from Hanoi. Nevertheless, with the efforts of Malica research team, some initial results have been achieved.

This paper will analyse the results and lessons learnt in the implementation of the activities.

II. Background

There are 8 ethnic minority groups living in Cao Bang with different cultivating and breeding customs, including Tay, Nung, Dao, Mong, Lolo, San Chi, Hoa and Kinh. Among them, the Mong ethnic group is known for having the best cattle breeding experience. Mong beef is bulky and a matured ox has a weight of up to over 400 kg with good appearance, and tender meat. One hundred percent of the Mong people do their beef farming by keeping the ox in the cowshed and feed them with grass. As Mong people usually live in mountainous areas, it is not convenient for them to travel long distances in order to sell their cattle. They generally have to travel an average of 10 km. Each family usually raises 2-5 cattle, which are housed in a cowshed with separated wood-flooring. This is helpful to ensure proper hygiene. The main feeds provided are natural grass, elephant grass, and ground corn cooked as porridge.

\textsuperscript{1} With reference to the report of Cao Bang DARD, 2006
\textsuperscript{2} GSO 2006
In Cao Bang, there are mainly two species of cattle, i.e. the Yellow breed and Mong breed. The number of herd in Cao Bang has increased by 18,060 within five years, i.e. from 111.42 in 2002 to 129.48 in 2007, and reduced by 10,000 after a chill period in 2008. Breeding farming is of small scale (0.25 ox/household) and scattered.

Most of the products are sold on farm or at the local markets with price fluctuation created by Chinese dealers. The oxen are valued by “eye-measurement”, much experience falls to the dealers/speculators, and therefore the breeders tend to suffer disadvantages.

Some other projects at the province focus on the production (e.g. genetic improvement, grass cultivation) but not pay attention to the market for small scale husbandry farmers. The farmers lack information which could be shared in groups, e.g. information on pricing, sources of breeds, experience in breeding and fattening, etc.

The survey by RUDEC (see Quang et al., infra) has shown that the need of beef in Hanoi is 4.2 kg/person/year, and nation-wide is 2.5 kg/person/year, on average. The consumers of Hanoi are willing to pay a premium price of 10% if the quality is suitable (fresh, tender, soft, red) and if the beef safety is guaranteed. More and more people have the trend of purchasing beef, especially at the occurrence of bird flu and swine flu. Supermarkets like Metro, BigC and Hapromark need to be provided with 3-5 tons/month of good quality (rump steak, lean, muscle with high fat) with frequent supply by professional slaughter-houses which own certificates of origin and food safety control.

III. Method

There are several activities to be deployed to establish a high quality supply chain of Mong beef from Cao Bang to Hanoi. The first activity should be the linking of farmers, making them in groups with the participation of 20-30 households/group in order to ensure the quantity of beef sold to a slaughterhouse for one truckload. Moreover, with such a number of households, the implementation of activities, training and application of new technology will allow a common quality of the products in meeting the requirements of the dealers. It is necessary to study the current situation of the slaughter-houses in Hanoi and Cao Bang in order to select potential ones for the distribution channel of Mong beef. The development of Mong beef of Cao Bang shall be based on the following two key factors: quality and specialty.

The approach is based on the theories of Institutional economics and collective action (Dao the Anh et al., 2007). Collective actions of small scale farmers may reduce transaction costs, increase the size of commodities in trading and the possibility of market access of the farmers. It is also based on value chains analyses (Kaplinsky et al. 2001; Gereffi et al., 2003). Characteristics of transactions, in particular in terms of quality, and the supplier’s capacity will create different regulating structures of the value chains. The supply capacity in terms of quantity and quality is the key barrier of participation of the poor into the value chains.

To successfully establish the link of small scale Mong beef farms to supermarkets and high quality chains, it is critical to know the criteria set by the government and relevant authorities, i.e. breeding and transportation of cattle in accordance with Ordinance 18/2004, compliance with Decision 15/2006/QĐ-BNN dated 08/3/2006 by the Minister of MARD with regard to the regulations on process and procedures in quarantine of animal and animal products, and veterinary hygiene examination, and Circular 08/2005/TT-BTC dated 20/01/2005 by the Ministry of Finance on the collection, payment and administration of fees and charges in veterinary services.

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3 At certain period, the product is at very high price; but after a while, it cannot be sold
In reality, all research activities have great influence from the governmental institutions and policies. Therefore, the involvement of the government in the project, in particular the provincial services of agriculture, is an important determinant to the success of the project and to the achievement of the set objectives. The justification is that when participating, the government shall have better understanding about the objectives and their responsibilities in the implementation which will facilitate the establishment of the most convenient legislation framework and other administrative procedures for all activities.

To achieve our objective, the following steps have been conducted:

**Step 1.** Diagnosis of beef farming system and analysis of beef value chain in Cao Bang, then select an appropriate location for model development. The analysis of beef value chain is mainly based on the following three tools: Description of beef value chain diagram; relations between stakeholders; and Cost-benefit analysis in the value chain. This was based on a survey of 50 farmers 25 in two communes (Ha Thon commune of Ha Quang district and Chi Thao commune of Quang Uyen district), 10 collectors and wholesalers (in August 2007), 12 slaughterhouses, 17 restaurants and hotels, 3 supermarkets and 2 shops (in November 2007 and February 2008).

**Step 2.** Group development: In order to implement this activity, the research team applied the theory of collective actions and farmer organization tools.

**Step 3.** Linking the producers to commercial factors and model evaluation: through workshops, introduction and tasting events, meetings, etc.

**Step 4.** Consolidation, model evaluation and multiplication

### IV. Results

**A) Characteristics of Cao Bang beef chain**

The detailed results can be found in Hoang Xuan Truong (2009a and 2009b).

1. **Organization of beef supply chain in Cao Bang**

   Farmers sell their products through 4 different channels (see Figure 1):

   - **Channel 1.** Cattle is sold to small local collectors\(^4\), then to big collectors and to wholesale markets. This channel accounts for 80% of beef sold from the surveyed communes.

   - **Channel 2.** Cattle is sold directly to big local collectors\(^5\) which mainly are those who stay close to big wholesale markets and those who will do the fattening. This accounts for 5%.

   - **Channel 3.** Cattle is sold directly to big collectors outside the province\(^6\) at wholesale markets. This accounts for 10%. Collectors from other provinces usually have close business relations with the local ones; most people in the area know them thanks to their long-term business.

   - **Channel 4.** Cattle is sold to local slaughter-houses and local people. This accounts for 5%. This channel is small because of low beef consumption in Cao Bang. On average, 20 oxen of all kinds are slaughtered everyday, among which, 6-10 heads/day for the market of

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\(^4\) Small collectors are those who buy 5-10 heads/month (with the working capital of < 10 million VND)

\(^5\) Big local collectors are those who buy 50-60 heads/month (with big capital of > 50 million VND)

\(^6\) Wholesalers are those who buy over 100 heads/month (with working capital of > 200 million VND); they come from Hanoi, Thai Nguyen, etc.

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Cao Bang township, 5-7 heads/day for Ma Phuc pass, and the rest for the markets of other towns within the province.

Figure 1 – Diagram of Cao Bang beef commodity chain

Note- the figures correspond to the percentages of quantities sold to different buyers

Small collectors sell beef in three different channels:

Channel 1: Selling to the big collectors outside the province. It is the main channel accounting for 70% of total products. Small collectors and big collectors outside provinces are closely linked together.

Channel 2: Selling to the big local collectors, accounting for 20%.

Channel 3: 10% of the products being sold to slaughterhouses in the province.

The big provincial collectors sell the products to big collectors outside the province. The big collectors outside the province sell 60% of the products to slaughterhouses in Ha Noi and 40% to other provinces.

From the slaughter-houses in Hanoi, beef is sold through three different channels:

Channel 1. Beef is sold to the dealers at the slaughter-houses. The big dealers then sell beef to the retailers at wholesale markets, to restaurants, hotels and supermarkets. This channel accounts for up to 80%.
Channel 2. Beef is sold under contractual agreements with supermarkets, mainly by slaughter-houses at Mai Dong (which have legal personality and eligible procedures in supplying directly to the supermarkets). This channel accounts for only 15%.

Channel 3. Beef sold directly to restaurants and hotels accounts for 5%.

From the big dealers, 70% of the beef is sold to the retailers and vendors. These people then distribute at retail markets within Hanoi. 10% of the beef is sold to supermarkets without contracts whilst 20% is distributed to restaurants and hotels under orders.

According to the slaughter-houses at Mai Dong, Dong Anh- Hanoi, and to vendors of BigC and Metro, beef supply in Hanoi include beef from both local and international suppliers. Local suppliers are from Cao Bang, Bac Kan, Ha Giang, Nghe An and Thanh Hoa provinces. Beef from Cao Bang accounts for 40% of the local supply. Half of what is declared as Cao Bang beef by slaughterhouses actually originates from China. Beef imported from Argentina, Australia, Brazil, the US, etc. accounts for about 20% of the sales in supermarkets and is mainly in the form of big blocks of 5-10 kg/block. Imported beef is 2-4 times more expensive than local beef of similar kinds (i.e. rump steak, shoulder cut, or lean meat), e.g. fresh local beef at BigC is sold at VND 89,000/kg while frozen beef imported from Australia is sold at VND 399,000/kg (according to surveys made with restaurants in February 2008).

2. Beef collection system at wholesale markets in Cao Bang

There are 7 big wholesale markets where 50-150 heads are sold every market day (see Figure 2). In Ha Quang District in particular, there are 4 markets of both small and big sizes, i.e., Na Giang, Tong Cot, Nam Nhung and Na Ru.

Cao Bang city is 50 km away from the project area with rocky mountainous path.

3. Characteristics of beef quality of Cao Bang

Currently, Cao Bang beef is categorized into two breds, i.e. Yellow and Mong. Yellow oxen represent 70% of the total herds, Mong ox 20% and the other 10% is cross-bred. Their characteristics are presented below.

**Yellow:**

Small body (180 - 250kg/head); low percent of lean meat < 35%. Mainly raised by Tay, Dao and Nung ethnic groups.

Beef quality: tough, bright red, with a little meat loss due to too much exercise by climbing mountains. Main feed is natural hay, forest leaves, and a small amount of starch feed.

**Mong:**

It has a big body, good appearance, heavily muscled and weight up to 450 – 550 kg. Percent of lean meat is over 40%.

Quality: bright red, fragrant, tender, high rate of scattered fat, smooth meat, little water loss when cooking. It is mainly raised in custody as is a long time indigenous breed. Main feed is elephant grass, natural grass, forest leaves along with ground corn, rice bran, a little salt and clean water.

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7 This means among 100 oxen from Cao Bang to Hanoi, there is only 50 ones are raised by Cao Bang farmers, the rest is collected by small collectors from China, according to the surveys made in Aug 2007- Malica/IFAD
Mong beef is sold at 2.5% higher price per kilo after slaughtering, compared to yellow-ox origin beef (1000 -2000 dong per kilo of beef after slaughtering)

Cao Bang beef and Chinese beef are different in several aspects. The biggest difference is the ratio of lean meat, the tenderness and the color of the meat after slaughtering:

**Chinese cattle:**

Cattle from China are classified into 2 groups:

- The first is called “border cattle”. These are raised by Chinese ethnic groups. Their quality is quite similar to Cao Bang Yellow cattle. Chinese people at communes near the border are often of Tay and Nung ethnic groups. Buying and selling is convenient because of their same language. When selling cattle it is required to have a certificate of origin issued by the Commune People Committee. Small local collectors who buy cattle from China usually raise them for 1-2 weeks before selling them at the markets so that a certificate of origin from the commune people’s committee is granted.

- The second group is fed in large farms or by professional cattle raisers. Their appearance is good, they are chubby, with smooth fur and leather, and a weight of over 400 kg/head. Only well-experienced cattle purchasers can recognize their origin. An Ox of this type often brings a 6.25% -12.5% lower price than an ox of other origins.

According to the collectors and slaughtermen in the Ma Phuc mountain pass area, the color of Chinese beef turns dark brown in 3-5 hours after slaughtering and looses tenderness due to water loss. Some slaughter men and collectors say that when being cooked, the smell is not as attractive as Vietnamese beef because the animals are fattened with hormones and industrial food.

At present, there has been no in-depth study about beef safety in markets, especially in terms of the hormone and anti-biotic residue in beef.
B) Results from group establishment

After nearly two years of project implementation, the research team has provided advice to establish 4 groups with the participation of 103 households. On average, each household comprises 5-7 persons. Over 60% of the households of the groups are poor. In order to establish the groups, initially, officers who are the veterinarians of the commune were trained with group establishment techniques then implementation was made in the field. After the development of the first group, with experience in organizing and consulting, the research team continued with another 3 groups. The groups are provided with specific advice in respective activities for respective households. Each household developed its own production and commercial plan. Each group then made a consolidation for the group plans. The plans of respective groups revealed the timing and location of ox selling. Based on such information, the leaders of the group (3 people in the group in charge of marketing, including leader and vice leader) interacted with the collectors.

The establishment process and characteristics of the 4 groups are shown in Table 1:

Table 1. Information on the Mong beef farming groups

<table>
<thead>
<tr>
<th>Timing location</th>
<th>Mong beef farming group</th>
<th>Group characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/07 – 6/2008</td>
<td>Lung Hoai</td>
<td>25 households; size 3.2 heads/household; 80% Mong + 20% Nung people; 65% poor households</td>
</tr>
<tr>
<td>Ha Thon Commune</td>
<td>Rang Khoen</td>
<td>25 households, Size : 3.7 heads/household ; 100% Mong; 60% poor households</td>
</tr>
<tr>
<td>07 – 12/2008</td>
<td>Lung Ran</td>
<td>26 households, 100% Mong Size: 2.9 heads/household; 63% poor households</td>
</tr>
<tr>
<td>Ma Ba Commune</td>
<td>Thin Tang</td>
<td>27 households, 100% Nung Size: 2.6 heads/household; 64% poor households</td>
</tr>
</tbody>
</table>

Source: Consolidation of data- Superchain/Malica/IFAD - 12/2008

Each group implemented its plans. A review for lessons learnt and further plan development was made after 6 to 12 months (see Table 2).

