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Linkages in Vegetable Marketing System of Tan Yen, Bac Giang, Viet Nam

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ABSTRACT

In the past few years, production and marketing activities between Tan Yen vegetable farmers and processing companies have gradually gained local authorities attention. The Bacgiang People's Committee, Department of Agriculture and Rural Development, the Farmers Union, and the Bacgiang Vegetable Processing Company Association conducted hearings in which commune leaders, local government officials, and academics offered their perspectives on how the recent development of the vegetable processing sector have affected the economic efficiency of each factors chained in the system. Vegetable producers are concerned that recent growing incidence of contract non-compliance taking part in the processing companies has caused lower benefit they earn from the sector. Processing companies argue that the unstable customer market and world price fluctuation reflect their costs of doing business. Contract farming in the marketing system, as the new practice, is supposed to have a long-term relationship with continued commitment. However, institutional structure, information on functions and especially linkages between actors, the governance mechanism, and the integral part of local government intervention are necessary to mention but, limited in research.

For this reason, this study attempted to describe Tan Yen vegetable marketing system in a systematic, structural, social, and behavioral way. With combined methodologies, the analysis was focused on evaluating the system's linkages among participated actors to place under the context of sustainable livelihood for the small vegetable producers. The conclusion is that the system has relatively weak linkages between actors involved and inefficiency for small producers.

1. INTRODUCTION

Economic growth, international market integration, urbanization, and changing lifestyles are associated with transformations in the food systems of developing countries. The increasing role of modern retail outlets, food safety and quality standards, vertical market integration, and international trade in high-value products characterize these changes (Pingali, 2007; Hobbs and Young, 2000). The growing role of food safety and quality standards was examined by Henson and Reardon (2005), and Unnevehr (2000) highlighted the difficulties for developing countries in accessing export markets. Also, the analysis of contract agriculture in developing countries has received increasing attention, especially with a view to the small farm sector (Swinnen, 2007; Sartorius and Kirsten, 2007).

Under this context, many producers recognize the importance of finding a niche market for their products such as “locally” or “organically” grown. Yet, it is still essential that any niche market undertaking be accompanied by sound business analysis. As a result, newly formed vegetable cooperatives began to search for ways to become more competitive in both the fresh and processed vegetable (Susan and Wendy, 2002).

In the case of Vietnam, farming systems generally are small-sized. Most farmers are self supporting, and cultivate vegetables out of historical tradition. They have been marketing their commodities using forward contracts (when possible) with various brokers/dealers throughout the supply chain (Susan and Wendy, 2002). As an example, Tan Yen, the district located in the western mountainous of Bac Giang province, where vegetable production and processing sector has recently grown rapidly. However, the challenge is that the agricultural technology adoption level of farmers is still low; the market information and demand have not met the production plan and management; relatively thin institutional structure between producers, processors, and traders; the productivity of vegetable production does not reflex the potentials and advantages; and the farmer's income is still unstable with fluctuation of market price. For these reasons, there is urgent need of integrated research approach to draw out overall picture of the system to strengthen market access and market orientation, efficient production and marketing, higher quality commodities, and strong network linkages as a way to improve farmer household livelihood.

This study characterized the marketing system considering all the marketing activities taken by farmers and traders. Specifically are to describe the structure of vegetable marketing system in Tan Yen in terms of the functions and linkages of actors involved in the system; analyze the economic gains of Tan Yen vegetables production and marketing in order to explain the contribution to farmer's livelihood; identify the existing problems encountered of the system and provide recommendations based on the findings.

2. METHODOLOGY

2.1. Research Sample

For this study, a two stage sampling scheme was employed. In the first stage, three communes of Tan Yen were chosen based on the large area¹ devoted to baby cucumber and baby tomato growing, which are Cao Xa, Cao Thuong, and Viet Lap. In these communes, agriculture has been the only source of income that farmers could rely on. Farmers are familiar to all kind of agricultural commodities practices. Here, vegetable marketing activities is conducted by mainly five vegetable processing and export companies (Viet Nga, Bac Giang, GOC, Phuong Dong, and Dong Hai) and other traders at the communal markets.

