

PROJECT MANAGEMENT UNIT OF AMD PROJECT IN TRA VINH

Research Report

MARKET SYSTEM ANALYSIS

**TO DEVELOP A PLAN FOR IMPROVING PEANUT VALUE CHAIN IN
TRA VINH PROVINCE, VIETNAM**

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ACRONYMS

AMD	Adaptation to Climate Change in the Mekong Delta
BDS	Business Development Service
CGs	Cooperative Groups
DARD	Department of Agriculture and Rural Development
DIT	Department of Industry and Trade
DPI	Department of Planning and Investment
HPs	Household Producers
OCOP	One Commune, One Product
PFCs	Preliminary Processing and Commercial Processing Facilities
PVC	Peanut Value Chain
SME	Small Medium Enterprise

1. CONTEXT

Peanut is considered as one of the advantageous products of Tra Vinh, as the province has the largest sandy area in the Mekong Delta (about 17 thousand ha) suitable for peanut cultivation. The area is mostly concentrated in four districts including Cau Ngang, Duyen Hai, Chau Thanh and Tra Cu (Statistics Yearbook of Tra Vinh province, 2017). Moreover, with such natural conditions, it is very appropriate for the province to implement the policy on restructuring the agricultural sector towards an effective land-use by conversion to the proper crops, and thus contributing to better come for farmers, especially the poor whose livelihoods are vulnerable to climate change. The main production of peanut in Tra Vinh takes place during the Winter-Spring season, starting from November or December and ending around March or April of the next year, with up to 80% of the peanut planted area (DARD of Tra Vinh province). Yet, in recent years, the quality of raw and processed peanuts have shown signs of decline due to farmers planting different varieties on the same field as well as lack knowledge on improving land fertility over the years of cultivation, which have led to various plant diseases, especially nematode. As farmers merely focus on planting peanut in the dry season, the quantity of seeds in other seasons is not sufficient for the main season. Currently, only about 20% of the seeds is self-saved by households from the previous seasons for planting or bought from other farmers who have accessible seeds produced in the wet season. 80% of the remaining seed sources must be purchased with high prices from Daklak, Tay Ninh and the Southeast provinces, which on the other side lacks quality control. Consequently, according to the provincial statistics, for the period from 2012 to 2016, the planted area shows signs of a slight decrease (an average decrease of 1.3% per year) and the yield has almost remained the same (average increase of 0,7% per year). In the stage of processing and consumption, while there are many advantages in production, the benefits from making value-added products from raw materials, as well as processed peanuts are relatively modest. In addition, peanut products are mostly purchased through collectors within the province. Household Producers (HPs) and Cooperative Groups (CGs) have not yet built up their vertical operational linkages with input suppliers (seeds, fertilizers and pesticides) and with buyers (collectors, wholesalers/retailers and processors). Hence, the producers still face many difficulties in selling their products.

Given the above context, it is necessary to analyse the operations of the distributive channels in Peanut Value Chain (PVC) of Tra Vinh province with the aim at achieving the below research objectives.

2. RESEARCH OBJECTIVE

2.1. Overall objective

The objective of this research is to develop an intervention plan to support and promote the development of PVC, focusing on improving the supply of seeds both in terms of quality and quantity, to the peanut farmers in Tra Vinh province and other large peanut area located in the Mekong Delta. At the end, the research shall contribute to better revenue of the actors involved in the PVC, especially the HPs and thus increasing the turnover of the entire PVC in Tra Vinh province.

2.2. Specific objectives

So as to achieve the overall objective, the following specific objectives are set:

- (i) Assesse the current peanut production and consumption in Tra Vinh;
- (ii) Analyze of the market system of peanut products in Tra Vinh;
- (iii) Identify the gaps in the PVC, from which to propose alternatives and actions to improve the PVC, which contributes to increase the profit for the whole value chain.

3. RESEARCH METHODOLOGY

3.1. Collecting information

3.1.1. Secondary information

To analyse the value chain and market system, the research used a set of secondary information such as available studies related to the peanut production, processing and marketing, annual reports of the Tra Vinh Department of Agriculture and Rural Development (DARD), Tra Vinh Department of Industry and Trade (DIT), Department of Planning and Investment (DPI), project on Adaptation to Climate Change in the Mekong Delta (AMD) and Small Medium Enterprises (SME), Tra Vinh People's Committee and four researched districts including Cau Ngang, Chau Thanh, Duyen Hai and Tra Cu.