Photos illustrating the groups:

![Launching a new interest group](image)

![A planning meeting](image)
Table 2. Results of operation of a high quality beef farming group in Lung Hoai, Ha Thon Commune, Ha Quang Province- 2008

<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Households involved</th>
<th>Unit</th>
<th>Planned (quantity)</th>
<th>Actual (quantity)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vaccination</td>
<td>25</td>
<td>Head</td>
<td>80</td>
<td>80</td>
<td>Achieved 100%</td>
</tr>
<tr>
<td>2</td>
<td>Cowshed building</td>
<td>2</td>
<td>Coop</td>
<td>2</td>
<td>1</td>
<td>Achieved 50%</td>
</tr>
<tr>
<td>3</td>
<td>VA-06 grass cultivation</td>
<td>5</td>
<td>m2</td>
<td>1200</td>
<td>3000</td>
<td>Achieved 250%</td>
</tr>
<tr>
<td>4</td>
<td>Cattle buying</td>
<td>25</td>
<td>Head</td>
<td>50</td>
<td>42</td>
<td>Achieved 84%</td>
</tr>
<tr>
<td>5</td>
<td>Cattle selling</td>
<td>25</td>
<td>Head</td>
<td>50</td>
<td>52</td>
<td>Over achieved</td>
</tr>
<tr>
<td>6</td>
<td>Fund contribution</td>
<td>25</td>
<td>VND/year</td>
<td>250,000</td>
<td>250,000</td>
<td>Achieved 100%</td>
</tr>
<tr>
<td>7</td>
<td>Group meeting</td>
<td>25</td>
<td>Time/year</td>
<td>12</td>
<td>6</td>
<td>Achieved 50%</td>
</tr>
<tr>
<td>8</td>
<td>Feed fermentation</td>
<td>2</td>
<td>Trunk</td>
<td>2</td>
<td>2</td>
<td>Achieved 100%</td>
</tr>
</tbody>
</table>

Source: Consolidation of data- Superchain/Malica/IFAD - 12/2008

On average, each household sold 2 oxen within 12 months, which is much quicker than before.

The group farmers are able to make plans and implement them with the consultation and monitoring of the relevant experts and the local veterinarian of the commune and district. Poor households participating in grass cultivation and feed fermentation have good awareness and responsibility in experience sharing, i.e. transferring of grass seeds to other households. Besides, the group households are very active in vaccination.

C) Development of production protocol for Mong beef in Cao Bang

1. Preparation of production protocol

The application of a common production protocol by the households helps to ensure the good quality of the products. Mong people have a long tradition in cattle fattening. They always found the techniques suitable to local natural conditions, in line with their economic
and labor capacity. In the case of cattle fattening in Cao Bang, together with the farmers of the interest groups, the research team has standardized respective steps in their cattle fattening process, making them most understandable and applicable for mountainous areas and with high economic effects. The production protocol comprises 10 major items. It is brief and easy to understand. Each item is attached with specific notes and explanations according to actions conducted, including:

1. Mong cattle
2. How to choose ox for fattening
3. Cattle selection technique for fattening
4. Preparation before fattening
5. Fattening period
6. Food for fattening
7. Rearing during fattening period (including health issues)
8. Cowshed conditions
9. Quality assessment before selling
10. Estimation of economic gain from cattle fattening techniques

2. Training on production protocol

After 6 months of implementation, 100% of the group households were trained and practiced the introduced production protocol. The assessment of economic effects requires further monitoring but preliminary results will be given at this end of this report.

With documents developed by the research team of Malica and edited by relevant experts (of CIRAD and CASRAD), the research team has conducted several training workshops and disseminated material to over 100 households of the 4 interest groups. 10 courses were organized with different themes, i.e.:

- Training on planning methodology: 4 two-day training courses with the participation of 25-27 attendees per course at the Cultural house of the village (2 in Oct 2007, 2 in Mar 2008)
- Training on cattle cold prevention: 2 one-day training courses with the participation of 25 attendees per course at the village and certain group households (Jan 2008)
- Training on VA-06 grass cultivation and sweet jumbo cultivation: 2 two-day training courses with the participation of 25 attendees per course at the village, at the field and gardens of the participating households (Apr 2008)
- Training on cattle fattening production protocol according to Mong approach: 2 two-day training courses with the participation of 25 attendees (Nov 2008)

D) Linking the interest groups with different commercial actors

1. Workshops and promotion events

The main objective is to establish a supply chain of Mong beef from the interest groups to the supermarkets and restaurants in Hanoi. Therefore, the activity in linking the producers to different commercial actors such as slaughterhouses, supermarkets and restaurants is very critical. For the initial relation, the research team organized four workshops with the participation of different actors in the beef value chain. However, there was limited participation of the slaughterhouses in Hanoi and the linking with them is difficult. The main reason is relating to their reluctance in getting involved in a formal supply chain which they have never experienced and where documents are required. The difficulty of linking with the
slaughterhouses in Hanoi required a change of strategy in the selection of slaughterhouses as partners. In March 2009, the research team changed to work with a slaughterhouse in Cao Bang (Mr. Ngan). This contact has resulted in positive results. The slaughterhouse in Cao Bang (Mr. Ngan), together with the research team, successfully conducted the workshop for product introduction and tasting of Mong Cao Bang beef at BigC, Hanoi on 25/04/2009. During this workshop, two ox from the project area were slaughtered by Mr. ngan, brought in boxes with ice by lorries to Hanoi. Big C butchers dealt with the cutting and packaging of the meat. Then the meat was cooked by staff of Big C restaurants and proposed to consumers (who could also buy it fresh, at the price of 170,000 VND/kilo of fillet, 150,000 VND/kilo of rump meat).

Table 3. General information about the workshops

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Timing and Location</th>
<th>Content</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st time</td>
<td>07/09/07 Cao Bang</td>
<td>An inception workshop on linking farmers to high quality chains</td>
<td>40 participants, including the dealers from Hanoi. Project objectives were introduced.</td>
</tr>
<tr>
<td>2nd time</td>
<td>31/03/08 Cao Bang</td>
<td>Workshop for actors of beef value chain</td>
<td>35 participants, including the Women consumer association of Hanoi; no participation from slaughterhouses and supermarkets</td>
</tr>
<tr>
<td>3rd time</td>
<td>22/05/08 Hanoi</td>
<td>Workshop for actors of beef value chain</td>
<td>Participation of 30 persons, including Big C, Phố vuông, Khan quang do Hotel, Women consumer association of Hanoi, etc.</td>
</tr>
<tr>
<td>4th time</td>
<td>25/04/09 BigC – Hanoi</td>
<td>Workshop for product introduction and tasting</td>
<td>Over 100 participants, including 50 farmers, the consumers of Hanoi, with introduction on VTV1, VTV6, The Economic Times, the Agriculture News</td>
</tr>
</tbody>
</table>

Source: Consolidation of information from Superchain/Malica/IFAD - 05/2009

The tasting event has opened a new perspective for Mong beef value chain. It was highly appreciated for its practical aspects. The key actor is the distributor (the Director of BigC) who had high appreciation on the quality of the beef and proposed that Mong beef should be distributed during the weekend at Big C if the quantities are not sufficient for daily delivery. The company SCS is also interested in the distribution of Mong beef. It would like to be the only distributor for Mong beef. Cao Bang slaughterhouse is willing to cooperate with the project whilst DBRP project (loan project funded by IFAD) unanimously agreed to develop a high quality supply chain for Cao Bang Mong beef. The consumers in Hanoi also had great appreciation on the quality of Mong beef. Out of 120 consumers who filled the evaluation form, 90% appraised the higher tenderness and the good taste of Mong beef in comparison with other local ones. The trial selling price of 13% higher than the price set at BigC (for local beef) was accepted by the consumers.8

8 At BigC, local rump beef is sold at VND130,000/kg
At the present, the 4 interest groups can supply 100kg/week. This volume can only meet 20% of Big C purchase of domestic beef.

H5. Tasting event on 25/4/09

H6. Stakeholder workshop

2. Promotion material

A certificate of origin has been designed for tracing the place of origin of beef, it is filled by the veterinary services of the communes. Besides, a label of mong beef has been designed to be displayed in the final meat product.

A video and a poster have been produced to explain the specific characteristics of Mong beef.

E) Actual and expected economic effect

It is difficult to calculate the economic effects of the activities for over 100 households. A real case can be illustrated by Mr. Luong Van Sinh’s household who belongs to a beef farming group of Rang Khoen, Ha Thon commune, Ha Quang, and further information on some households which are not involved in the farming groups (outside of the high quality chain) are shown to demonstrate the effects from activities conducted (see Table 4).
Table 4. Comparing household’s economic benefits when joining the high quality chains

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting grass in winter (working day)</td>
<td>90</td>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>Time for fattening (month/animal)</td>
<td>6</td>
<td>3</td>
<td>3-6</td>
</tr>
<tr>
<td>Number of ox (animal/year)</td>
<td>2</td>
<td>4</td>
<td>2-4</td>
</tr>
<tr>
<td>Total quantity (visual measurement)(kg)</td>
<td>200</td>
<td>400</td>
<td>200-400</td>
</tr>
<tr>
<td>Selling price (VND/1kilo - visual measurement)</td>
<td>52,000</td>
<td>03 oxen sold at 90.000 dong per kilo - 01 ox sold at 97.000 dong per kilo</td>
<td>90,000 (-7.2%)</td>
</tr>
<tr>
<td>Total income according to beef quantity (mill)</td>
<td>10.4</td>
<td>36.7</td>
<td>18 - 36</td>
</tr>
<tr>
<td>Price of buying ox for fattening(mill/household)</td>
<td>9.8</td>
<td>34.8</td>
<td>17.4 – 34.8</td>
</tr>
<tr>
<td>Surplus profit profit (mill/household)</td>
<td>0.6</td>
<td>1.9</td>
<td>0.6-1.2</td>
</tr>
<tr>
<td>Income from ox fattening raising (đồng/day)</td>
<td>3.333</td>
<td>10.555</td>
<td>3.333 - 6.666</td>
</tr>
</tbody>
</table>

(Note: Mr. Sinh had money only enough to buy 1 ox valuing less than 15 mill for fattening then re-selling)

Explanation of calculating income per day:

- **Before joining the group:**

  (1) With the scale of 2-4 oxen per household, each household needs 4-6 hours per day (cutting grass, preparing porridge, cleaning); as working day is calculated as 8 hours per day, so each household spends 15-22.5 days for ox raising per month.

  Before joining the group Sinh’s household raised 2 animals per year, selling and buying new ox after every 6 months.

  --> Total working days: 15 days * 6 months x 2 animals = 180 days

  (2) From table 4 we can see that the surplus profit after one year raising ox of Sinh’s household is 0.6 mill dong per year (=600.000VND per year)

  From (1) & (2), we had the income of one day before joining in group:

  Income/working day = 600.000 dong/180 working day = 3.333 dong/working day
- After joining the group (access to high quality chain)

1. Time for ox raising reduced to 3 months per animal – thanks to training on production protocol; 
   \[ \text{total working days for ox raising per year: 15 days/month \times 12 months = 180 days} \]

2. During 2008-2009, Sinh’s household bought and sold 4 oxen, total quantity of beef is 400 kilos, 
   3 out of 4 sold at the market price of 90 dong per kilo; 1 sold at tasting event at 97,000 dong per kilo

3. Total income of Sinh’s household from 4/2008-4/2009: 
   \[ 3 \text{ animal} \times 100 \text{ kg/animal} \times 90,000 \text{ đ/kg} + 1 \text{ animal} \times 100 \text{ kg} \times 97,000 \text{ đ/kg} = 36.700.000 \text{ VND} \]
   Total costs of buying ox for fattening: 35.500.000 VNĐ.

   Additional income from 4 oxen per year: 1.9 mill

   \[ \text{From (1), (2) and (3), income per working day of Sinh’s household: 1.900.000 đ/180 working day} = 10.555 \text{ đ} \]

- Non member: calculated as in the part 1

   The most important impact of the activities is the higher frequency of cattle sold, i.e. from 2 heads/year to 4 heads/year. This is the reason of income increase. In addition, when getting involved into the high quality chain, each kilo of beef of live weight receives a higher price, i.e. VND 7,000 (An ox of 100 kg shall get 0.7 million VND higher price than that in a common market.)

   We estimated the number of groups required to answer the demand of the potential customers identified so far (supermarkets, hotels, distribution companies), i.e., 40 groups of 25 households, that is ten times more than the present situation (see Table 5). It is impossible to have mass development of groups but the development should be based on the market demands and the good governance of production groups. Together with the development of distribution network in Hanoi, it is necessary to develop groups and disseminate farming production protocol plus quality control system to the households of the groups. Hygiene protocols for slaughtering and transportation of products from Cao Bang to Hanoi still need to be developed.

<table>
<thead>
<tr>
<th>Table 5. Mong beef supply capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply capacity</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Nr. of household</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>1000</td>
</tr>
</tbody>
</table>

Source: Consolidation of results from Superchain/Malica - 4/2009
V. Conclusion and recommendations

In terms of Production:
Two groups have been established with effective operation and another two have been recently developed (103 households). These groups are involved in joint production protocols for ox of stable quality.

Success has been obtained with pilot cultivation of VA-06 grass in dry mountainous area with the possibility of multiplication to other mountainous areas in Cao Bang.

In terms of links to the market:
Great attention and support has been shown by BigC and SCS distribution company. But the linkage with slaughterhouses in Hanoi has not been made. The cooperation with the slaughterhouse in Cao Bang has still to be developed.

Capacity building and promotion materials
A standardized production protocol in beef farming and fattening of the HMong people has been produced. A label for Mong beef has been designed, as well as a video and a poster on Mong beef.

Yet, the development of the mong beef chain still faces difficulties:
No slaughterhouse with legal status (stamp, tax code), financial capacity, and clear hygiene protocol is found to join the high quality chains. So no contract with supermarkets and companies is possible yet.

Big C and SCS company are not satisfied with the offered price (135.000 VND per kilo for type A beef delivered to Big C); SCS can only accept the price ranging from 125.000 – 130.000 VND per kilo for type A beef).

A set of recommendations are listed below:

Production:
- Developing the groups as the association of beef ox raising (20 – 40 groups), for 1000 households to benefit and supply the identified outlets
- Registering label for the association’s Mong beef

Marketing:
- Supporting the identified slaughterhouse in Cao Bang to become the slaughtering cooperative (with legal status, equipments),
- Organizing transactions with contracts with customers in Hanoi
- Continue promotion of Mong beef
**Capacity-building**
- Cooperating with Cao Bang DARD, DBRP to disseminate the ox fattening protocol of Mong people
- Training on methods of setting groups for veterinary and extension staff
- Completing slaughtering technical protocol with Asvelis company

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Hoang Xuan Truong. 2009b. The rationale of selecting Cao Bang beef in Superchain project.