Using purposeful sampling², the second stage involves the selection of about 60 vegetable growers who planted baby cucumber and baby tomato, the two most common kinds of vegetables in production, processing, and marketing. The producers were categorized into three groups, which were 15 small producers (vegetable production areas less than 0.07 hectares), 25 medium producer (ranges from 0.07 to 0.11 hectare), and 20 large producer (greater than 0.11 hectare).

To determine the network structure of the marketing system and the flow of the commodity from the producers to the final consumers, the tracing approach wherein the farmers were asked about their outlets and so on until the final consumers were reached. For this purpose, 5 company processors, 5 local traders, 3 cooperatives, and 3 village leaders were chosen. Local traders were classified according to the size of their capital and the quantity of vegetable that they trade in the market. Cooperatives and village leaders are those who take charge for planting decision, harvesting, and procurement. Pre-investigation showed there were only five companies (mentioned above) implementing baby cucumber and baby tomato trading activities with farmers in these communes.

2.2. Data Analysis

The study relies on both qualitative and quantitative data, but is concerned predominantly with the former. It draws on the latter mainly for descriptive purposes and in order to frame and position the study with respect to regional trends in marketing and production. Surveyed data were entered into Microsoft Excel spreadsheets and organized by various criteria. These were then

¹ In 2010, Provincial Statistics show 20/24 communes of Tan Yen having the area of 406.9ha for vegetable production. These selected communes account for 54.19% of total vegetable growing areas in the entire district.

² Purposeful sampling focuses on strategically selecting an information-rich sample that yields insights and in-depth understanding about issues of central importance the purpose of the research.

plotted in an exploratory analysis of the data (Robson, 2002) to illustrate rates of change, difference, and comparison. Quantitative data analysis was limited to basic descriptive statistics due to limitations in the available data for the purposes of the research.

The process of qualitative data analysis followed sequential but recurrent phases of the description of phenomena, the classification of resultant data, and the identification of relationships of interconnection among the data (Dey, 1993). In following these steps, qualitative data analysis is guided through a process of empirical observation, conceptual classification, and theoretical appraisal and reappraisal towards an iterative construction of an account of each case.

3. RESULTS AND DISCUSSION

3.1 Key Actors in the Vegetable Marketing System

Farmer households produce vegetables for processing companies. Vegetable farmer households also are responsible for production planning. However, household labor shortage, scattered and small-scale production, and low level of technology adoption compromise the farmer's planning every season. Besides, the cognition of their tasks and obligations in contract fulfillment is limited, which resulted in many contract violation cases. When the market price is fluctuating or the company demand rigorous requirement in procurement, they turn sale towards other companies or local traders to look for short-term price premium. This has been a challenge for the efficient crop management, technical transference, and projected procurement taken by both local authorities and the companies.

The cooperatives has played very important roles in vegetable production. The cooperatives stand out as representatives for the farmer households in farming contract with the processing companies. They take charge of managing and organizing vegetable procurement from farmer households to the companies as well as providing seeds and other input materials for vegetable production. Moreover, they are under the supervision and orientation of district or commune authorities to promote, encourage, and educate the locals to participate in the vegetable processing sector. One of the many difficulties that cooperatives have been now coping with are to solve the problems of contract violation between farmers and the companies.

The local collectors are also local villagers. The advantage of owning sufficient capital guarantees the farmer's trust and production to deliver their purchases for the processing companies. Their trading activities are mostly taken during the shortage of vegetable supply for processing companies. Local traders consequently benefit from the margins varied by different purchasing prices of various processing companies in or out of the province. When the farmers are uncertain of market information, they offer higher price than the farmer's

contracted price. However, as the small number of the local collector (one or two) in each production area, insignificant quantity of vegetables is traded to where it is demanded. Sometimes, local traders invest on small group of farmers to ensure their trading amount after harvest to supply as if the market is more demanded. They swing around as they could make immediate payment and offer fewer requirements on quality of vegetable they purchase. The reason they are parts of the marketing system as the sector is still not well-organized and weak linkages between farmers, cooperatives, and the processing companies.