The purpose of collecting secondary information is to capture an overview of the market system as well as status of production and consumption of peanut products and the current interventions from the central and local levels in order to promote commercial peanuts and seeds. This step is the basis for identifying the informants to provide primary information, deepening the explorative findings as well as making suggestions for applicable and effective chain upgrades.

3.1.2. Primary information

The collected primary information is used for further analysis by methodologies as follows:

- (i) Focus group discussion with peanut producers and consultation workshops with organizations/units supporting the PVC and government bodies.**

The group discussions involved representatives from the four districts that have large areas of peanut cultivation namely Cau Ngang, Duyen Hai, Tra Cu and Chau Thanh, as well as 58 peanut HPs. Among HPs, there were 15 poor households and 36 families of the Khmer ethnicity. The main consultative contents vary including illustration of the peanut input and output markets, as well as advantages / disadvantages and difficulties of the peanut HPs in the production; public and private supportive service organizations; constraints and supports in terms of policy, environment, culture and regulations at the local and central levels.

(ii) Consultation workshop

The workshop involved multi-stakeholders such as ADM and SME project coordinators, leaders of Agriculture and Rural Development Offices of four districts including Duyen Hai, Cau Ngang, Chau Thanh and Tra Cu, peanut farmers, traders (collectors/wholesalers and retailers) and processing facilities. The discussion focused on technical, economic and environmental support activities that the projects and the agricultural sector provided to the peanut HPs in production and trading; reviewing the policies/institutions and regulations of local governments and agricultural sector that have or shall have a positive impact on or interfere with the production and marketing of actors participating in the PVC. These consultations aimed to both double-check and deepen the findings collected from the group discussions with the peanut farmers.

(iii) Direct interview with actors in the peanut value chain

In addition to the actors involved in the PVC in Tra Vinh, interviews have also been conducted with peanut farmers in the other provinces. They were five peanut farmers in Long An, Tay Ninh and An Giang, three peanut breeding families in Long An and An Giang, three peanut traders as well as four collectors/wholesalers in Long An and An Giang, two peanut Preliminary Processing and Commercial Processing Facilities (PCFs) in Long An and Vinh Long and other three PCFs in Tra Vinh. The purpose of interviewing with these actors was to capture information regarding advantages and disadvantages that these actors have encountered and have been encountering in production and trading, then identify solutions to promote the improvement of their business, and upgrade the PVC system of Tra Vinh.

(iv) In-depth interview

Informants were four scientists in and outside the province, leaders of the Department of Industry and Trade, Department of Agriculture and Rural Development, Agriculture and Rural Development Division in four districts. The purpose of in-depth interview was to consult their opinions on development of technical, economic and institutional solutions to upgrade the PVC in Tra Vinh.

(v) Observation

Observations have been made with restaurants, eateries, supermarkets, convenience stores, wholesalers and retailers, where visual assessments on behavior of consumers and owners of restaurants, eateries, supermarkets, and retailers in order to complement the analysis contents of this research.

3.2. Analysis method

The following data analysis methods were used in the research:

3.2.1. Descriptive statistics and value chain analysis

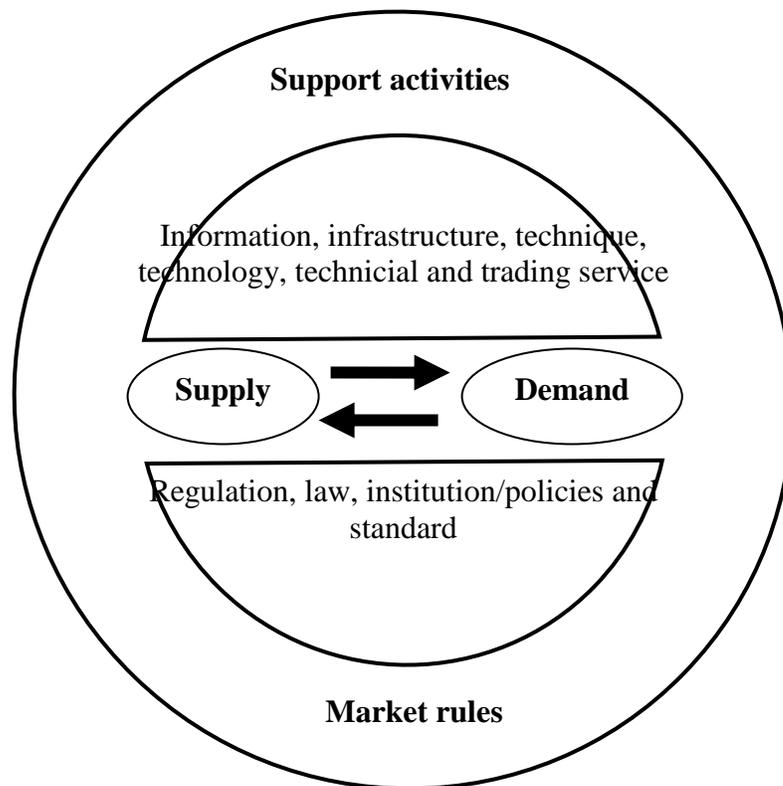


Diagram 1: Market System Development Model

To address Objective 1 a number of descriptive statistical tools were used notably concentration and volatility measurements, relative and absolute numerical analysis to analyze the actual situation of peanut production in Tra Vinh e.g. average yield, fluctuation of the peanut areas and productivity and ratio of seasonal areas under peanut production. At the same time, the research conducted the PVC analysis - specifically using the value chain diagram tool to distinguish different chain actors and their functions, analyze activities of the actors involved in the chain along the entire chain

from input-supplying to output-selling stages (Lumi Peter Roco and et al, 2016; Anja Faße and et al, 2009; Jacques H. Trienekens, 2011).

Meanwhile, the research applied market system development (MSD) analysis including the problem - solution tree in order to achieve the second and third research objectives. These two methods are described in detail in the following parts in this document.

3.2.2. Analysis of Market System Development (MSD)

The research has the Market System Development (MSD) tool to define the business environment of the PVC in Tra Vinh, including regulations, rules, institutions/policies, standards, as well as market functions (e.g. information, infrastructure, skills, technology, technical and business services). Although formal market rules were not encountered the exercise described other factors e.g. internal and external that influence transactions in the chain (Diagram 1). Hence, the major challenges were identified, and interventions to promote development of the PVC in Tra Vinh were formulated accordingly.

3.2.3. Problem-solution tree analysis

After analyzing the value chain and MSD, the research team synthesized the findings so as to construct a problem tree applying causal relation concept (cause-effect relations). Accordingly, solutions to address the promotion for improving the PVC were identified. Via a consultation workshop, the identified issues and causes were introduced to the related stakeholders of the value chain, local authorities, relevant departments, and AMD and SME projects for discussion and verification. The workshop was a platform for critical dialogues amongst parties to discuss, recognize, verify and supplement the issues and causes. At the same time, the participants in the workshop also discussed and jointly identified the prioritized solutions to upgrade the PVC with the aim of effectively contributing to development of the province's peanut market system.

The problem tree analysis helped the parties get an overview of all known causes and their impact on the functioning and effectiveness of the PVC (Nicola Brignani, 2013). For instance, the reasons of high production cost of a certain product may be caused by an increase in cost of inputs and labor rent, low labor working skills or low rates of return on labor costs. This step is significant in planning to engage communities or interventions as it establishes the context in which interventions that aim at improving the functioning of the shall take place. The problem tree involves writing down causes in negative forms, for example, lack of knowledge and capital shortage. Through changing the negative statements into positive statements, a causal set of solutions or objectives appear (solution or objective tree). This provides an overview of the scope and variety of project interventions needed to address key issues (Irénee Ndayambaje and et al, 2016).

The problem - solution tree analysis helps the research to identify the exact core causes of identified challenges as well as facilitating the formulation of necessary interventions (Wendy Snowdon and et al, 2008). As such the problem-solution tree tool is considered a support tool for strategizing and action planning based upon logical (cause-effect) relations.