Hoang Xuan Truong, Tran Thi Thu Hà and Le Viet Hung, Final report of Superchain project – 7/2008. Findings from the study on beef demands of supermarkets, restaurants and hotels in Hanoi. Hanoi, CASRAD

Hoang Xuan Truong, Trinh Van Tuán and Lê Việt Hưng, Report of findings from a study under Superchain project - 7/ 2008, Hanoi Findings from the study on slaughter-houses and wholesal markets in Mai Dong, Dong Anh- Hanoi, CASRAD.


Tran Cong Khanh et al., 2007. Report after five-year implementation of cattle development in Cao Bang, Cao Bang Veterinary Office.
List of abbreviation

Superchain : Linking poor farmers to supermarket and high quality chains
IFAD : International Fund for Agricultural Development
NST : interest group
QTKT : Production protocol
ATTP : Food safety
KH : Plan
HTX : Cooperatives
SCS : Công ty cổ phần chất lượng quốc tế
Asvelis : Asian Veterinary & Livestock Services
DBRP : Business Development Project with the poor in Cao Bang
Quality development and marketing of vegetables in Hoai Duc and Thuong Tin districts

Nguyen Quy Binh, CASRAD

Summary

The project aims at helping small farmers to establish groups of safe vegetable production and distribution in order to have collective activities in training, quality control, certification and sales. The project activities are based on basic approaches including stimulating farmer organization, chain development and participatory approaches. Besides, the project also organized trainings and backstopping for the groups to set up the internal control system. After two years of implementation, the project has enabled 3 cooperatives in Tien Le, Phuong Vien, Phuong Bang of Hoai Duc district to establish 3 safe vegetable production groups applying the internal quality control system, and get certificates on safe vegetable production and processing conditions (for Tien Le and Phuong Bang) and Vietgap (initially for 5 vegetables in Tien Le and 2 in Phuong Vien). Thanks to that, the products of the 3 groups have been commercialized in the distribution chain of safe vegetables. However, the volume of products in high quality chain is limited (10% of total) due to the lack of diversity (absence of water convolvulus, cucumber, choysum) and unreliable distribution. Therefore projects for developing safe vegetables production in Hoai Duc district should continue to support current farmers’ groups as well as disseminate these models of production in order to guarantee the diversity of safe vegetables products. Besides, it is necessary to support groups and cooperatives for installing shops at several points in Hanoii city where the consumers have a high need for safe vegetables.

I - Context

Since several last years, the demand on safe food (especially on green vegetable) is rapidly increasing in Vietnam. A study made in 2005 interviewing 800 consumers (of which 500 Hanoian consumers and 300 Hai Phong consumers) has revealed that 75 percent of them attach special attention on the safety of food products (Luu Hong Minh, 2005). To meet this demand, the number of safe vegetable selling places is significantly increasing: in 2002, Hanoi had only 36 safe vegetable selling points with 13 shops, 9 supermarkets and 19 stalls, this number was up to 80 in 2007 (Nguyen Thi Tan Loc et al., 2008). These outlets can provide vegetable farmers with higher benefits than the traditional markets (Ho Thanh Son et al., 2004).

In the globalization context where Viet Nam became official member of the WTO on November 2007, Vietnamese Government must build quality norms and administrative regulations in compliance with international rules. The apparition of Vietgap standards for safe vegetable, fruit and tea on April 2008 has marked a transition in the quality management of Vietnamese agri-food products. Vietgap aims to control production protocol and to trace products. Presently certified Vietgap vegetables are considered as safe products.

To meet Vietgap standards, producers have to invest a lot in infrastructures (irrigation system, semi-processing facilities…) and in certification requirements. Yet, small-scale producers have difficulties to meet those due to limited infrastructural conditions and fund. Besides, because of their small-scale production, products are not diverse, the production is small and products supply is irregular; these characteristics do not facilitate their marketing activities (they have difficulties to make a close relationship with traders).
Giving small producers technical and market information and helping them to organize groups and cooperatives is a way of allowing them to reach the high quality and safe vegetable market.

II - Objectives of the pilot action

The pilot action on quality development and marketing of vegetables in Hoai Duc and Thuong Tin districts had the following objectives:

- Supporting small producers to establish farmer’s organizations (FO) that aim at improving their product quality through the application of improved production protocol, and of internal quality control as well as other production requirements.

  - Supporting FO to:

    Obtain the certificate on conditions for safe vegetable production
    Obtain Vietgap certificate
    - Strengthen the competencies of FO in marketing, negotiation and signing contract with partners.

All these actions contribute to boost the establishment of quality control system in the commodity chain.

III - Methodology

A) Basic approaches

The action is based on the following approaches:

1) Promotion of Farmer organization (farmers’ collective action): helping farmers to build joint regulations related to the administration and economic activities of their groups or cooperatives

2) Commodity chain development: favouring contacts, exchange of information and bargaining between farmers and buyers

3) Participatory approaches: organization of workshops and meetings to identify problems related to the application of production and control protocols, and related to marketing; involvement of farmers in the preparation of documents on production and control protocols.

The project involved various activities of training and backstopping which are summarized in Figure 1.

Figure 1. Overview on trainings and backstopping

<table>
<thead>
<tr>
<th>Trainings:</th>
<th>Backstopping for the quality control:</th>
<th>Backstopping for product marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Trainings on production protocols for vegetable safety</td>
<td>- Internal quality control</td>
<td>- Organizing customers meeting</td>
</tr>
<tr>
<td>- Trainings on internal control of quality</td>
<td>- Certification on areas having good conditions for safe vegetable production and semi-processing, Vietgap certificate</td>
<td>- Contract between FO and partners</td>
</tr>
<tr>
<td>- Professional trainings for controller/groups’ leaders</td>
<td>- Usage of packaging and label</td>
<td>- Setting up shops</td>
</tr>
<tr>
<td>- Trainings on Vietgap standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Trainings on good marketing practices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B) Trainings

Trainings are not only directed towards technical issues but also focused on improving organisational competencies to implement collective actions and quality management (see Table 1).

Table 1. Trainings organized by the Project

<table>
<thead>
<tr>
<th>Trainings</th>
<th>Contents</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainings on production protocol</td>
<td>- Introducing texts regulating safe vegetable production</td>
<td>- 143 households in Hoai Duc</td>
</tr>
<tr>
<td>Date: two trainings: 11/10- 20/10/2007 and 31/3-8/4/2008</td>
<td>- Toxic factors for vegetables</td>
<td>- 26 households in Thuong Tin</td>
</tr>
<tr>
<td>Organized by CASRAD-CIRAD-FAVRI</td>
<td>- Conditions for safe vegetable production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Joint production protocol based on IPM in safe vegetable production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Production protocols of several kinds of local vegetables</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings on internal quality control</td>
<td>- Objectives of control activities</td>
<td>- 88 households in Hoai Duc</td>
</tr>
<tr>
<td>Date: 24-25/10/2007</td>
<td>- Controlling protocol</td>
<td>- 25 households in Thuong Tin</td>
</tr>
<tr>
<td>Organized by CASRAD-CIRAD</td>
<td>- Activities of controllers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Materials used for controlling activities</td>
<td></td>
</tr>
<tr>
<td>Professional trainings for controllers and</td>
<td>- Competencies to identify pesticides used on vegetable, right dose and</td>
<td>- 8 households in Hoai Duc</td>
</tr>
<tr>
<td>groups' leaders</td>
<td>right isolation time</td>
<td>- 4 households in Thuong Tin</td>
</tr>
<tr>
<td>Date: 15-16/11/2007 and 21-23/10/2008</td>
<td>- Competencies in calculating nitrate supply from chemical fertilizer</td>
<td></td>
</tr>
<tr>
<td>Organized by CASRAD</td>
<td>- Competencies in evaluating fields and bookkeeping of producers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings on Vietgap standards</td>
<td>- Introducing Vietgap standards</td>
<td>160 people in Hoai Duc (120 farmers, 40 leaders)³</td>
</tr>
<tr>
<td>Date: 17/09/08, 30/09/08 19/10/08</td>
<td>- Introducing the model and the protocol of internal control of quality</td>
<td></td>
</tr>
<tr>
<td>Organized by FAVRI</td>
<td>- Practicing field control and bookkeeping</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings on good marketing practices</td>
<td>- Presenting selling points of safe vegetables in Hanoi</td>
<td>26 people in Hoai Duc, including 14 farmers, 4 leaders of</td>
</tr>
<tr>
<td>Date: April 24, 2009</td>
<td>- Contract on safe vegetable and regular business relationship</td>
<td>cooperatives</td>
</tr>
<tr>
<td>Organized by CIRAD, FAVRI and CASRAD</td>
<td>- Quality classification, vegetable safety and tracability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Pricing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Planning on vegetable species and production/quantity</td>
<td></td>
</tr>
</tbody>
</table>

In addition to trainings, the project staff provided continued backstopping in the field in the form of one staff in each location. This enables continuous training in the field, and also

³ In the frame of Superchain project, Favri also organized training on Vietgap in Hanoi Province, Gia Lam district (Dang Xa and Le Chi cooperatives), and Bac Giang Province, Lang Giang district.
appreciation of the difficulties experienced by group leaders and farmers to carry out changes in production and marketing.

**C) Setting of internal control system**

Presently, quality control of the vegetable chain in Vietnam is mostly based on the certificate of conditions for safe vegetable production and semi-processing delivered by the provincial Department of Agriculture and Rural Development (DARD).

Results of surveys by Casrad in 2008 in several well known safe vegetable production regions of Ha Noi such as Linh Nam, Nam Hong and Minh Hiep cooperatives, Van Noi commune have revealed that the dynamic and profitable marketing activities originate from: (1) the presence of certificate on good conditions for safe vegetable production and semi-processing, which is required by buyers like supermarkets or canteens; (2) having stamp, red invoice and legal personality. There is no control on internal quality management and tracability of products in these cooperatives.

In the project, we considered that the certification provided by DARD is necessary (to have access to some buyers) but not sufficient to ensure the long-term safety of the outputs. This is why we decided to set an internal control system based on farmer’s collective action. These systems actually enable external control to be more effective. Vietgap certification, which started in Vietnam in 2008, is actually based on internal control systems. Not only do we consider the control of production, but also the control of the origin of the products until the final buyer (tracability), to avoid the mixing between safely-produced and unsafe vegetables.

**Figure 2. Issues related to backstopping of quality control in the Project’s sites**

![Diagram](image)

The internal quality control is based on the following:
- Regulations on internal quality control agreed and implemented by members of groups/cooperatives.
- Note books for farmers with information on input use, crop calendars
- Setting of a controlling committee including members of the group, in charge of periodic control and unexpected control
- Notebooks for controlling committee for periodic control and unexpected control
- Notebooks for marketing group about types of products and quantities per source (name of producer) and destination (name of buyer)
- Packagings and labels with information on the Groups/cooperatives and their members? Do you mean with the name of producer.
It is easier for groups/cooperatives with quality internal control activities to obtain certificates, especially Vietgap certificate.

IV - Results

A) Overview of the Project sites

For developing the safe vegetable chain, the Project has chosen Song Phuong commune (composed of 2 cooperatives: Phuong Vien and Phuong Bang); and Tien Yen commune (Tien Le cooperative). These communes belong to Hoai Duc district, Hanoi. Ha Hoi and Tan Minh communes belong to Thuong Tin district, Hanoi.

Map of project sites

Intervention duration in project’s sites:
- Tien Le, Phuong Vien, Phuong Bang: From July 2007 to now
- Ha Hoi: From July 2007 to August 2008

Song Phuong and Ha Hoi have been selected based on the research named “study safe vegetable production and marketing model in Ha Tay province” implemented by Casrad in 2006-2007. Tien Le and Tan Minh were selected due to their vegetables diversity. Furthermore, authorities of these two communes wish to build a labels for their safe vegetable, especially Tan Minh commune.

Some information on the project sites is given in Table 2.
Table 2. General informations on the study sites

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Tien Le cooperative</th>
<th>Phuong Vien coop.</th>
<th>Phuong Bang coop</th>
<th>Ha Hoi coop</th>
<th>Tan Minh coop</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geographic position</td>
<td>10-12 km from Ha Noi in the North West</td>
<td></td>
<td></td>
<td>15-20 km from Hanoi in the South</td>
<td></td>
</tr>
<tr>
<td>2. Total of production area (ha)</td>
<td>97</td>
<td>162</td>
<td>130</td>
<td>235</td>
<td>426</td>
</tr>
<tr>
<td>Land specialized in vegetable production (%)</td>
<td>54,6</td>
<td>94,1</td>
<td>94,6</td>
<td>38,6</td>
<td>26</td>
</tr>
<tr>
<td>Rice and winter crops land (%)</td>
<td>0</td>
<td>5,4</td>
<td>11,8</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Two-rice land (%)</td>
<td>0</td>
<td>0</td>
<td>49,6</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Fruit production land (%)</td>
<td>5,9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Land for fish rearing and crops (%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Average of production area (m²/per capita)</td>
<td>380</td>
<td>368</td>
<td>300</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>3. Revenue composition</td>
<td>100,0</td>
<td>100,0</td>
<td>100,0</td>
<td>100,0</td>
<td></td>
</tr>
<tr>
<td>Vegetable production (%)</td>
<td>78,8</td>
<td>65,0</td>
<td>30,0</td>
<td>70,0</td>
<td></td>
</tr>
<tr>
<td>Other crops (%)</td>
<td>2,5</td>
<td>10,0</td>
<td>50,0</td>
<td>15,0</td>
<td></td>
</tr>
<tr>
<td>Livestock and non-agricultural activities (%)</td>
<td>18,7</td>
<td>25,0</td>
<td>20,0</td>
<td>15,0</td>
<td></td>
</tr>
<tr>
<td>4. Number of households</td>
<td>701</td>
<td>1899</td>
<td>839</td>
<td>2139</td>
<td>1842</td>
</tr>
<tr>
<td>Percentage of poor households (%)</td>
<td>4,8</td>
<td>6,3</td>
<td>5,4</td>
<td>5,0</td>
<td></td>
</tr>
<tr>
<td>Percentage of poor vegetable producers (%)</td>
<td>4,4</td>
<td>6,0</td>
<td>5,0</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td>5. Number of people</td>
<td>3545</td>
<td>7254</td>
<td>3526</td>
<td>7830</td>
<td>7379</td>
</tr>
<tr>
<td>Number of active people (workers)</td>
<td>4425</td>
<td>2150</td>
<td>4500</td>
<td>4521</td>
<td></td>
</tr>
<tr>
<td>Percentage of women (%)</td>
<td>57,0</td>
<td>59,0</td>
<td>60,0</td>
<td>55,6</td>
<td></td>
</tr>
<tr>
<td>Percentage of women as vegetable producers (%)</td>
<td>50,0</td>
<td>50,0</td>
<td>49,0</td>
<td>54,4</td>
<td></td>
</tr>
</tbody>
</table>

Study sites in Hoai Duc district have high percentage of land area specialized in vegetable production (>50%). Meanwhile, Project sites in Thuong Tin district have higher percentage of rice land more vegetable land (more than 1,6 – 2,4 times compared with vegetables lands) Between selected communes, Song Phuong and Ha Hoi are highly affected by the urbanization because they are located along Lang-Hoa Lac and 1A national routes. During the period 2006-2008, 98/397 ha of agricultural land of Song Phuong has been transformed into roads, residences and ecological tourism zones; Ha Hoi had 50ha of agricultural land transformed into industrial parks.