There are now nine processing companies in Tan Yen vegetable marketing system. The processing companies stick together with the Tan Yen department of agriculture and rural development, communal people's committees, cooperatives, and sector-related agencies to test the new plant varieties as well as to expand their vegetable production areas. This also consists of training and guiding the farming techniques, pest control, and harvesting. In order to ensure their purchase, companies regularly send technical staff to coordinate with the cooperatives, sector-related agencies, and local officials in the course of crop orientation and technical guidance. The contract terms between farmers and the company then are signed in quantity purchase, buying price, and payment.

3.2 Functions and Activities

Here, each marketing activities or productive progress that the product sequentially undergoes, from being a raw material to reaching the end of domestic value-added process. Some actors might perform only one function, whereas others perform two or more. For that reason, in some cases several actors appear to perform the same function.

Inputs and Technologies Supply: Vegetable seeds are supplied to farmer producers through the village chiefs or the cooperatives. After procurement, the cost of seeds provided by the processing companies will be subtracted from the total payment to the farmers. These seeds providing activities have been done by the processing companies or the communal before cultivation period in accordance with the production plan and the annual crop calendars.

Other inputs for vegetable production are fertilizers, pesticides, nylons for vegetable cover, trellis, and others. According to the local officials and the interviewed producers, the process of providing input materials for the production by the processing companies and local input supplier are always late as required for vegetable production. There has been limited consensus coordination between those two, which sometime has led to negative effects on vegetable production of farmers who do not have much capital to deal with fluctuating market prices of inputs. There are only some cooperatives such as Cao Xa, Cao Thuong,

and Viet Lap have directly contracted with local inputs providers to immediately supply fertilizers, pesticides, trellis, and other materials as urgently needed.

The extension system is organized by the consolidation of the district extension center with commune and village extension staff (educated in the agricultural sciences) has successfully completed their tasks on agricultural technology adoption and transference. The local extension center and plant protection station are those who have carried out many vegetable production trainings and integrated pest management in the recent. *Production*. Different actors participate in vegetable production activities in Tan Yen. Production is certainly carried out by the individual farmers. Overall, the vegetable production is managed by the local authorities. The processing companies take part in providing technical assistance and deciding the designated type and amount of vegetable to produce. The main production activities include supporting and planning production areas and crop varieties, growing the plantation, and harvesting.

The district department of agriculture and rural development schedule the crop calendar and statistically record production areas. The department of finance takes part as checking upon the statistics of production areas in order to propose proper financial support. The extension center and the station of plant protection are responsible for introducing agricultural practices, crop management, integrated pest management, diseases prediction and treatment, technological adoption and transference.

Communal board of directors is fully responsible for production activities undertaken at the communal level. They also decide the most proper land areas for vegetable production in terms of size, soil fertility, water-supply availability, traditional agriculture practices, and the willing participation of farmers. The production implementation then is followed with the consideration under the instruction given by the district department of agriculture, extension center and the station of plant protection detailed in crop calendars in each season. Moreover, the communal are also in collaboration with the district to organize agricultural training classes and to introduce new agricultural technologies as well as advanced practices. Simultaneously, the involvement of communal organization such as cooperative, women, farmers, and youth associations, the propaganda and mobilization is taken at the village and household level.

At the village or inter-village level of production management, the cooperatives, village leaders, or head of farmer groups play a role as ascertaining the correction of crop planting schedule, disseminating practical agriculture skills and experiences, supplying water and inputs, and contracting with processing companies. In addition with propaganda and mobilization, the contract with the household producers is later proceeded from the guarantee of the cooperatives. In competitive and unstable supply market, the processing companies sometime send their technical staff to coordinate with the specialized agencies and

local officials in the course of checking on the growing process of vegetable, helping farmers with advanced farming methods, evaluating the productivity, and ensuring the quantity harvested to match up with processing schedule or plan of the company.