4. DISCUSSION ON THE RESEARCH RESULTS

4.1. Status of peanut production in Tra Vinh

Peanut was assessed by farmers as easy-to-grow varieties with high economic efficiency, good drought tolerance and especially its nitrogen fixing ability to improve the soil fertility. Depending on the soil quality and regime of intercropping crops, peanut is normally produced from one to three times a year. The main sowing season - Winter-Spring usually begins around December and harvests in March of the following year. The total area of peanut planting of the entire province in this season was approximately 3,500 ha. The Summer-Autumn sub-season starts from May to August with a total area of about 350 hectares and the Autumn-Winter crop from September to December with approximate 350 hectares. The area of peanut production in the period of 2012-2017 decreased slightly by an average of 1.2% annually and the average annual yield decreased by 0.03% (Appendix 1). Although the area and yield have decreased slightly over the past 6 years, the level of reduction has not been significant, despite the drought situation occurring during the period from 2015-2016. This shows that the peanut was considered holding a resilient and stable production potential while being one of the potential products which remains its stability in the market.

4.2. Analysis of the peanut value chain in Tra Vinh

4.2.1. Map of the peanut value chain in Tra Vinh

The PVC in Tra Vinh is simplified as shown in Diagram 2. The PVC goes through several stages such as the supply of inputs (seed and fertilizer), production, collection, preliminary and final product processing, trading and consumption.

There are six main supply arrangements in the PVC at the time of the research, including:

The first distribution channel (HPs/production groups → PCFs of roasted and salted peanut → restaurant/ eateries → final consumer. The proportion of peanut products distributed via this channel is still very low.

The second distribution channel (HPs/CGs → collectors/wholesalers, PCFs in the province → PCFs: roasted and salted peanuts with shells and nuts → retailers/super market → end consumers.

The third distribution channel (HPs/CGs) → PCFs /agencies/wholesales in the province → retailers/super market → industrial consumers/end consumers.

The fourth distribution channel (HPs/CGs) → collectors/wholesalers outside of the province → industrial consumers/exporters/ PCFs outside of the province.

The fifth distribution channel (HPs/CGs) → Chinese collectors → foreign importers.

The sixth supply arrangement can be distinguished (HPs/CGs) → traders/collector inside the province → agencies/collectors/wholesalers inside the province → industrial consumers. Products consumed through this channel are peanut nuts. Industrial consumers here are mostly restaurants/eateries and confectionery processing establishments that use peanut nuts.