The products diversity in the different sites is the foundation to establish marketing network between different Project sites (see Table 3).
Table 3. Main vegetables in the Project sites

<table>
<thead>
<tr>
<th>Tien Le</th>
<th>Phuong Vien</th>
<th>Phuong Bang</th>
<th>Ha Hoi</th>
<th>Tan Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leafy vegetables, different kinds of mustard, amaranth, Malabar nightshade, sweet potato, sauropus androgynus, onion.</td>
<td>Cabbage, kohlrabi, climbing bean, tomato, cucumber, bitter gourd</td>
<td>Cabbage, kohlrabi, cauliflower, đậu leo (climbing bean), perfumed gourd, another kind of gourd (bau), eggplant.</td>
<td>Coriandrum sativum, dill, salad, amaranth, malabar nightshade, green mustard, kale, coronarium.</td>
<td>Basil, marjoram, perilla, persicaria, amaranth, sauropus androgynus, malabar nightshade.</td>
</tr>
</tbody>
</table>

During the period 2006-2008, Hoai Duc and Thuong Tin districts has invested a lot in the zoning of safe vegetable production areas.

In Hoai Duc, the district People’s Committee has cooperated with relevant communal organizations to plan 3 safe vegetable production areas in Song Phuong and Tien Le communes (Tien Le cooperative). Planned areas of three cooperatives Tien Le, Phuong Vien and Phuong Bang are 31ha, 58.5ha and 30ha. respectively. In each planned area, relevant cooperative sets up a model of safe vegetable production that will be extended in the future. Pilot production models of the cooperatives are also research models of the Project. Investments in Hoai Duc, old Ha Tay, and Ha noi for these three regions include:

- Setting up an electric line for the area of 31 ha. for nets and semi-processing facilities for Tien Le cooperative with a budget of VND 1,438 million (period 2008-2009).

- Collaborating with Phuong Vien cooperative to set up an electric line for 15 ha with VND 994 million of investment (period 2007-2008).

- Setting up nets in the pilot models of Phuong Vien cooperative with a total budget of VND 310 million (period 2008-2009).

- Setting an electric line for 30 ha of Phuong Bang cooperative with VND 734 million of investment (period 2007-2009).

- Setting up semi-processing facilities and nets for pilot models of Phuong Bang cooperative with VND 574 million (period 2008-2009).

Besides, Hoai Duc district financially supports the certification of safe vegetable production conditions for Tien Le and Phuong Bang cooperatives; and the haft of Vietgap registration and certification cost for Phuong Vien cooperative.

In the case of Thuong Tin district, the district’s People Committee has also planned to establish safe vegetable production zones. In Tan Minh, the district’s People Committee has helped to set up an electric line for 11 ha (fund from old Ha Tay province). The total budget for setting up an electric line was VND 300 million (in 2007). For the area of 11 ha, Tan Minh commune People’s Committee has built a pilot model on the area of 2.5 ha with 27 households. Furthermore, Tan Minh commune people’s committee has supported VND 400,000 per household for drilling well with a total area of 11 ha. Thuong Tin district has also planned to zone safe vegetable production area in Ha Hoi commune. However Ha Hoi People’s Committee and Ha Hoi cooperative did not design any project proposal to receive this provincial financial support.
Among the Project sites, producers of the pilot model of Tien Le have the highest safe vegetable production area (0.139 ha per household equivalent to 3.85 sao per household) (see Table 4). Tan Minh producers also have quite a large safe vegetable production area (0.093 ha per household equivalent to 2.58 sao per household). Even if the number of producers in pilot models is low (18 households in Tien Le and 27 households in Tan Minh) their pilot areas are the highest. Furthermore, land of the pilot model is public land administrated by the commune people’s committee. Households rent it for vegetable production during 5 years (5 years per renting time). On the other hand, the average safe vegetable area of the pilot model in Phuong Vien, Phuong Bang and Ha Hoi cooperatives is very low because land belongs to individual households.

Table 4. General information on safe vegetable production planning in the Project sites

<table>
<thead>
<tr>
<th></th>
<th>Tien Le</th>
<th>Phuong Vien</th>
<th>Phuong Bang</th>
<th>Ha Hoi</th>
<th>Tan Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of safe vegetable planned area (ha)</td>
<td>31</td>
<td>58.5</td>
<td>30</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Area of pilot model (ha)</td>
<td>2.5</td>
<td>2.2</td>
<td>1.5</td>
<td>0.36</td>
<td>2.5</td>
</tr>
<tr>
<td>Number of participants in the pilot model (households)</td>
<td>18</td>
<td>60</td>
<td>53</td>
<td>11</td>
<td>27</td>
</tr>
<tr>
<td>Average area of safe vegetable in the pilot model (ha/household)</td>
<td>0.139</td>
<td>0.037</td>
<td>0.028</td>
<td>0.033</td>
<td>0.093</td>
</tr>
</tbody>
</table>

The size of household in the pilot model is relatively similar (around 4.4-5 heads per household) (see Table 5). Among them, active people represent less than 50 percent (of the total number of people per household) for pilot models of Tien Le, Ha Hoi and Tan Minh and more than 50 percent for pilot models in Phuong Vien and Phuong Bang. This can be explained by the fact that the number of active people in Tien Le, Ha Hoi and Tan Minh pilot models is higher compared with Phuong Vien and Phuong Bang (core active people in Tien Le, Ha Hoi and Tan Minh are younger than Phuong Vien and Phuong Bang). In Phuong Vien and Phuong Bang, as many people work in non agricultural activities, few people produce vegetable.

Table 5. Information on producers of pilot models in the Project sites

<table>
<thead>
<tr>
<th></th>
<th>Tien Le</th>
<th>Phuong Vien</th>
<th>Phuong Bang</th>
<th>Ha Hoi</th>
<th>Tan Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of heads per household</td>
<td>4.5</td>
<td>5</td>
<td>4.7</td>
<td>4.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Average number of active people (people/household)</td>
<td>2.2</td>
<td>2.7</td>
<td>2.5</td>
<td>2.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Percentage of active people (%)</td>
<td>48.9</td>
<td>54</td>
<td>53.2</td>
<td>47.7</td>
<td>47.8</td>
</tr>
<tr>
<td>Average number of people participating in vegetable production (people/household)</td>
<td>1.8</td>
<td>1.5</td>
<td>1.7</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Percentage of people participating in vegetable production (%)</td>
<td>81.8</td>
<td>55.6</td>
<td>68</td>
<td>71.4</td>
<td>77.3</td>
</tr>
<tr>
<td>Average of production area (sao/household)</td>
<td>4.95</td>
<td>3.9</td>
<td>4.6</td>
<td>4.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Number of plots (plots/household)</td>
<td>2.1</td>
<td>3.5</td>
<td>4.1</td>
<td>3.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Land area registered for safe vegetable production (sao/household)</td>
<td>79.8</td>
<td>25.6</td>
<td>17.4</td>
<td>0.2</td>
<td>46.9</td>
</tr>
</tbody>
</table>
Another important point is that land area registered for safe vegetable production in Tien Le is the highest (79.8 percent). In parallel, its land plots are also the less scattered (2.1 plots per households. These conditions are favourable for safe vegetable pilot models.

The product’s availability affects very much the transactions with buyers. Tien Le is the group with the biggest production volume (about 500 kilos per day) and the products are provided in a quite stable way because most of Tien Le vegetables are leafy vegetables (see Table 6). But not all products can be available at a given time. For example, *basella alba* and *sauropus Androgynus* can be grown only from February to October; and from Sep to Mar for coronarium. Hahoi and Tan Minh also have the stable products like Tien Le but the quantity is much smaller because the vegetables mostly are raw vegetables of low productivity. These kinds of vegetables were also not suggested to be used or forbidden during the occurrence of cholera. Phuong Vien and Phuong Bang have many winter crops such as cabbage, kohlrabi, cauliflower and tomato, thus their supply is rather big in winter but limited in autumn and summer. The output can be 1000 kilos per day during the busy harvest period.

### Table 6. Kinds and quantity of vegetables possible to provide by the groups

<table>
<thead>
<tr>
<th></th>
<th>Tiền Lê</th>
<th>Phương Viên</th>
<th>Phương Bằng</th>
<th>Hà Hội</th>
<th>Tân Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable kind</td>
<td>Leafy vege, amaranth, basella alba, sweet potato, sauropus androgynus, onion</td>
<td>Cabbage, kohlrabi, cauliflower, dau leo(climbing bean), tomato, cucumber, bitter loopah</td>
<td>Cabbage, kohlrabi, cauliflower, dau leo(climbing bean), aroma loopah, gourd, thai eggplant.</td>
<td>Coriandrum sativum, fennel, sallad, amaranth, basella alba, mustard green, kale, coronarium</td>
<td>Basil, marjoram, perilla, fragrant khotweed, pot-herbs, sauropus androgynus, basella alba</td>
</tr>
<tr>
<td>Possible volume (kg/day)</td>
<td>500</td>
<td>300 (Nov-Apr) 100 (May-Oct)</td>
<td>200 (Nov-Apr) 100 (May-Oct)</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

### B) Setting of farmer organizations

The first project activity is helping to set up farmer organizations based on 1) The local planned area for safe vegetables 2) Households' willingness to join. According to the information given by the cooperatives and the Agriculture office of Hoai Duc district about the planned safe vegetable area and the household’s survey, we selected households to discuss on the meanings and objectives of collective action in safe vegetable production, the collective activities to be implemented and the draft on regulations needed to be agreed by households before establishing the group of safe vegetable production and distribution. The content of regulations include the decisions on membership, the collective activities, member’s rights and obligations, exclusion, fund contributing and sanctions for violation. The results of building groups in survey area are presented in Table 7.
Table 7. Time for establishment and implementing collective activities in the groups

<table>
<thead>
<tr>
<th></th>
<th>Tiến Lê</th>
<th>Phuong Viên</th>
<th>Phuong Bằng</th>
<th>Hà Hồi</th>
<th>Tân Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr. of involved</td>
<td>18</td>
<td>60</td>
<td>53</td>
<td>11</td>
<td>27</td>
</tr>
<tr>
<td>households</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective activities</td>
<td>Training - Internal control - Collective input supply - Collective sale</td>
<td>Training - Internal control - Collective sale</td>
<td>Training - Internal control - Collective sale</td>
<td>Training - Internal control - Collective sale</td>
<td></td>
</tr>
</tbody>
</table>

Phuong Vien group is initiated from the group backstopped by Casrad before the project. The number of members has increased from 14 to 60. Hahoi group was also set up by Casrad before the Superchain project. All groups have the running regulations and collective activities in training, internal control and sale (see table 7). The internal control is implemented well in Tien Le and Ha Hoi group. Collective sale is organized well in Tien Le group. Also, Tien Le is the only group doing collective input purchase thanks to a loan granted by the project (20 M VND, for a six months period: 11/2008-5/2009).

C) Results of training activities

For each training, an evaluation form was given to the participants. Trainings are assessed by many producers and relevant local authorities as comprehensive and helpful. These trainings provide trainees with technical and management skills, they enable the group leaders, farmers and inspectors to organize quality control and the persons in charge of marketing increase their skills in identifying marketing outlets and negotiate with traders.

The production protocol applied in Tien Le, Phuong Vien, Phuong Bang and Ha Hoi changed significant after trainings, especially as regards the following:

- Fertilisation: the usage of nitrogenous chemical fertilizer is limited; use of well composted manure.

- Vegetal protection: using authorized chemical products, organic pesticides and fertilizers and non toxic products; respecting the dose and isolation time as instructed.

However, quite a lot of members still not respect regulations related to the usage of fertilisers and chemical products: this is the case for 16.7% of farmers in Tien Le, 41.7% in Phuong Vien, 51% in Phuong Bang, 27.3% in Ha Hoi and 66.7% in Tân Minh. People not applying fully the regulations give the following causes: (1) according to producers, the compliance with joint production protocol ensures products safety but this negatively affects their revenue due to longer production cycle, lower yield because of insects. (2) producers older than the rest of members of the group are not well informed about scientific information so their application of new techniques is not well done. (3) Several technical requirements are not convenient for
producers such as bearing protecting clothes, composting manure/biologic fertiliser longer
Quality control in the Project sites

D) Quality control in pilot areas:

Among Project’s research sites, Tien Le safe vegetable group has the most effective internal
quality control with 15 out of 18 members applying the Group’s regulations on internal quality
control (see Table 8). Because Tien Le Group has many advantages such as: small number of
members in the Group (18 households) that makes the management easier. Besides, the
production area in the pilot model is very high (79.8% of its total production area) that is why
these farmers attach attention to safe vegetable development for revenue improvement; (2)
furthermore they are still young so they can take note and easily access to new scientific
information.