Procurement: Procurement is mainly taken through two stages: The first is grading activities of vegetables harvested in the early hours of the day; the second is scaling according to the quantity contracted with each household. The payment then will be done after approximately 20 days. Commonly, these activities are managed and proceeded by the cooperatives or the village leaders as the contracting procedure is supposed to go through the local authority's confirmation before it reaches to the household producers. However, there were some incidents that the processing companies went straight to the household producer as the contract and procurement are agreed by those two. This has caused violation when supply market is redundant, the shrink of outlet market, or the company's capital shortage. Four different actors involved in the procurement process as such: The household producers, the persons in charge in the local authorities (members of cooperatives, village leader, or head of farmer group), the local collector, and the staff of processing companies.

Processing Manufacture: The processing activities are mainly taken and managed on the part of the processing companies. Farmer involves as employment in every designated step in the processing procedure. They can be company's contracted vegetable producers who need to earn extra income beside their vegetable production. The processing company's technical staff are those who instruct, supervise and evaluate quality of farmer's works throughout the processing activities. Depending on different situations of the consumer market for processed vegetable are the quantity of labor recruitment is decided and wage can be increased or decreased. Processing of vegetable is a simple procedure and does not require much capital to invest. The only problem is the shrinking market outlets as the competition has accelerated that leads to fluctuating quantity of vegetable procured from household producers. Beside, local government also takes part in processing activities as supervise, orientate, and evaluate the quality of vegetable processed in order to ensure processing food safety and image of district's vegetable processing sector in the domestic and global market (Figure 1).

Vegetable in kinds are procured from farmer producers, will be re-graded and sorted as type A, B, and C (baby cucumber) for different processing procedures as finally different in price. Then the cleaning process comes up with soaking in large pool for 20 – 30 minutes before hot rising at 90⁰ C for the type A, 65⁰ C for type B and C in 3 – 5 minutes. After cleaning, vegetable will be bottled and capped after adding fluid (sugar, salt and lactic acid) and herbs (such as hot chili,

pepper, garlic, asparagus, basil, lettuce, etc). The final process is sterilization or pasteurization at maximum of 85°C for 20 minutes and cooling down to 40-45° C.

Sale in End Markets: Depending on processing ability, availability of advanced processing technologies, the scale of company's production areas and relationship with outer distributors, the consumer markets are chosen differently from each company. Mostly, their products is pushing toward markets of Eastern European countries such as; Ukraine, Russia, Denmark, Poland, etc. Especially, Bac Giang Food Processing and Export Company can reach to the consumer market of Spain and Switzerland. In addition, Vietnam Food Processing and Export Company have been serving the market of Germany, Mongolia, and even United State.

However, Western countries market favors much of evaluation and certification on the processing as well as the originating of the vegetable input materials that some companies could not afford under the chaos of the local vegetable marketing system in the recent or even in the long-term. At these activities, distributing processed vegetables to the final market, the local government could only play a role of domestic market orientation where they can help lower transaction cost and the consumers are easily persuaded on the quality and safety of the product. On the contrary, low market share plus less quantity purchased neglect the processing companies paying more attention at the domestic market. Still, their only way out is to seek more stable markets in the globe where possibly consumers are more willing to pay the premiums.