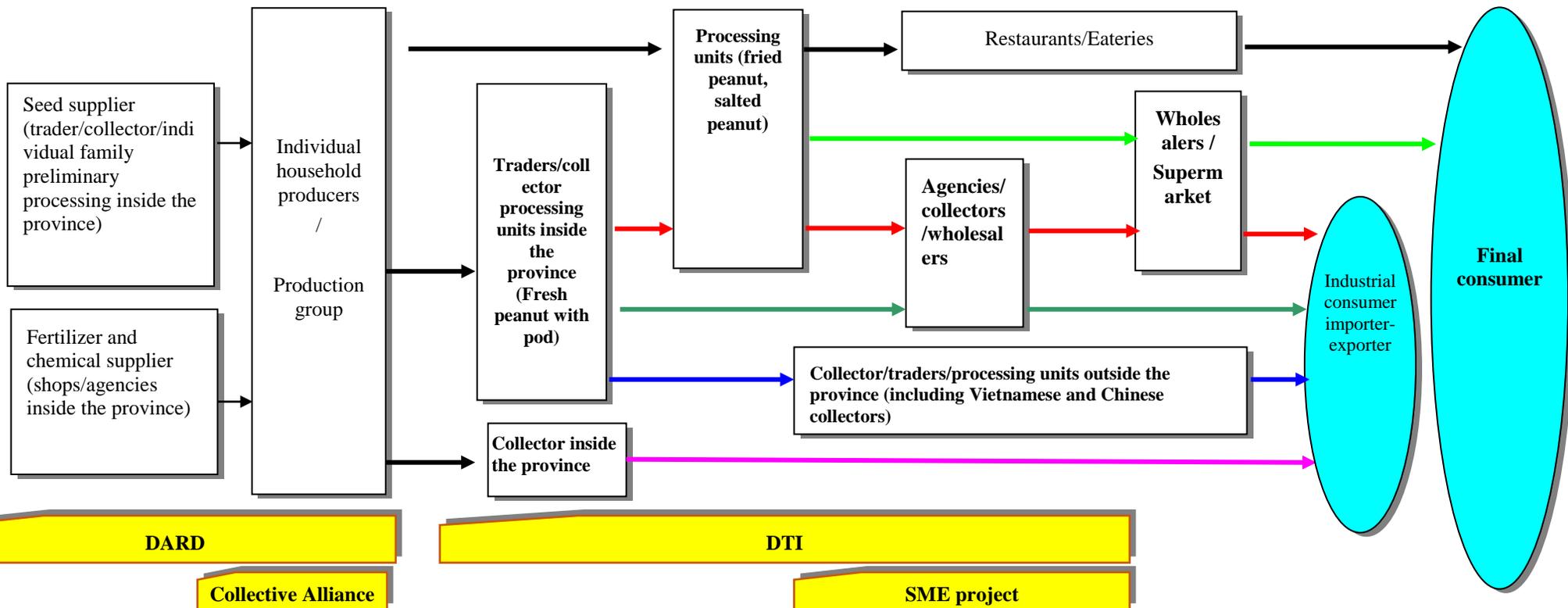


Diagram 2. Map of the peanut value chain in Tra Vinh

4.2.2. Market function of actors involved in the value chain

4.2.2.1. Fertilizer and chemical suppliers

The system of input suppliers including wholesalers/retailers in Tra Vinh was quite diverse and sufficient to provide input materials to the HPs. According to the survey, over 90% of the HPs purchased fertilizers from the whole salers/retailers of second and third levels in the communes. In which, over 80% bought at the beginning of the season and paid after harvesting. On average, these HPs had to pay an interest of 3-5% per month for the value of the purchased fertilizers.

Most of these wholesalers/retailers also sold pesticides, and at the same time, undertook additional advisory functions and instructions for the HPs in using these inputs. A few of these households were provided with seeds and fertilizers by trader/collector/businesses in advance. The later then purchased the peanuts and deducting the value of the advanced inputs. The purchase of inputs in advance and payment later was a form of traditional trading between the HPs and the input providers.

The linkage between the HPs and wholesalers/retailers has been close over years. These producers even said that they do not want or dare to switch to dealing with other whole salers/retailers either due to their long term relationships or debt status.

4.2.2.2. Peanut seed suppliers

The source of peanut seeds used during the Summer-Autumn crop (sown in April-May and harvested around August) was self-produced and stored by the PHs from the good quality commercial peanuts. This source accounts for about 60-70% of the seed demand. The remaining seeds-about 30-40% were purchased from the traders who brought the seeds from other provinces such as Daklak, Binh Dinh, Tay Ninh, Hai Duong, Long An and An Giang. Difference in price was about from 5 to 10 thousand VND/kg. Traders in the province could earn from 2 to 5 thousand VND/kg after deducting all costs e.g. transportation, loss, separation, preliminary processing, selection and cleaning.

Particularly in the Winter-Spring, the main crop (sown from about November to December and harvested around February-March), upto 85-90% of the total seeds were purchased from outside the province through traders in the province. Only about 10-15% of the HPs kept commercial seeds produced in the Summer-Autumn season to breed. Local farmers here still maintained their traditional method of seed reservation. Accordingly, after drying, seeds are stored in plastic bags and then put in a dry place for storage. The price of peanut seeds from the Winter-Spring crop was usually higher than that from the Summer-Autumn crop, with a price difference of about 10-20 thousand VND/kg.

According to the survey, peanut seeds in Tra Vinh was supplied to the HPs mainly by collectors/wholesalers or PCFs in the province. These actors mostly purchased fresh peanuts from the HPs/CGs in the province and outside the province.

For the source of peanut varieties produced within the province, the HPs normally dried fresh peanuts right after harvesting. Then, most of this was produced as commercial peanut, a small part was separated and selected good quality ones become varieties to provide to other the HPs/CGs to be used for the Summer-Autumn crop, and/or reserved (shell peanuts) for the Winter-Spring season.

Additional to intra-provincial sourcing, the above actors also purchased fresh peanuts from other provinces such as Daklak, Binh Dinh, Long An, An Giang and Tay Ninh to make varieties, then sold to the HPs/CGs to use mainly for Winter-Spring season. This is because the area of growing peanuts in the Winter-Spring season was large, while there were not enough varieties to supply to local the HPs/CGs.