Table 8. Results on consultation and support for quality management in the Project’s sites

<table>
<thead>
<tr>
<th></th>
<th>Tien Le Vien</th>
<th>Phuong Bang</th>
<th>Ha Hoi Minh</th>
<th>Tan Minh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control regulations</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Controlling committee</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(number of persons)</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Persons in charge of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>marketing (number)</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Number of households</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with good book keeping</td>
<td>15/18</td>
<td>17/60</td>
<td>15/51</td>
<td>6/11</td>
</tr>
<tr>
<td>(household)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate on good</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>conditions for safe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vegetable production and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>semi-processing²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietgap certificate³</td>
<td>Yes (for 5</td>
<td>Yes (for 2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>vegetable species)</td>
<td>vegetable</td>
<td>vegetable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>species)</td>
<td></td>
<td>species)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using packaging</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>supported by the Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using their own</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>packaging (packaging of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the Groups)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tien Le is one of the two research sites obtaining certificate on good conditions for safe
vegetable production and semi-processing in June 2008 with the support of Agriculture Office of
Hoai Duc district and the Project. Based on the results of (good) internal quality control, the
Project has financially supported with VND 46 million for Tien Le to do Vietgap certification with
Favri, which has the mandate to implement Vietgap. Vietgap is based on the presence of an
internal control system, and on the control of a checklist of good practices at the steps of
production and post-harvest.

² Delivered by the Department of Agriculture and Rural Development of ex Ha Tay province in June
2008, valid for one year.

³ Delivered by FAVRI, valid for one year.
These certificates make a good basis for Tien Le to reinforce its marketing activities with packaged and labeled products (see Picture 1). The packaging include the following information.

**Picture 1: Certificate and packaging used in Tien Le (from the left to the right: certificate on conditions for safe vegetable production and semi-processing; Vietgap certificate, packaging)**

In contrast with Tien Le, few producers in Phuong Vien and Phuong Bang build and apply regulations on joint internal quality control of the cooperatives. The reasons of their non application are the following: (1) land area of households in the pilot model just represents 25.6 percent of their total production land in Phuong Vien and 17.4 percent in Phuong Bang case (2) Producers are old, they do not have the habit to take notes so it is difficult for them to record their practices (3) members of the control committee selected by the cooperative do not have land in the pilot model so their control is not very well done. Furthermore, these two cooperatives do not have marketing Group and packaging. Their products are sold through Tien Le safe vegetable Group and they use (Tien Le) packaging supported by the Project.

Safe vegetable producers Group in Ha Hoi have relatively good activities on internal quality control. However these farmer groups (FG) do not receive support from Ha Hoi people’s committee nor from the cooperative for certifying their conditions on safe vegetable production and semi-processing with the Department of Agriculture and Rural Development. So Ha Hoi safe vegetable Group did not get the certificate on conditions for safe vegetable production and semi-processing before the integration of Ha Tay and Ha Noi (August 2008). After August 2008, its submitted document for certification was not examined due because the new Hanoi Department of Agriculture and Rural Development had to get organized. On April 2009, Hanoi Department of Agriculture and Rural Development announced that they did not accept the training certificate delivered by Casrad to Ha Hoi safe vegetable Group. This certificate should be replaced by the one delivered by authorized public institutions. So far Ha Hoi safe vegetable Group does not have certificate on conditions for safe vegetable production and semi-processing.

The activities on quality control in Tan Minh have not been successful. Tan Minh People’s Committee and cooperative have visited Van Noi safe vegetable model, they found that although Van Noi cooperatives did not set an internal quality control; they still can commercialize their products through safe vegetable channels. The point of view of Tan Minh People’s committee and cooperative has not facilitated the Project’s activities for supporting quality control and marketing of products.

**E) Results of marketing activities**

Support to marketing activities focused on three pilot models in Tien Le, Phuong Vien, Phuong Bang, the production sites with certificates and producers applying internal quality control.
1. **Organization of marketing activities in the groups**

In Tien Le and Hanoi, one person was appointed by the group as the marketing agent. In Tien Le, it is a member of the cooperative (not in the group), and in Hanoi it is a member of the group. This person more specifically deals with the following tasks:

- Contacts with the group’s buyers
- Informing the leading board about the buyer’s demand in diversity and quantity
- Collecting the vegetables of households in the group and delivering them to customers
- Recording fully the types and quantity purchased from the members in the internal receipt & delivery book and the types, quantity and name of buyers in the external receipt & delivery book

2. **Choice of marketing outlets**

Vegetables produced by the group require specific investments at the production and control stages, especially in terms of labour. For these investments to be paid back, they need to be sold in outlets where the specific quality is recognized and when they can get higher prices than in traditional markets.

Taking the example of cabbage, and a sample of twenty farmers in Son Phuong commune in 2008, it was estimated that the production cost for safe vegetable production in 17% higher than for ordinary production, mostly due to higher labour costs (3291 VND/kilo instead of 2805 VND/kilo)\(^4\). The yield is 10% lower (28 t/ha instead of 37.5 t/ha). On the basis of a price of 3000 VND/kilo for ordinary cabbage, it is necessary to get at least a price of 3510 VND per kilo, i.e., 510 VND/kilo more (17%) to get the same benefit than with ordinary vegetables (around 61,400 VND for 100 m²). This is why specific marketing channels have to be looked for.

In the project, we have targeted different kinds of outlets: vendors of supermarkets, vendors of shops, distribution companies (buying from farmers and re-selling to supermarkets or in their own shops), direct deliveries to consumers in shops or by home deliveries (see Figure 2).

**Figure 2. Marketing channels tested in the project**

![Marketing Channels Diagram](image)

---

\(^4\) Family labor has been counted at 45,000 VND/day, with 8 hours of work per day.
For marketing channels 1 and 2: groups/cooperatives producing and marketing safe vegetable do not have to invest financially nor in terms of labour for marketing activities. However, selling price is low and production plan depends on partners’ requirements. When contract signing is necessary, groups/cooperatives of safe vegetable production and marketing have to suffer from high risks of not being able to fulfil the requirements of their partners in terms of diversity and quantity.

For marketing channel 3, groups/cooperatives producing and marketing safe vegetable have the opportunity to market their products with higher prices and they are autonomous in their production planning. However, investments in shop, transportation cost and labor cost are high.

We will detail our experience with the different chains in what follows.

* Products sold to vendors and canteens (marketing channels 1 and 2)

Information on the different customers contacted, with the quantities delivered and price increases as compared with ordinary chains, is displayed in Table 9.

Table 9. List of customers

<table>
<thead>
<tr>
<th>Customers</th>
<th>Address</th>
<th>Time of transactions</th>
<th>Quantity (kg/ day)</th>
<th>Price difference(^5) (đ/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canteens in Hoai Duc district</td>
<td>- Kim Trung pre-school (Ms: 01698075926)</td>
<td>From 12/2007 to 01/2009</td>
<td>15</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>- 10/10 pre-school (Ms Миên: 01686706149)</td>
<td>From 12/2007 to 01/2009</td>
<td>15</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>- Bình Minh primary school (Ms Yến: 0984683070)</td>
<td>From 12/2007 to 01/2009</td>
<td>80</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>- La Phú pre-school (Ms Thanh: 0936012698)</td>
<td>From 12/2007 to 01/2009</td>
<td>20</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>- Đắc Sở pre-school (0433669242)</td>
<td>From 12/2007 to 01/2009</td>
<td>5</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>- Yên Sở pre-school (Ms Giáp: 0973833617)</td>
<td>From 12/2007 to 01/2009</td>
<td>25</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>* No 361 military camp (Ms Yến Thương: 0912736417)</td>
<td><em>From 1/2008 to 3/2008</em></td>
<td>400</td>
<td>400-500</td>
</tr>
<tr>
<td>Hai Hung company</td>
<td>Số 7, phường Cảng Mới, phường Bach Đằng, thị xã Cẩm Phả, Quảng Ninh (Mr Thắng: 0912388996; Ms Hương: 0975548638)</td>
<td>19/12/2008</td>
<td>450</td>
<td>500-700</td>
</tr>
<tr>
<td>Bao Ha company</td>
<td>Cổ Nhuế - Hà Nội</td>
<td>From 12/2008 to 05/2009</td>
<td>50-70</td>
<td>300-500</td>
</tr>
</tbody>
</table>

\(^5\) Selling price of ordinary vegetable compared with selling price through safe vegetable marketing channel in the field
Canteens in Hoai Duc district are the first customers of safe vegetable producers groups in this district. The first transaction took place on December 2007 even before the certificate delivery. This is thanks to the intervention of the Agriculture Office of Hoai Duc district. These are canteens of pre-schools (except the canteen of one military camp). Consequently, the quantity sold to these canteens is normally low (5-25 kg per day). Binh Minh high school is an exceptional case that needs 80 kg of vegetables per day. The selling price to canteens is higher than prices in ordinary markets, by VND 400-500. This price difference is relatively high and producers significantly benefit from this. If all production of 1 sao of cabbage is sold through this channel, producers earn an additional benefit of VND 400.000-500.000. However, the quantity of safe vegetable sold to pre and high schools is very low in Hoai Duc district because production groups do not have enough kinds of vegetable demanded by these schools such as: green gourd, rau ngot, water morning glory, bau. Groups are able to supply vegetable to schools two times per week; the average quantity of sold products per day is only 50-60 kg. This product quantity just represents 7-10 percent of the total production of three pilot models. With this commercialized quantity, marketing agent of Tien Le group earns around VND 60.000-70.000 per day. In January 2009, the purchasers of every canteens asked for a discount of VND 5000-10.000 per day. Due to this, transactions between Hoai Duc safe vegetable producers Group and canteens stopped in January 2009.

The canteen of the military camp just bought cabbage of Hoai Duc safe vegetable group for three months (400 kgs per day). Its buying price is higher than in the normal market with a difference of VND 400 -500/kg. After three months of transaction, they stopped buying cabbage from these groups because their cabbage production is not important enough to meet its need and they also demand an important quantity of water morning glory that can not be satisfied by these producers groups.

After obtaining certificate on good conditions for safe vegetable production and semi-processing and Vietgap certificate, Hoai Duc groups started to market, through middle men, their products to Hanoi urban centre where customers require certificates when buying safe vegetables. Until May 2009, these groups just sold products to two commercial stakeholders, which are Hai Hung and Bao Ha companies. Commercial results from these transactions were considered as experimental. Hoai Duc safe vegetable groups and Hai Hung Company made only one transaction (450 kg). The price proposed by Hai Hung Company is 500-700 higher compared with ordinary market; it is also higher than the price applied to other partners. Hai Hung Company highly appreciate the vegetable quality of these groups, they also trust the activities of the groups on internal quality control. However most products supplied to this Company are leafy vegetables which are transported over a long distance (210 km) as they are sold to Quang Binh Province, products’ quality is deteriorated due to this long transportation, so the company stopped buying from Hoai Duc.

The number of transactions with Bao Ha Company is higher than with Hai Hung Company. The quantity of each transaction is around 50-70 kg with VND 300-500 of price difference per kg. Bao Ha Company demanded to harvest products earlier than usual to have better quality (in terms of taste). Even if the buying price of Bao Ha is VND 300-500/kg higher compared with ordinary market, the producers’ benefit is not interesting due to their yield loss (earlier harvesting reduces the yield by around 40-60 percent compared with normal harvesting). Groups have negotiated with Bao Ha Company to compensate this yield reduction but Bao Ha disagrees. Consequently transactions with Bao Ha have been stopped after nine deliveries.

Some other customers have been approached, but no transactions have been agreed upon (see Table 10). Some reasons explaining these difficulties are given in Table 10.
Table 10. Customers approached without success

<table>
<thead>
<tr>
<th>Partners</th>
<th>Partners requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh food Company</td>
<td>- Having at least certificate on good conditions for safe vegetable production</td>
</tr>
<tr>
<td></td>
<td>- Many types of packaging (from 0.25 kg to 4 kg)</td>
</tr>
<tr>
<td></td>
<td>- Asking about details of calculation of production costs, packaging cost,</td>
</tr>
<tr>
<td></td>
<td>semi-processing and transportation costs, which the marketing agent did not</td>
</tr>
<tr>
<td></td>
<td>want to provide</td>
</tr>
<tr>
<td>Hadico Company</td>
<td>- Having at least certificate on good conditions for safe vegetable production</td>
</tr>
<tr>
<td></td>
<td>- Do not need packaging</td>
</tr>
<tr>
<td></td>
<td>- Supplying more than 20 kinds of vegetable Price is equivalent with price of</td>
</tr>
<tr>
<td></td>
<td>ordinary vegetable</td>
</tr>
<tr>
<td>BigC supermarket</td>
<td>- Having at least certificate on conditions for safe vegetable production</td>
</tr>
<tr>
<td></td>
<td>- Having legal personality, stamp, bank account, official red invoice</td>
</tr>
<tr>
<td></td>
<td>- Having diversity of products</td>
</tr>
<tr>
<td></td>
<td>- Payment at the end of the month</td>
</tr>
<tr>
<td>Intimex supermarket</td>
<td>- Certificate on good conditions for safe vegetable production and semi-</td>
</tr>
<tr>
<td></td>
<td>processing. Do not accept Vietgap certificate.</td>
</tr>
<tr>
<td></td>
<td>- Packaged products</td>
</tr>
<tr>
<td></td>
<td>- Price difference does not exceed 10 percent compared with the one of ordinary</td>
</tr>
<tr>
<td></td>
<td>vegetable</td>
</tr>
<tr>
<td></td>
<td>- Unsold products have to be collected by producers</td>
</tr>
<tr>
<td>Lomonoxop Primary school</td>
<td>- Having at least certificate on good conditions for safe vegetable production</td>
</tr>
<tr>
<td></td>
<td>- Packaging is not required</td>
</tr>
<tr>
<td></td>
<td>- Low buying price</td>
</tr>
</tbody>
</table>

* Direct selling to consumers (marketing channel 3)

All the Project research sites are near Hanoi and urban areas of Hoai Duc district. Hence the Project has advised and supported producer’s groups/cooperatives to directly supply consumers by home delivery or setting up shops. From December/2007 to June 2008, the Project has helped marketing agent of Tien Le group to open one vegetable shop in Troi town, Hoai Duc district. This is the period where groups had no certificate. The product quantity distributed through this shop was quite low (40 kgs per day). The price difference with ordinary vegetables was VND 400-500/kg. According to consumers’ evaluation as perceived by the marketing agent, products at the shop were not diverse so they do not buy products regularly there. Besides, the shop is in a location which does not attract many customers, because it is not surrounded by other food shops. As a result, the marketing agent of Tien Le has just obtained VND 30.000-40.000 per day because he has to pay the shop rent (VND 500.000 per month). In September 2008, the vegetable shop in Troi town stopped running due to low benefit.