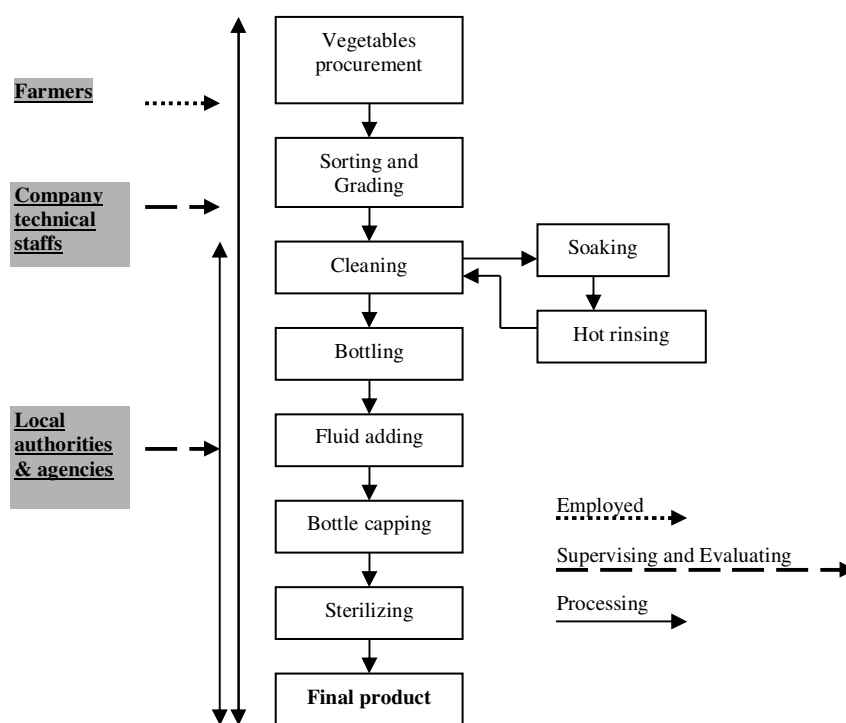


Fig 1. Processing activities of Tan Yen baby cucumber

Source: Own elaboration (Based on information provided by GOC Company - Survey 2011)

3.3 Linkages in Tan Yen Vegetable Marketing System

3.3.1 Vertical Linkages

In Tan Yen, vertical linkages between household producers and processing companies are established as contractual relationship. The relations are typically based on a written contractual arrangement, which defines quantity procured, supply of inputs needed, and technical support. The farmer's participation in this sector and particularly contractual production is the common situation of rural farming in Tan Yen. The farmers are with much experience planting vegetables,

land ownership, sensitivity to market price fluctuation, vulnerability, risk aversion, and lack of market access ability. Hence, the contractual farming undoubtedly offers ways of guaranteeing their outcomes from household's agricultural activities. Afterward, based on the supportive policies of the provinces undertaken in the agro-development program by the Tan Yen district, the production areas is projected.

Power Relation: Contractual arrangement with processing companies are described as unbalanced power relationship. In general, processing companies are those who set requirements and terms in the

contracts. Quality of vegetable purchased is set and evaluated by the cooperatives and sometimes the company technical staffs at the time of procurement. When negotiation is limited, and then vegetable is graded visually by the judgment of technical staff or cooperative members. In the case of cooperative members in charge, if the quality is not as good as re-

grading or re-evaluation results (process taken by the processing companies) the cooperatives will take full responsible. Dramatically, when market demand decreases, the processing companies punish household producers exerting stricter quality control parameters, resulting in high rates of rejection.