As there were many different sources of peanut varieties such as MD7, L14, AR7, MD9, L23 and Dau Vo in Tra Vinh, the quality of seeds used by the the HPs/CGs, especially in the Winter-Spring season was not uniform or consistent, affecting overall quality.

In summary, the market of peanut seeds currently showed many gaps such as low quality varieties, non-pure seeds and variations in size, high humidity as well as pathogen contamination. Moreover, seed costs were relatively high since producers/cooperative groups had to purchase seeds through many intermediaries with high transportation costs. The low quality of peanut varieties has led to the increase of seed cost and low yield. In addition, according to experts' assessment, the main constraint in producing peanut varieties in Tra Vinh, which led to a shortage of seed sources for the Winter-Spring season, was the small production area in the Summer-Autumn and Autumn seasons. The main reason was due to inappropriate natural conditions and competition from other crops in the same area. All of these factors have led to the situation of low yields and economic inefficiency of peanut production and problematic seed supply for the Winter-Spring season. All of these disadvantages increased the price of peanut varieties, leading to overall low competitiveness of commercial peanut production.

4.2.2.3. The Household producers/Cooperative groups

Most of the peanuts in Tra Vinh were being produced by the HPs, the rest by the CGs (see Appendix 2). The operation of CGs was not yet highly effective in terms of both production and business. Meanwhile, the production area of household producers was relatively small and fragmented with about 2,000-3,000 m²/household on average engaging in peanut production. The average peanut yield in Tra Vinh in the Summer-Autumn season was about 600-700 kg/1,000 m², while in the Winter-Spring crop it was

about 800-1,000 kg/1,000m². The average selling price was about 12,000 VND/kg. With this productivity and selling price, on average, the HPs gain a profit of about 2-3 million VND/1,000 m²/season.

The survey also showed that the number of the HPs who used organic fertilizer microorganism was still modest, although the amount of manure (i.e.cow dung) in the production areas was very abundant. Moreover, the microbial fertilizer supply system in Tra Vinh and neighboring localities were also in existence. Some microbial fertilizer producers have come to the localities to sell their products to the HPs. The reason for the low uptake of organic fertilizing was the absence of such in the traditional production practice, therefore, the HPs were not yet familiar with the use of organic and microorganisms fertilizers. In addition, some HPs pointed out that they were uncertain about the quality of these fertilizers, so they were unsure of using them because there were currently different brands of organic and microorganism fertilizers in the market.

Regarding the irrigation stage, the field survey showed that most of the local HPs were using water wells to water their peanuts. Some households who were supported by local authorities and programs/projects, or financially capable households, have invested in sprinkler/drip irrigation systems to save water and labor.

Most of the the HPs/CGs have not yet engaged in value adding/up-value chain activities or created linkages to up-chain actors in order to shorten the value chain. They mostly sold products to traders/wholesalers in the province, while a few of them sold directly to businesses/companies, the latter only covered about 4% of the entire province's total volume. The purchase and sale has not yet formalized through contracts, and remain very much based upon verbal agreements stipulating the conditions for transactions. Such verbal agreements were merely based on reputational risks counting on the prestige or recommendation of Mass Organizations and government departments. With such loose contracting arrangements, breach of contract seems inevitable and default occurs frequently from both sides. Although the HPs/CGs were technically supported by functional units and the AMD project, to date their production capacity in using organic and microbiological fertilizers as well as self-generation of source varieties was still limited, especially regarding the effective prevention of diseases (e.g. nematode).

However, recently the AMD project has been collaborating with the Can Tho University to initiate pilot test on a small areas to prevent peanut diseases. As a result, about 90% of the tested area was successfully treated. This potentially contributes to future increases in production and economic value for peanuts of Tra Vinh. Compared to the peanut growing areas in An Giang, Long An, Tay Ninh, the mechanization in production, from planting, harvesting to post-harvest of the the HPs/CGs in Tra Vinh was still inadequate. Meanwhile, given the current context of rural areas in these localities which

faces scarce labor, labor costs were relatively high. Moreover, in the planting and harvesting stages, mechanization was seen as an advantageous technical factor for increasing labor productivity and thus competitiveness. Yet, this investment was still nascent in Tra Vinh, thus reducing the competitive advantages of Tra Vinh peanuts in the market.