To help Tien Le group to plan its production and commercialization activities, Superchain supports trading representatives within groups for setting the shops in Hanoi. The site initially selected by the project for this purpose is one stall in fruits and vegetables area of Trung Kinh market (near Big C supermarket) where the renting price is not very high (350.000đ/month). Unfortunately, as the contact between the marketing agent of the group and the management committee of Trung Kinh market took place too late, none of the stalls were available for the groups. Faced with this problem, the trader has selected another stall in meat and fishes products areas of the market for presenting and selling vegetables. But this location is not interesting for vegetable products and has some hygiene problems to be solved. Up to now, the shop has not been opened officially yet although some posters are already there.
Through the Hanoi club of consumers as women, the marketing agent of Tien Le group has supplied vegetables to members at No 411, entry 187, Hoang Mai Street at the end of April and early May 2009. The daily quantity sold was 20-25 kgs. The selling price of home delivery was VND 1.500-2.000/kg higher compared with other marketing channels. This price difference can ensure the benefit of producers and marketing agent. However, poor diversity of products did not facilitate this marketing mode. Safe vegetable groups/cooperatives should cooperate with each other to improve their products’ diversity. Moreover, to increase the quantity of products commercialized through home delivery, Tien Le marketing agent must continue to discuss with the Hanoi club of consumers as women about other selling points.

V - Conclusions and recommendations

A) Conclusions

Among the Project’s sites, Tien Le is considered as the most successful in quality control. The number of members is small (18 households); this facilitates control activities. The production area in the pilot model represents an important percentage of the total area (79.8 percent). The members are still young so they can more easily record their activities and have access to new scientific knowledge. Investments from the district, the Project and the support of Tien Le cooperative enable farmers’ groups to obtain certificate on good conditions for safe vegetable production and semi-processing and also Vietgap certificate.

As regards marketing, it still did not reach good results due to various reasons:

- cropping characteristics of the groups/cooperatives: vegetables are not diverse, they do not invest in opening shops or home delivery development.

- insufficient prices proposed by customers: customers just accept low price that is not high enough to compensate costs on control, packaging, transportation and product guarantee. Delayed payment by supermarkets also causes difficulties for the running of groups/cooperatives.

The pilot action enabled us to gain some knowledge on the conditions to have access to quality retailing points:

- diversity in terms of vegetables: more than six types of vegetables, including leafy vegetables (water convolvulus being one of them), fruit-vegetables (including tomato), and various types of gourds

- minimum quantity delivered per day averaging

- legal status with red invoice (and VAT paid to reach supermarkets).

B) Recommendations

1. Networking of groups to increase diversity of vegetables

It is important that groups collaborate to increase the range of vegetables offered to customers. Yet, this should only be done if groups are all certified in the same way. Hoai Duc district has to replicate the model of Tien Le in other communes like Yen So, Dong Lao and Minh Khai so that vegetables which are not (or little) available in Tien Le, Phuong Vien and Phuong Bang can be supplied, including water convolvulus, sauropus, cucumber, green squash.
2. **Having more continuous and long-term contacts with potential buyers.**

Many customers have been approached, but no transactions have lasted more than one year. This is due to some requirements in terms of diversity that the groups cannot fulfil. But we think this is also due to a lack of interactions between the marketing agent and the customers for the two parts to better understand the constraints of each other. For instance, some recent contacts with Big C show that the supermarket agrees to buy vegetables once per week if the quantitiy delivered do not enable a daily delivery.

The project staff has also established some promising contacts with shop vendors of safe vegetables, one in Hadong and one in Buoi street.

3. **Develop home delivery**

Home delivery is a potential marketing channel to be further explored; this can ensure the benefit of producers and marketing agents and it also enables groups/cooperatives to have clearer orientations in their production and marketing activities.

4. **Invest in a shop with adequate location**

It is good that the groups have access to shops for selling and presenting products in several points in Hanoi where the consumers have high need for safe vegetables. However, the high price of renting (1,5-2 million VND per month) is one obstacle to this activity. Therefore, it is better to choose stalls located in urban markets of Hanoi. After the business runs well, the groups will be able to pay higher price for shops located in areas with dense population.

**References**

Le Thi Nham. 2008. Rationale for the selection of safe vegetables in Hoai Duc and Thuong Tin districts, Ha Tay province. (Red River Delta)


Developing a network of safe vegetable production and marketing units in Hanoi Province

Nguyễn Thị Tần Lộc (FAVRI), Paule Moustier (CIRAD), Đặng Đình Đạm (FAVRI) and Lê Như Thịnh (FAVRI)

Summary

The “safe vegetable” production and distribution groups in the city are not yet very familiar with each other. These groups are not familiar with the demand of the buyers and the buyers are not familiar with the capacity of the groups. Meeting each other and cooperating to increase vegetable selling quantities and diversity in the types of products is necessary. At the same time, they receive support through the operations of the Alliance of Production and Distribution Cooperatives of Hanoi province, as one of its mandates is to give support to safe vegetable groups. The research group organized three workshops in 2008 to help the groups to get to know and understand each other. At one meeting, they discussed how they built their seasonal cropping and marketing plan. At another meeting, representatives of producers met with the buyers (retailers, canteen operators). The research group also provided the traders with documents regarding the production and distribution groups, along with information on the supplying capacity of those groups and the buying capacity of retailers. A website has been designed with information on the groups. The primary results are as follows: some groups have developed new links with other groups to increase the diversity of the supply to their buyers and sell more stable quantities. Some groups also found new buyers and some new contracts have been signed.

I. Introduction

Nowadays, in Hanoi, there are many units involved in safe vegetable (SV) production. However, most of them work separately without linkage to solve the problems of their small-scale, low diversity, limited quantities, inability to enter into and maintain contracts with buyers. Producers do not have many opportunities to get to know the buyers (supermarkets, canteen operators and consumers) and the demands of buyers. Buyers are not very familiar with the capacity of producers. They do not have the opportunity to meet and discuss areas of mutual concern.

This work takes place in close coordination with the alliance Alliance of Safe Vegetable Production and Distribution Cooperatives (referred to as the Alliance or ASVPDC). This alliance was officially established by the Hanoi People’s Committee on 15/12/2008 to facilitate public support for the development of safe vegetable production, and to help vegetable producers get access to market information and to expand production. It is chaired by the head of Linh Nam safe vegetable cooperative (Thanh Tri district). Two employees of Hanoi Cooperative Alliance (Liên Minh Hợp tác xã thành phố Hà Nội), give advices to the ASVPDC and develop links between the Alliance of Safe Vegetable Production and Distribution Cooperatives and other organisations.
II. Objectives

The objective is to establish a network of certified safe vegetable production and distribution units in Hanoi. This is to facilitate exchange of information on production and marketing by safe vegetable groups among the groups themselves so that they can more easily cooperate on issues of common interest (e.g. marketing and certification) and also between the groups and other parties (traders, decision-makers, project managers). Coordination between members of the network will increase the quantities and diversity of vegetables supplied, and improve the bargaining capacity of producers relative to buyers.

III. Methods

- Collecting data from the Hanoi Plant Protection Department to evaluate the general situation of vegetable production in Hanoi, and to list the units granted certificates of compliance with conditions for producing and processing safe vegetables (safe vegetables certificate - SVC).

- Interviewing these units on their basic characteristics (location, size, number of members, vegetables produced), the type of production guidelines they follow, their marketing strategies, opportunities, constraints and prospects.

- Holding a workshop on July 1, 2008 to present these results and discuss opportunities of cooperation between the groups.

- Holding a workshop on September 19, 2008 with the farmer groups to discuss preparation for the winter season.

- Holding a workshop on November 13, 2008 with the farmer groups and buyers to discuss difficulties in the relationship between groups and buyers

IV. Results

A) Information on certified safe vegetable units in Hanoi

1. General information on safe vegetable production in Hanoi

Of the 117 communes in Hanoi city, 112 produce vegetables (equal to 95.72%), with a total area of 7,927.5 ha. Fifty out of 112 communes produce safe vegetables under the guidance of Plant Protection Department officers, including key communes like Linh Nam, Yen My, Dang Xa, Dong Du, Van Duc, Phuc Loi, Cu Khoi, Van Noi, Nam Hong, Nguyen Khe, Trung Na, etc. All these communes cover an area of 6,350 ha, accounting for 80.10% of the total vegetable growing area. (Source: Plant Protection Department, 2008)

The city produces about 150,000 tons per year on average (38% comes from areas of safe vegetable production), providing 40% of the demand of Hanoi consumers in 2007. The remainder of the supply comes from other provinces, mainly Ha Tay, Vinh Phuc, Bac Ninh, Hai Duong, Hung Yen and Hai Phong.

As of July 2008, there were 33 producers awarded SVCs and one unit not involved in production but linking with producers for distribution. So the total members in the network are 34, seven of which are certified as meeting the conditions for safe vegetable processing.
Table 1: Classification of the certified units

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture service co-op</td>
<td>13</td>
<td>38.24</td>
</tr>
<tr>
<td>Safe vegetable production and distribution co-op</td>
<td>14</td>
<td>41.18</td>
</tr>
<tr>
<td>Company</td>
<td>5</td>
<td>14.70</td>
</tr>
<tr>
<td>Private enterprise</td>
<td>2</td>
<td>5.88</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34</td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

*Source: Hanoi PPD, 2008*

The distribution of the units according to their locality is shown in Table 2.

Table 2: Distribution of safe vegetable producers according to locality

<table>
<thead>
<tr>
<th>Locality</th>
<th>Number</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tu Liem dist.</td>
<td>2</td>
<td>6.06</td>
</tr>
<tr>
<td>Thanh Tri + Linh Nam dist.</td>
<td>3</td>
<td>9.09</td>
</tr>
<tr>
<td>Dong Anh dist.</td>
<td>16</td>
<td>48.48</td>
</tr>
<tr>
<td>Gia Lam dist.</td>
<td>4</td>
<td>12.12</td>
</tr>
<tr>
<td>Soc Son dist.</td>
<td>4</td>
<td>12.12</td>
</tr>
<tr>
<td>Long Bien dist.</td>
<td>4</td>
<td>12.12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Source: Hanoi PPD, 2008*

Note: one unit is not included in this table because it is only involved in purchasing and selling.

2. Distribution of safe vegetables

According to survey results, the annual vegetable output of producers in the network is estimated to be 75,000 tons, with high diversity, but vegetables sold as safe vegetables amount to just 15-20% (supplied to canteens, supermarkets, shops and the co-op’s own shops). The rest are: (1) sold to collectors, traders from other localities; (2) delivered by households to markets in the localities or urban districts in Hanoi. In these two cases, safe vegetables are sold as ordinary vegetables.

As regards customers buying vegetables with a “safe vegetable” label, seven groups have been identified (see Table 3).

Canteens rank first (29.2% of units sell to canteens), including canteens in industrial zones, schools, etc., with different vegetable demands depending on the size of the canteen: small canteens or canteens with many suppliers only purchase 20-50 kg per day or 2-3 deliveries per week, while canteens in industrial zones buy about 500 kilos per day to serve thousands of workers. This kind of canteen is often a source of steady orders. Co-ops having this kind of customers are Manh Quynh-Van Noi Safe Vegetable Production Co-op, Dong Du Agriculture Service Co-op. Though Manh Quynh-Van Noi Safe Vegetable Production Co-op was just established, it has found its own market not only in the North but also in the South.

Further, 16.7% of units have supermarket and canteen buyers, with a daily delivery of 1,500-2,000 kg. They are HADICO, Dao Duc Co-op, No. 5 Safe Vegetable Production and Distribution...
Co-op in Van Noi, Minh Hiep Safe Vegetable Production Co-op and Linh Nam Agriculture Service Co-op, etc. Some specialize in supplying to supermarkets, including No. 5 Safe Vegetable Production and Distribution Co-op in Van Noi.

Table 3: Volume of vegetables sold by members labelled as safe to different buyers

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Rate (%)</th>
<th>Daily purchase volume (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket</td>
<td>16.7</td>
<td>450-1,800</td>
</tr>
<tr>
<td>Shop</td>
<td>12.5</td>
<td>30-1,000</td>
</tr>
<tr>
<td>Canteen</td>
<td>29.2</td>
<td>50-500</td>
</tr>
<tr>
<td>Collector, vendor</td>
<td>8.3</td>
<td>150-5,000</td>
</tr>
<tr>
<td>Company (Bảo Hà + Phượng Đông)</td>
<td>8.3</td>
<td>200-600</td>
</tr>
<tr>
<td>Supermarket and canteen</td>
<td>16.7</td>
<td>1,500-2,000</td>
</tr>
<tr>
<td>Restaurant and canteen</td>
<td>8.3</td>
<td>20 – 400</td>
</tr>
</tbody>
</table>

Source: Survey result, 2008

Some units have buyers in the form of shops or they have their own shops as Ha An Safe Agriculture Product Joint Stock Company (all products are packaged before being sold in the market) and Van Tri Safe Vegetable Production Co-op (this co-op has a strategy to sell all of its products to end consumers)

Two units supply the Vietnam Agro-forestry Joint Stock Company (Bao Ha) for redistribution and Phuong Dong company for consumption. The daily purchase varies between only 200 to 600 kg, but it is quite stable.

3. Problems of diversity of supply

All units take best advantage of their conditions of labor, soil and customer demand. When listing kinds of vegetables planted by producers in the network, we see that large-scale producers offer 30 different kinds of vegetables (27 percent), average size producers 20 to 30 kinds of vegetables (46 percent), and small-scale producers less than 20 vegetable kinds (27 percent). Some co-ops produce both main season and off-season vegetables. This will be a strong point for coops to work together at different periods of the production calendar. The co-ops in Dong Anh district produce more off-season vegetables than those in other regions.

4. Advantages and disadvantages

+Advantages: Nearly 40% of leaders of groups say they have favorable conditions thanks to support from the local governmental. Soil and water resources provide sufficient conditions for producing safe vegetables, along with infrastructure supports from the city (nethouse system in Ba Chu Co-op, irrigation system in Van Duc coop, etc.). Over 30% of leaders of groups say the co-ops have long experience in production and often have their own market and permanent buyers for the safe vegetables they produce. They have established close relationships and often discuss their production plan.