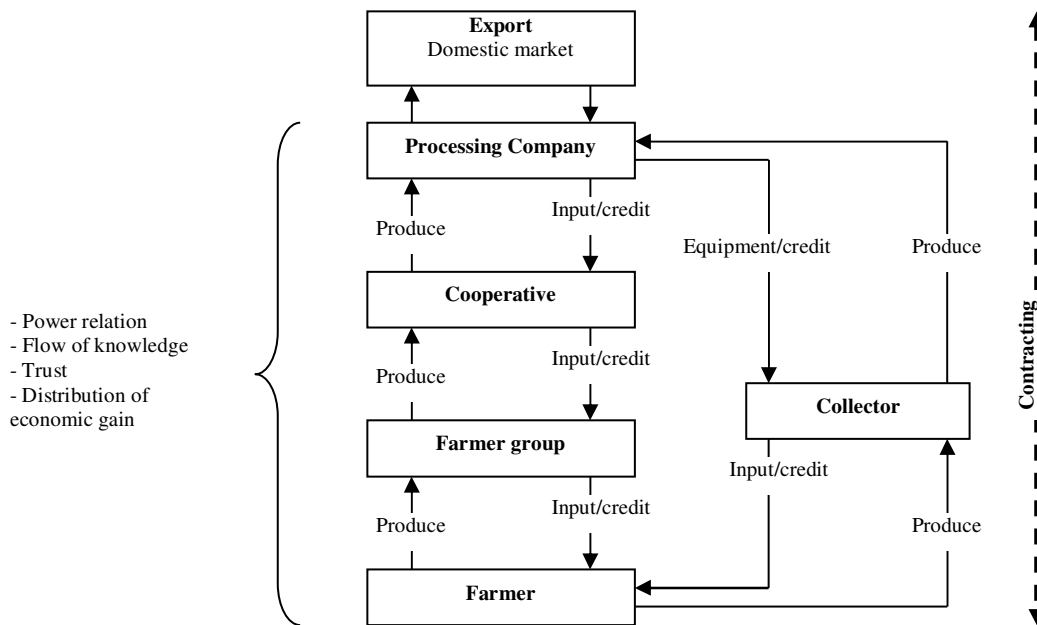


Fig 2. Vertical relations of actors involved in Tan Yen vegetable marketing system

In terms of price agreement, the household producers most of the cases accept the price without bargain. But as contrast as contract written, there seemed no shared price risk between farmers and companies. When the market price later turns out to be declining, the processing companies ignore explaining and conduct procurement at lower price than it was set or decrease quantity purchased. On the contrary, the producers might pose complaint to the company or sell their product to outer markets where price is more favorable. The lack of consistence of what both the farmers and the companies have offered in the contract caused the interference of other actors in the marketing system such as local collectors. These actors however established more equal power relationship with farmers. They can have a contract with processing companies or being free buyer-seller in the system. They are trespassing the marketing system on the middle of each harvest when there is a highly demanded quantity of vegetable for processing (commonly happened in 2007 and winter season in 2008, eliminated in 2009). Local collectors verbally contract with fewer requirements on product quality for farmers. The farmers and collectors can bargain the price as well as the vegetable quality.

Flow of Knowledge: When producing vegetables for processing companies, Tan Yen household producers receive technical assistance from staff of District Center

Extension, Station of Plant Protection, Department of Agriculture and Rural Development, and technical staff from the processing companies. It seems that the processing companies do not have the capacity to provide technical assistance in a regular basis to all producers, particularly to those producers located in scattered production areas in the district. Hence, they reach for the collaboration with communal extension staff, village leader (who has high experience in vegetable planting), cooperative members, or even sector-related agencies at the district level. Since this agri-business has much contributed to the total outputs of the district, the local government is willing to provide the best of their human capital as needed in this sector. Most of assistance technician hold university diploma in agricultural science. They frequently come to the production field to supervise and provide technical advice. Beside, training courses and classes have mainly been held on specific topics regarding integrated pest management, good agricultural practices, and sustainable use of natural resources. Farmer's participation has been increasing as resulted in high productivity and yield of vegetable production. However, farmer producers complained that they expected longer and more specific details of production management classes that guide and instruct them to practice in each stage of vegetable growing process. The fact that vegetables are easily infected by insects and diseases

that causes overuses of pesticide in production. As has been indicated before, there was no such of information

Trust: Trust plays a crucial role in the selection of suppliers and buyers in Tan Yen. The level of mistrust seems to be high and mutual, between household producers and processing companies. Some household producers complained with respect to some processing companies, that the level of commitment between both parties is unequal and there is lack of transparency. On the other hand, some processing companies claimed that some producers are dishonest because they do not rigorously take their responsibility. The results from the interview reflect that many household producers have had problems with payment, which are cases that the processing companies do not pay in the agreed time and price or even purchase the products they contracted.