The fact is that collectors and PCFs within and outside the province all acknowledged that the quality of peanuts in Tra Vinh was not inferior to those imported, and could also compete with produce from other provinces such as Long An, An Giang and Tay Ninh. There seems broad consensus that the quality of Tra Vinh peanuts was quality-wise competitive and complying with current market standards in terms of quality. However, the PVC in Tra Vinh was facing a serious challenges in production caused by the shortage of seed supply, adequate farm management and application of mechanization.

4.2.2.4. Collectors

The peanut collectors in Tra Vinh were mostly concentrated in Cau Ngang district and Tra Vinh city. However, the number of large collectors in Tra Vinh was relatively modest. There were only three large collectors notably Mr. Nguyen Van Tan in Long Son commune - Cau Ngang district, Mr. Pham Van Sao in My Long commune - Cau Ngang district and Mr. Bui Xuan Thong in Tra Vinh city. However, the market activities of these collectors were relatively diverse and dynamic. Their main function was to purchase peanuts from the the HPs/CGs within the province, then redistribute to the PCFs in the province and traders outside the province. In addition, they also had another very important function of purchasing and reserving seed sources of peanuts to supply to the the HPs/CGs, especially in the Winter-Spring season. For this purpose, they purchased peanuts from other provinces such as An Giang, Long An, Tay Ninh, Binh Dinh, and Daklak, separating them to become varieties and sell back to the the HP/CGs.

It is worth noting that peanut collectors in Tra Vinh participated in almost all stages of the value chain (providing varieties, collecting, processing and trading). This was also the reason why these actors become the most important and dominant node in the PVC in Tra Vinh. Depending on the market situation, the price difference of peanut varieties allowed collectors/wholesalers to earn from 1,500 to 3,000 VND/kg. According to the collectors/wholesalers, 1 ton of shell peanuts after separation, and selection, could yield about 0.6 ton of nut.

A recent development emerging last 2 years (2017-2018) was that in addition to the provincial collectors/wholesalers, Chinese traders came directly to Tra Vinh to buy fresh shell peanuts, with an average purchase of about 55% of the total province's yield. In previous years, they mainly collected peanuts through traders within and outside the

province. Though the appearance of Chinese traders has contributed to overall increasing price-setting of peanut produced by the HPs/CGs, this market was very uncertain and volatile thus creating additional risks for both traders and the HPs/CGs. Moreover, if Tra Vinh and other provinces only sell fresh peanuts, the added value thus significant profit generated in the peanut value chain is going to the foreign traders (importers, wholesalers/retailers) losing opportunities for local value adding.

A paradox in the PVC in Tra Vinh is that the collectors/wholesalers in the province had to purchase peanuts outside the province to supply to the HPs/CGs and PCFs. Even in the same district the collectors/wholesalers had to use unsold peanuts to feed their cows. This finding was recorded based on the survey which was conducted in Thanh Son commune, Cau Ke district where about 30 households planted about 20 hectares of peanuts, equivalent to about 20 tons of produce. In addition, due to an absence of linkage between collectors/wholesalers in Tra Vinh, the profit in the PVC was eventually cut off for the collectors/wholesalers outside the province.

4.2.2.5. Preliminary and commercial peanut processing units

Currently, there were 12 commercial peanut processing facilities (PCFs) in Tra Vinh with different scales of operation. However, most of these units operated at a small-scale with traditional technique applications, and were not much interested in market and marketing, product promotion, label and packaging. The half-processed and processed products from Tra Vinh included boiled beans, roasted shelled beans, roasted salted beans, roasted beans with chili and peanut candy. Product packaging and labels were fairly simple, not really attractive to consumers.