+Disadvantages: 60% of co-ops are still coping with many difficulties, and distribution is the toughest task for most of producers. Production of safe vegetables depends greatly on the weather, which brings the highest risk to producers. The heavy rains in June 2008 destroyed 30-70% of the output in many vegetable fields which were about to be harvested. The seriously cold 2007-2008 winter killed all vegetables, which meant that producers and distributors could not realize their plans. It takes a long time to overcome damage caused by weather, especially vegetables grown seasonally. Besides, infrastructure for vegetable production in the form of nethouses, irrigation and capital, are greatly needed, particularly by new cooperatives.
costs of inputs, as well as labor and selling, prices are not stable, which also affects productivity. The management mechanism and people’s awareness of the cooperative are also factors affecting production and distribution.

One problem reported by some co-ops relating to quality is that some households still use their seed kept from the previous crops, which practice leads to degradation of the variety. There are many enterprises trading in seeds at high prices, and it is not easy to distinguish good seed from poor seed.

5. Prospects

Strategy for production development: According to the survey, one third of the cooperatives are keeping their present production area; they focus on improving vegetable quality and to sell all of their vegetable output with indicators of safe vegetables. Nearly two thirds of the cooperatives want to expand their production scale, 30% of which are going to expand according district and city plans; 38.9% want to expand by renting more land or linking with other cooperatives in the same or in other provinces; 22% of cooperatives select more households who have land around the coop’s present production area.

Strategy for safe vegetable distribution: 54.2 % of producers answer that they will be active in finding more buyers, including supermarkets, hotels, restaurants and canteens. They are Dao Duc Co-op, HADICO, No. 5 Safe Vegetable Production and Distribution Co-op, Ba Chu Co-op, etc. Some who are having problems in finding buyers decided to link with other cooperatives with a good reputation for distribution, like Cu Khoi Agriculture Service Cooperative, Le Chi Agriculture Service Cooperative, Van Duc Co-op, etc. Some plan to establish a marketing team. For the HADICO Company, besides enlarging its domestic market, it also plans to find markets for export in Asia; 20.8 % of the cooperatives cannot find outlets for their products. They are waiting for support from other organizations to maintain their production.

B) Some achievements of the networking

1. Some agreements made among members

After three meetings held in July, September and November among producers to discuss the plan for coordination and linking between producers and traders to discuss distribution plans, the participants also agreed on the following issues:

Cooperation between cooperatives is necessary to increase diversity and quantity of products supplied to customers.

One issued recommended by the cooperatives and to be supported by the project is also support for the Alliance in the form of a website of the producers in the network. Cooperation is needed to increase diversity of supply.

After implementing some initial activities of the project, some producers in the network have made links among themselves. As they said in the second and third workshops, they have cooperated to provide the kinds of vegetables that are lacking the others. For example, Dong Du Co-op mainly produces leafy vegetables, so they cooperate with the Soc Son and Dong Anh Coops to have wax gourd provided to canteens. Producers located outside the Red River dike (Thanh Tri district) cooperate with producers inside the dyke to balance between leafy vegetables and fruity ones (especially tomatoes).

2. Contracts between groups and buyers

Some contracts have been signed between production units and distributors or canteen operators. For example, after July 1, 2009, HADICO signed a contract with Cu Khoi Cooperative. This cooperative has good capacity, but it has problem in distributing safe vegetables. HADICO is a producer and also a distributor of vegetables to many different customers, so it needs vegetables in large quantities. Early this year (January 1, 2009), this company signed a contract with Tang My Safe cooperative (Nam Hong commune, Dong Anh district) with an area of 7.6 ha. Further, Co Loa Agriculture Coop signed a contract for vegetable
supplying with Duc Giang Textile Company after a meeting in November 2008. This cooperative also linked with some other cooperatives to collect enough cabbage to supply 10 tons per day.

In addition, some producers are still negotiating to find the best linkage. Some cooperatives in Hoai Duc district, located in the project area, are working with Metro and Big C Supermarkets and HADICO to learn their requirements in view of signing a contract. After the meetings, the production units are more active in contacting traders; specifically, they go to introduce products to supermarkets, canteen operators, restaurants, etc.

3. **Inventory**

An inventory book, which is the work of the research group, has been produced with basic information on the safe vegetable groups, including their location, area, types of vegetables and mode of distribution. It has been sent to all safe vegetable production groups, supermarket vendors, the consumer association, some canteens and big restaurants, as well as staff of the Hanoi Department of Agriculture and Rural Development and Hoai Duc Subdepartement of Agricultural and Rural Development.

4. **Website**

The website presents the capacity of the cooperatives in the network broken down into location, products that the members can supply and information on production processes. This information will be updated regularly. It will be managed by the Alliance, with the support of FAVRI. The name of website is: A network of safe vegetables production and distribution units in Hanoi. The name of area is rathanoi.com.

V. **Conclusion and recommendation**

This research has met its initial objectives. The most important one is to help increase the quantity and kinds of vegetables, which also is the basis for increasing the negotiation status with partners. A website has been set up to improve the communication between the groups themselves and between groups and buyers regarding supply capacity. However, its funding is still to be sustained. The project is supporting the first six months of operation. Other budget sources have to be looked for, and we hope that Hanoi province can provide a budget for this.

In this research, the researchers also identified some difficulties such as: the lack of “trust” customers feel relative to safe vegetable producers; some dynamic producers have their own market but are not really willing to share it with others who have problems in distribution.

At present, only some producers located in the “old” Hanoi province are part of the network. Therefore, the researchers suggest that the network be expanded to all of “new Hanoi” and to some certified production units in Moc Chau, Hung Yen, Vinh Phuc, etc. The research group and the Alliance will also need assistance from governmental bodies in the beginning. When the network develops stability, its members should contribute some funds to keep this activity going.
I - Objectives

The main objective is to help farmers to solve their problem of marketing, which is the major problem faced by vegetable farmers around Hanoi. To do this, we want to help farmers to conduct good agricultural practices, which are practices of marketing leading to more satisfactory conditions of sales for sellers of buyers. In the short term, these relate to good prices and stable quantities. In the long-term, partnership with customers is required with a sense of responsibility and commitments. The chain development, i.e., growth of activities for all the actors in the chain, should be aimed at.

II - Preparation of guidelines

Guidelines on good trading practices for safe vegetable organizations were first prepared in English (by Paule Moustier, with the help of Nguyen Thi Tan Loc and Huaiyu Wang). Then they were translated into Vietnamese and slightly adjusted to the audience of Vietnamese farmers (by a group including Nguyen Thi Tan Loc, Hoang Bang An Le Nhu Thinh from FAVRI, Bui Thi Thai from CASRAD). The guidelines are structured as follows:

1. Objectives
2. Basic principles
3. Choice of outlets
4. Contracts and regular business relationships.
5. Quality grades and post harvest.
6. Vegetable safety and traceability.
7. Price-setting
8. Quantity and Crop Planning
9. Collective action
10. Communication
11. Concluding remarks

III - Training course in Hoai Duc

A) General information on training

Based on the guidelines a training course on “Good Trading Practices for vegetable organizations” was organized in Hoai Duc district Song Phuong commune – Ha Noi, on 21 April 2009. It lasted a full day, from 8 to 5 p.m. The training gathered 26 people distributed as follows:

| Safe vegetable producers: | 14 |
| Division of Agriculture: | 03 |
| Extension Station: | 01 |
| Commune Officials: | 01 |
| Leaders of Cooperatives: | 04 |
| Safe vegetable traders: | 02 |
| Division of Commerce and Trade: | 01 |

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B) Discussions during the training course

In addition to the concepts and recommendations presented during the workshop, open discussions took place between the training group and the participants. Most points debated include the following:

1. Difficulties in finding outlets offering higher prices than ordinary vegetables, even for the two units who have now Vietgap
2. Traders do not have enough understanding of Vietgap
3. Lack of promotion of their products by the cooperatives; the cooperatives suggested a website, but the issue of maintenance and updating was raised; cooperatives can give information to the newly established website of the network of safe vegetable groups
4. Lack of reliability of some suppliers selling in the open market when price is high and to regular collectors when prices are low
5. Problems of leftovers which are not paid by supermarkets

C) Evaluation of training by participants

A questionnaire to evaluate the training was distributed to the participants. All had a positive evaluation, finding it good (78%) or quite good (22%). 75% participants evaluated that the course duration was suitable, while 25% recommend 2 days instead of 1 day to more time to deeply analyze the lectures and to give more example of contracts as it is a difficult topic. Training documents were evaluated suitable as they were easy to read, to understand and to remember.. The combination of theory and practice was appreciated.

When asked about possible new trainings, the most quoted topics were access to markets, market information systems and farmer organizations.

IV - Conclusions and recommendations

As regards the problems with marketing presented by Hoai Duc farmers, it was concluded that they are typical of all innovating farmers, as they are presently in competition with “safe vegetable” producers which did not set internal control systems. In this situation, the leaders of the group need to make more communication on the specific characteristics of their products. Faced with the problem of lack of diversity of vegetables, they should network with other groups, but only if these groups can show the same types of certificates. Finally, there should be a group of members of the group specifically in charge of marketing issues. Relations with different customers should be developed in a more continuous way as it seems that as soon the groups face a difficulty to answer buyers’ requirements, they change and try with another one.

The guidelines developed on good trading practices have proven useful for farmers, group leaders, as well as the administration staff in charge of support to farmers and traders. Hence we recommend that similar trainings are organized in other locations. The guidelines can also be easily adapted for other products than vegetables.
Vegetable production in Youn cluster village,
Khoun District, Xiengkhouang Province:
Case study in Tham-Hoy and Youn-Sixaysana villages

Khamphet Keokenchanh, Yongyang Chongthou, Silinthone Sacklokham (National University of Laos)

Abstract

The objective of the study is to understand the vegetable cultivation techniques of farmers in Tham-Hoy and Youn-Sixaysana villages of Khoun district, Xiengkhouang province in order to help them to promote their limited use of chemicals and have better access to the quality vegetable market. The methodology used for carrying out this study was to follow-up the technical sequences of a selected number of farms which were representative of the farmers’ practices in both villages. The result of the study shows that the cultivation of vegetable for the market has been developing since the years 1960s progressively with village nearby to province’s town and since the 1990s the production of vegetable of the studied area has expanded to other provinces such as Vientiane Capital and Houaphanh provinces. Despite the expansion of production, farmers in this area still produce vegetable with low chemical input use for the reason of soil and climate, availability and access (capital, road) and farmers’ awareness to protect the human health. The application of this chemical input can be different due to the different access of farmers to the land, labor and capital for agricultural production. Based on the standard of Ministry of Agriculture and Forestry of Lao PDR, this practice can fit “Good Agricultural Practice” but it will need to be certified.

I - Background of study

This study was conducted following the information collected from farmers, collectors, wholesalers and retailers in Vientiane market in 2007-08 on vegetables from Youne cluster village particularly from Tham, Hoy, Nator and Kosi villages which were considered different from the vegetable from others sources by their quality. The uses of chemical input such as fertilizer and pesticide are in small quantity and some producers do not use them at all. To help local people to improve the quality vegetable chain, in June-October 2008 we conducted the study in those four villages on production technique of three types of vegetable such as cabbage, cauliflower and mustard green.

Since the last few years, Lao government has developed the Clean Agricultural Development Policies with the objectives of sustainable agricultural production for the human life and environment. The Ministry of Agriculture has set up the standard of Clean Agriculture in Lao PDR as follows:
Integrated Pest Management (IPM): agricultural production applying the integrated agriculture to control pest and disease.

Good Agricultural Practices (GAP): agricultural production using low quantity of input such as chemical fertilizer and pesticide.

Pesticide-Free production (PFP): agricultural production applying fertilizer but not pesticide.

Organic Agriculture (OA): agricultural production using bio fertilizer, compost, green manure, bio pesticide and natural enemies but do not allow using any chemical fertilizer and pesticide.

The Clean Agriculture Development Centre (CADC) has been established within the Department of Agriculture of the Ministry of Agriculture and Forestry to support the development of clean agricultural production and promotion in Lao PDR. A support unit has been set up in CADC to assist in the development of Internal Control Systems (ICS-SU) used for organic group certification schemes. This unit developed into a Lao certification body (LCB) which can certify against organic standards.

This policy will help us to identify which form of vegetable production of the villagers in Youne cluster produce to better link farmers to market in Vientiane.

II - Objective

The objective is to understand the production techniques of vegetable in Tham-Hoy Youn-Sixaysana villages, the problem faced by farmers regarding the access to the input such as seeds, fertilizer, pest and disease controls method and product use and how they solve these problems.

III - Methodology

- studying documentation on socio-economic condition and agricultural production of Khoun district and studied villages;
- studying the history of agricultural development in the studied villages in particular the vegetable production;
- interviewing 50 families who produce the vegetables to find out the diversity of their vegetable production.
- selecting 18 families (10 from Tham-Hoy and 8 from Youn-Sixaysana) among 50 families to follow up their vegetable production techniques.
- Analyzing the data and writing the report.

IV - Main results

A) Location and population

Khoune district is located in the South-East of Xiengkhouange province which consists of 96 villages. Based on the criteria 010/PM of the Prime Minister of Lao PDR on poverty indentification, Khoun district is considered by the government as one of the poorest district in Lao PDR. In 2007, the population in Khoun's district accounts 31,318 inhabitants including
15,695 of females. The district has 233,000 hectares of surface area which include 3,657 hectares of arable land and 15,568 hectares of natural pasture.

Administratively, Tham-Hoy and Youn Sixaysana are the villages of Youn cluster villages. Tham-Hoy village is situated 3 kilometers to the North of Youn cluster village centre. The village is located 1020 meters above sea level and has 72 hectares of cultivated land area. Youn-Sixaysana village is placed in the centre of Youn cluster village. The village is situated 1115 meters above sea level with total cultivated area of 158 hectares while the total population of these two villages accounts for 1547 inhabitants including 773 women.

Crop production in the two villages focus on rice, vegetables, maize and leguminous whereas on average one family possess 1 buffalo, 3 cows, 1.5 pigs and 30 chickens and ducks. The possession of animals per family is very important since it is the main source of soil fertility for almost all the villagers who produce intensive vegetables.

B) History of vegetable production in Tham-Hoy and Youn-Sixaysana villages

1. XX century to 1954: establishment of the village

As there was not any written document on the history of agriculture in the studied area, our only source of information was villagers. According to the oldest villagers whom we interviewed the villages may have been established at the beginning of XX century from the village Xiengdad, Phoukood district of Xiengkhouang province. At that time there were 4 different villages: Kosi, Nator, Tham, Hoy and they were grouped in two villages in 2008 following the law on “the village” that one village should comprise more than 40 households. Kosi may be the older village than Tham, Hoy and Nator. At that time, the population did not exceed 4-5 families per village.