Also, it were cases that some processing companies do not keep their verbal promises to household producers, for example, providing additional inputs or premium buying prices. In contrast, the processing companies reported a high rate of compliance failure from household producers. In relation to the above, some producers have monthly cost overruns; this means earning from the contract with processing companies is not enough to cover their expenses. Otherwise, farmer producers sell part of their product to other processing companies or outer market as mean to earn additional money during that particular time. On the other hand, this situation is persistent at the cases that free market price is remarkably higher than the contracted price (cases in Viet Lap communes). Consequently, these processing companies have become more selective to sign contracts with household producers or even representative production areas where trust has been secured between both parties.

Regarding the safety issues, farmer producers and processing companies both know that vegetable production could not be produced without pesticide use. However, there are very rare cases that household's production practices complied with instructions of technical assistance provided by the companies or sector-related agencies.

or training classes about how to help producer farmers to access the market.

Distribution of Economic Gains: The general perception of vegetable household producers in Tan Yen is that the economic gains are not fairly distributed among actors in the marketing system, particularly between household producers, the local collectors, and the processing companies. It is common that those who acquired advantage of available owned capital can easily earn their profit by marketing margin. As market is highly demanded, collectors can buy large quantity of vegetable harvested faraway production areas and sell to processing companies at the premium much higher than the price the farmers can receive. Surely are the processing companies could achieve more economic gains than all other actors in the marketing system. Foreign markets are willing to pay the premium as double the production cost of a bottle of processed baby cucumber³.

Net profits of actors in the system were computed by the calculation of gross margin minus the marketing cost. According to the result shown in table below, the processing companies also had the highest net profit of 3566.4 VND per kilogram of baby cucumber and 2812.6 VND per kilogram of baby tomato. Being at the top of the market demand in the local, they were those who took advantage of scale in production as well as access to favorable market in developed countries where price premium is well-paid. However, the profit was high but, the volume of vegetable sold was not stable. As their transaction depends on foreign money, they also have to face risk of the unstable exchange rate and world price volatility. The local collector achieved lower profit, which were 408.5 VND per kilogram of baby cucumber and 243.5 VND per kilogram of baby tomato. Yet these earns per kilogram of vegetable were much better than what the household producers have received (minus 748.7 VND/kg of baby cucumber and 69 VND/kg of baby tomato). This unfair benefit gain referred to inefficient marketing system.

³ Interviews with Viet Nga Company implicate that fact that they can sell one bottle of processed baby cucumber for more than one dollar in the Eastern Europe markets while the purchasing price of baby cucumber for farmer in Cao Xa communes ranges from 3500 VND to 4000 VND/kg. If the foreign markets are not stable; the farmers producers are only those who bear the most influence of procurement rejection or decreasing in purchasing price

Table 1. Net profit*

Categories	Gross margin	Marketing cost	Net profit
Baby cucumber			
Farmer	-409.2	339.5	-748.7
Collector	740	331.5	408.5
Company	35066.6	31500.2	3566.4
Baby tomato			
Farmer	361.1	292.1	69
Collector	474.3	230.8	243.5
Company	33312.5	30499.9	2812.6

* calculated for VND/kg

3.3.2 Horizontal Linkages

Horizontal relation between actors in the marketing system was focused on interpretation of information exchange process, share of resources, and trust foundation.

Exchange of Information: The exchange of information among household producers as well as cooperatives (e.g. because household producers are part of cooperatives) is focused on discussion regarding crop

management practices, especially pests and diseases control. In Cao Thuong, some household producers asserted they disclose information about the prices they get from the different processing companies to make comparative evaluations. Some households expressed their contrast impressions about vegetable procurement rejection made by processing companies. Other affirmed they have discussed about the ideas of acting collectively to improve their situation in the system (cases of farmers in Cao Xa).