The villages have been divided into 3 main agro-ecosystems: plain, upland and mountain. The agricultural activities were concentrated at the periphery of villages. Mountain ecosystem was covered by the primary forest; thus, villagers used this part of ecosystem for the collecting and hunting. In the upland, villagers grew upland rice associated with different types of crops such as maize, cucumber, chili, mustard green, sesame, cotton etc. Villagers used the lowland area for growing paddy rice in wet season and in the border of paddy rice field they grew some vegetables like cucumber, long bean, sugar cane and fruit trees such as banana, peach etc. The cultivated area at that time accounted for a very small part of the total surface area of the villages.

The soil fertility for growing crops was ensured by three ways: first, natural transfer of humus from the upland during the rainy season, secondly by indirect transfer of the manure of animals from free grazing and finally by the collection of manures from animal pens to fertilized the cultivated plots. In this period there was no chemical fertilizer used in cropping systems.

The seeds for all types of vegetable production were kept and selected by producers from one year to another. There was no use of pesticide in crops production.

All agricultural products were used basically for home consumption. The exchange of products could be seen between the villages but only for a very small part and by the form of barter.

2. Period from 1954-1975: progressive development of agriculture

Xiengkhouang province was indirectly affected by the Vietnamese-American war as a province bordered with Vietnam. The studied area was not affected heavily like other districts of
Xiengkhouang province but the war scared population (bombing and captive). During this period the total population in these two villages was not more than 50 families.

The use of techniques for production of crop and animal production was not so different from the period before 1954. At the end of the years 1960s, some families got the cabbage seeds from American soldiers involved in the war and these families grew cabbage in the village for the first time. The characteristics of this cabbage variety was flat head, yellow-green leaves, and the taste was good, not too sweet. At the beginning, the purpose of growing this cabbage was for family consumption and it was developed only among the families who knew American soldiers working in the area. There was no use of chemical input for agricultural production.

In spite of the interruption by the war in Xiengkhouang the exchanges were developed from exchanges with villages nearby to selling the products in Phonsavanh market. Villagers brought their agricultural products such as mustard green, cabbage, peach, sugar from sugar cane juice, chicken and duck to sell in the market. The extension of agricultural production and development of exchanges were stagnant by serious confrontation during the years 1970s. The population in two villages had to move out to other districts of Xiengkhouang province, Vientiane or North of Vietnam which were less affected by the war.

3. Period from 1975-1986: social restructuration post-war and cooperative production systems

Population who had moved out from the village in the years 1970s came back to the villages and continued to exploit the land. To solve the problem of rice insufficiency, the government introduced the cooperative of agricultural production particularly the rice production. Everyday from 8-17 o’clock, every active members of the family had to work in cooperative land area of the village (most case was paddy rice field and some area of sugar cane). Most families worked for their own production out of cooperative working time mostly for vegetable growing for home consumption and animal rearing. The income from working in cooperative was accounted by working labor and number of working days. There was an encouragement from the provincial authority to farmers to expand the rice surface area during the cooperative production period. According to the villagers, there was no use of chemical input or improved variety of seeds.

The cooperative was officially abandoned in the mid of the years 1980s (IV Party Congress of LPRP1) as farmers were not motivated by its remuneration and management.

4. Market orientation for agricultural production since 1986 until today

The IV Party Congress announced the “New Economic Mechanism” of Market Orientation in the country. There has been an encouragement to farmers to produce more agricultural products for the market based on their comparative advantage. In the late 80s, farmers in Tham-Hoy and Youn-Sixaysana produced vegetables for the Phonsavanh market since the route access was improved. There was the bus line from the Youn cluster village to Phonsavanh (one time per day) allowing farmers to sell their products to market. In this period, farmers bought the new Vietnamese variety seeds of cabbage. However, the variety did not meet consumers’ preference as the cabbage leave was sticky and had low sweet taste.

At the beginning of the years 1990s, the production of vegetables for the market had increased due to two following policies of the government:

- Reduction of the slash and burn rice practice in the upland resulted in farmers looking for other activities which could compensate the loss of income from rice production and associated crops in the upland plot.

1 Lao People Revolution Party
- Improving the road access from Phonsavanh to Khun district and improving the security and road access between Vientiane Capital and Xiengkhouang province in the years 1990s. Few years ago there was the improvement of road access to Houaphanh and Luang Prabang province.

Today, farmers in Youn cluster village supply vegetables not only to Xiengkhouang town but to provinces nearby such as Vientiane Capital, Luang Prabang and Houaphanh province. The vegetable production for the market is more and more organized by several actors in the value chain: producers, collectors, wholesalers, retailers and consumers.

C) Present vegetable production systems

We are going to give only the description of three types of vegetables such as cabbage, cauliflower and mustard green which farmers in Tham-Hoy and Youn Sixaysana villages produce for Vientiane market as our project concentrates in helping them to improve this value chain. The information collected and presented below is the results of interviewing 50 vegetable production farmers in the studied area.

Farmers in studied area grow vegetables in wet and dry season and for some type of vegetable they cultivate 2-3 times per year. The seed that they mostly use are Thai seeds for example the varieties of cabbage are KY, Ali; for the cauliflower B52 and for green Mustard is long cycle green. Access to the seeds is sometimes difficult because of the distance to Vientiane market and the irregularity of seed supplies by the traders in Xiengkhouang.

Basically, farmers use the manure of cow or buffaloes, pigs and chicken to increase soil fertility of vegetable growing that they collect from their animals or buy from other villages. The price of one bag of 100 kilograms of cow or buffalos manure is 7000-8000 kips. On average, farmers use 2500 kilograms of manure/hectare/year. Chemical fertilizers are used by certain families to complete the manure, on average 180 kilogram/hectare/year. The reasons why the there is not enough of family’s manure to increase the soil fertility are firstly the herd of large animal per family is not big enough compared with the expansion of vegetable cultivated area and secondly producers keep the animals grazing far from village during the day and bring the herd only in the evening so they can not collect as much as possible the manure from their animals particularly from cows and buffaloes.

The development of pest and disease of vegetables in Youne cluster village is low due to the average of temperature of 20 degree census and 1400 mm of rainfall per year which do not favor the development of some pest and disease. The diseases that we found in the vegetable field are the *Phytophthora sp, Fusarium Oxysporium, Erwinia corofouora, Downy Mildew and Turnip Mosaic virus*. When farmers face these diseases in their vegetable field, if the damage is small, they will take the leaves out from the plants, but if the damage is extended some of them will use the pesticide. The pest developed in mustard green is Aphid sp, in cabbage and cauliflowers are Catter pylar, Dimond blacmouth, Cut worm and Army worm. When farmers face these types of pests in their vegetable field, if the damage is small, they will kill the insect by hand, but if the damage is extended some farmers will use the pesticide. The chemical products are Thai, Vietnamese or Chinese which can bought in Phonsavanh town of Xiengkhouang province or from middlemen.

Farmers use 143 men days per hectare for producing mustard green, 250 men days for cabbage and 240 men days per hectare for producing cauliflower.

The average production of mustard green is 6,625 kilogram/hectare, 11 tones for cabbage and 17 tones for cauliflower.
D) Typology of vegetable production farmers

We could divide farmers on 3 large groups based on their land used for growing vegetable, capital and input uses. This typology was built after following up 18 vegetable growing farmers in the studied area: 6 producers belong to type A, 8 producers belong to type B and 4 producers belong to type C.

1. **Type A: farmers possessing large surface area of land and capital and use more chemical input**

   Farmers belong to this type A have 1.5-3 hectares of paddy land where they grow vegetables in dry season and 0.3-0.4 hectare of garden both in wet and dry season. Farmers of this type have also a power tiller for soil preparation, transport of input (manure) to the vegetable plots and vegetable products from the field. The family possesses more than 10 heads of cows or buffaloes, 2-3 pigs and certain chicken and duck. Although they have a large herd of animal, the producers face the problem of insufficient manure since they grow large surface of vegetable. Therefore, they use their own manure and buy from villages nearby to fertilize this large surface of vegetable. Each year they use manure around 2600-3500 kilograms/hectare and chemical fertilizer 16-20-00 and 46-00-00 around 270-350 kilograms/hectare/year to complete the manure. To fight pests and diseases, they use the hand to take out the affected leaves and destroy the insects and worms. They use the chemical products in the case where the pest and disease are expanded. Each year they can gain around **18-30 millions** of kips from selling vegetables.

2. **Type B: farmers possessing middle size of land area and capital and use less quantity of chemical input**

   This type of farmers possess the surface area of paddy rice field 0.6-1 hectare where they can use it for growing vegetables in dry season and garden around 0.1-0.3 hectare. They have small power tiller for soil preparation, transport of input (manure) and agricultural products from the field. They possess the large herd of cows (10-24 heads), buffaloes (0-5 heads) and pigs (1-3 heads). The quantity of manure used is around 3200-5000 kilograms/hectare/year and 50-150 kilograms/hectare/year of chemical fertilizer (16-20-00 and 46-00-00).

   Farmers of this type use the chemical products to control pest and disease when they see expansion of the pest and disease if not they use the family labor to take out the damaged leaves from the vegetable plants and destroy the pest by hand. Each year they can gain around **5-15 millions** of kips from vegetable production.

3. **Type C: farmers possessing a small size of land area and capital and use fertilizer in small quantity or non**

   **Type C1: farmers who belong to this type** have 0.4-1 hectare of paddy land and 0.01-0.07 hectare of garden where they grow cabbage, cauliflower and mustard green in wet season.

   They possess 0-6 heads of cows per family, 2-3 heads of buffaloes/family and 1-2 head of pigs. Some of them have power tiller and some have not.

   They buy seeds from Phonsavanh market as they need it only in small quantity. Farmers use both manure (500-800 kilogram/hectare/year) and chemical fertilizer (16-20-00 and 46-00-00) in small quantity 20-50 kilograms/hectare/year. They do not use pesticide at all.
Type C2: this type of farmers has 0.5-1 hectare of paddy land, 1-2 hectares of upland where they grow rice associated with vegetable. They do not have any garden specifically for growing vegetables. In the upland plot, they grow mustard green for home consumption and sell the extra. The seeds that they use are kept from one year to another which is different from type A and B. Farmers of this type do not use fertilizer and pesticide at all.

Few farmers in this type have small power tiller and some do not have.

Farmers from type C gain around **1,000,000-3,000,000** kips/year from vegetable production.

### Table 1: Summary of land and input uses by type of farms

<table>
<thead>
<tr>
<th>Farmer's type</th>
<th>Land use</th>
<th>Input use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paddy land</td>
<td>Garden</td>
</tr>
<tr>
<td>Type A</td>
<td>1.5-3</td>
<td>0.3-0.4</td>
</tr>
<tr>
<td>Type B</td>
<td>0.6-1</td>
<td>0.1-0.3</td>
</tr>
<tr>
<td>Type C1</td>
<td>0.4-1</td>
<td>0.01-0.07</td>
</tr>
<tr>
<td>Type C2</td>
<td>0.5-1</td>
<td>non</td>
</tr>
</tbody>
</table>

**V - Conclusion**

Study of the history of vegetables development in the villages of Youn cluster has shown that inputs were introduced progressively but rapid changes took place when the government changed the policies on reduction of sweden agriculture and promoted the market orientation. Since the 1990s farmers in Tham-Hoy and Youn-Sixaysana villages have been producing vegetables for the provincial market and then expanded to the market of the provinces nearby such as Vientiane Capital, Luang Prabang and Houaphanh. With this expansion, farmers still use the limited amount of chemical inputs for the reason of problems of access to the capital to buy inputs and their limited availability, and also for reasons of human health. The application of this chemical input can be different between farmers due to the different access of farmers to the land, labor and capital for agricultural production.

If we compare the production technique of the studied villages and the Clean Agricultural Production Standard of the Ministry of Agriculture and Forestry, the vegetable production technique of studied villages can fit the standard of “Good Agricultural Practice”. Farmers in these two villages can further develop the Pesticide-Free production and convert to organic agriculture if they have support in terms of information and training on organic production from the extension organization.
The study on vegetable production techniques in Youn cluster villages of Xiengkhouang province has shown that farmers used very low chemical inputs while they face the problems of pest and disease for their vegetable production. In order to help producers in Youn cluster villages to solve these problems and give them the organic production orientation, the National University of Laos in collaboration with the Helvetas Laos and Ministry of Agriculture have organized the training on organic vegetable production to producers who were interested in this type of production technique. The specific objective was to train farmers the sustainable methods of improving the soil fertility, control pests and disease by using bio fertilizer, bio-pesticide and natural enemies.

Five producers from Tham-Hoy and Youn-Sixaysana and two district extension staff were selected by their village and district authorities to be trained in Vientiane from 9th to 15th February 2009. They were both men and women trainees. The training took place in the Clean Agricultural Development Centre of the Ministry of Agricultural and Forestry in Vientiane as well as in organic producers’ farms of Khokxay and Nontea villages. The training methods consisted of both theory and practice and the subjects of the training were the following:

1). Introduction to the organic agriculture and organic standard which was trained by staff from Clean Agricultural Centre

2). Compost preparation, bio pesticide, EM and Bio extraction which was trained by staff from Clean Agricultural Centre and organic producers group.

3). Visit two villages of organic vegetable production in Hadxayfong and Xaythani district. Discussion with organic producers on organic production techniques.

4). Visit the organic products market in Thatluang, Vientiane Capital, organized by organic producers group and supported by Department of Agriculture and Helvetas Laos.

5). Visit the wholesalers and retailers in Khouadin Market Vientiane Capital.

The training was very successful because it was the training from farmers to farmers. It was organized in the way of more practical training than theory and it was more the process of learning by doing than the training in the class room. Producers from Xiengkhouang could learn the experiences on how the organic producers are organized in Vientiane and how it functions from production level, to market level. Moreover, the training allowed them to have the new contacts with whom they can share the problem on vegetables production as well as to know the quality, quantity and price of vegetable in the market in Vientiane.
However, it is too early to conclude that the training could help or not the producers in Youn cluster village to solve their problem of soil fertility, pest and disease control as they put into practice the techniques just after the training, in the cycle of production from April to July.