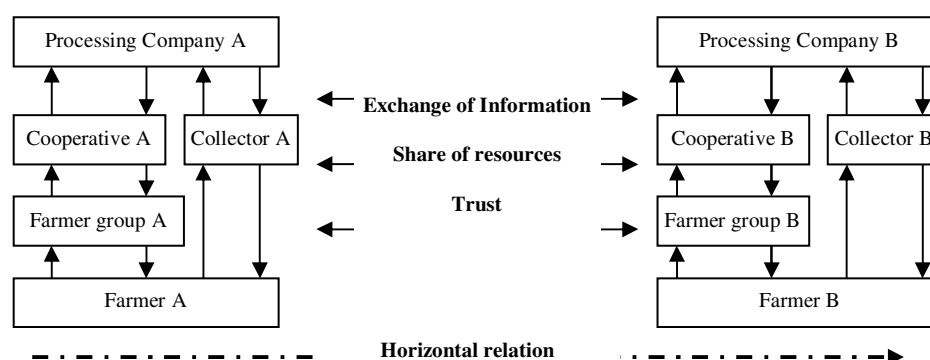


Fig 3. Horizontal relations of actors involved in Tan Yen vegetable marketing system

Collectors are also the local who are connected to farmer producers in the rural. There are not so many of them in each production areas so their business is completely independent to the other. Through out the survey, there is no case that local producers exchange the information of their business to other collectors. However, when there are nine processing companies with their businesses skirt out the entire province, their relation is more well – organized. They have founded Association of Bac Giang Food Processing and Export Company from which they schedule production plan for each kind of vegetables, procurement quantity, price setting, and strategic development to enhance their competitiveness both in domestic and global market.

Share of Resources: Share of resources among household producers or processing companies in Tan

Yen occurs seldom, except in the case of irrigation system provided by the local district and certainly the production areas for processing companies. Household producers do not buy inputs together with other household producers. Apparently, purchase of inputs has been done individually. Producers argued that they all have different input needs or preferences and not that all are ready when the inputs have to be purchased. However, there were very rare cases of household producers those who have been able to share economic resources to acquire inputs.

Household producer's collaborative efforts have been directed to pave the road that build the inter-commune transport. Nonetheless, their actions are oriented to improve condition of infrastructure, which appears to have been within a communitarian context, often involving members of several sectors including

communal organization, local government, cooperation agencies and private enterprises.

Trust: Tan Yen household producer's mistrust on the leadership and suspicion on their own benefits has severely damaged the coalition of the cooperative. Actually, the cooperative did not take an active role in the price and quantity procurement negotiation with processing companies. Some local officials and household producers share opinion that this organization has never been able to consolidate in part due to the lack of reliable leadership. And on the other, the poor share of resources suggest that relationships among processing companies are distinguished by mistrust, which is reflected in some processing companies discomfort with the attitude some others have assumed to protect their interests. This fact is apparently regarded as an evidence of skepticism. In this context, a processing company expressed that well established companies make difficult the prosperity of smaller companies.

4. CONCLUSION

Tan Yen vegetable marketing system was characterized by moderate vertical linkages and weak horizontal linkages between participants. The unbalanced power relation, enhanced flow of knowledge, level of mistrust, and unfair distribution of economic gains were found in vertical relationship between factors in the system. The limited exchange of information, inability in sharing of resources, and mistrust among processing companies were specified as the horizontal relationship. The low margin was observed for farmer and local collector but, incredibly high for processing companies that finally resulted in large profit for them. The comparison between the selling price of the producers and the gross margin, the selling price and the marketing cost, and the marketing cost to the profit, which can be concluded that the market of Tan Yen vegetable (baby cucumber and baby tomato) was relatively inefficient as profit was substantially large for traders.

The proposed recommendation are based on the problems and challenges emerged for vegetable marketing in Tan Yen as such: strengthening the institution structure of the system, increasing the unawareness of resource availability and sustainability, providing the requirement of standardization, and legislating the effective regulatory policies in Tan Yen.

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