PCFs often took part in both collecting, supplying varieties and trading. They purchased fresh peanuts for drying, nut separation and then reselling to the HPs/CGs to boil, roast and sell to restaurants or wholesalers/retailers in and outside the province. In general, the market function of this actor was wide, but its processing and business capacity was still inadequate. Business awareness of these actors was similar to that of most small and medium enterprises operating in food processing for local markets. They were satisfied with the traditional way of production with small-scale processing, and hence not willing to invest in packaging, labeling, product promotion. Therefore, they were not tapping in complementary market options or opportunities for value adding through differentiating product-market combinations including potential export markets. At the time of study, it was found that popular products in the local markets like roasted peanuts, roasted peanut with salt and roasted peanuts with chilli and salt produced by the Provincial PCFs were under strong competition of similar produce from China offered at the local markets. The competitive advantage in price of these products mainly relates to the processing technology and quality factors. Chinese peanut products were more

uniform and better-looking than that of Tra Vinh. In addition, some PCFs in the province have been supported by the Department of Industry and Trade and the AMD Project to encourage the creation of beautiful, eye-catching packaging products. Yet, they still lack of motivation to improve the quality, design of packaging and labels. This lack of motivation to invest in enhancing marketing features like packaging hampered local produce to enter and retain a position in upmarket value chains like supermarkets, convenient stores or restaurants.

4.2.2.6. Commercial peanut wholesalers

Wholesalers of the commercial peanuts in Tra Vinh mainly purchased shell peanuts from collectors and PCFs (all kinds of roasted peanuts and peanut candy) inside the province. The purchased produce they resold to retailers in district markets and provincial supermarkets and eventually to industrial consumers. The industrial consumers are restaurants, eateries and confectionery processing facilities that use peanut nuts as one of the input materials of the main products supplied to restaurants, eateries and confectionery.

According to the survey, about 50% of unprocessed peanuts was purchased from collectors/wholesalers outside the province and imported from India, China, Laos, Cambodia and Thailand. This was because of the low peanut supply of Tra Vinh. However, the quality of peanuts produced in Tra Vinh was higher than that of purchased peanuts from other provinces and imported sources. This appreciation for the local produce was based upon the thin silly shell and hard grain of Tra Vinh peanuts.

4.2.2.7. Retailers/Supermarkets

Retailers often sold their processed and raw peanuts (boiled and roasted products) in grocery stores at markets and small local grocery stores. These retailers mainly bought products from wholesalers/collectors (raw peanuts) and PFCs (roasted peanuts of all kinds). In addition, supermarkets within and outside the province also took part in the retail market of peanuts, mainly processed products. This actor redistributed the products to both the end consumers and industrial consumers within the province. Yet, the consumption volume through this channel was still not significant, counting for 2% of the total marketed volume only.

4.2.2.8. Restaurants/eateries/industrial consumers

There were two main groups of restaurants/eateries participating in the PVC. The first group is only involved in trading. This group purchased the processed peanuts (boiled and roasted products) to resell to the end consumers. The second group took part in industrial consumption. This group paid more attention to the quality characteristics such as nut size and fatness. Although the consumption per meal/party was not much, in

return, this consumption was regular with the large number of eaters, the gained profit in this stage is normally high. It should also be noted that the price must be competitive due to the frequency and large volumes of purchases of the industrial consumers each time. Profitability is guaranteed by large volumes per transaction not the number of transactions.

4.2.3. Bottlenecks in the peanut value chain

4.2.3.1. Input supply

As analyzed in Section 2, the HPs/CGs basically did not have difficulty in accessing inputs such as inorganic fertilizers and pesticides. Exceptions were the access to secured quality varieties of seed material and organic/micro-organic fertilizers. According to experts, there has been a phenomenon of varieties' degradation due to the fact that too many different varieties sources have been introduced and grown in the province, even those of unknown origin. In addition, there was a number of the HPs that have used commercial peanuts for breeding. Along with the use of varieties over the years and in unsecured storage conditions, it has led to a low quality of products with high production costs. Basically, Tra Vinh was not able to meet the demand for peanut seeds for Winter-Spring season because the available area of peanut production in the rainy season was too small, about 350 ha. Hence, almost all peanut varieties for Winter-Spring season had to depend on the sources purchased from outside provinces. This situation of not being able to meet own demands led to the situation that the HPs in Tra Vinh must accept to purchase peanut seeds with high price but low quality. Moreover, transportation costs have also contributed significantly to the price of peanut seed, about VND100,000/ton. Along with the transportation cost, also overall costs for seeds has increased due to the high demand for varieties in Tra Vinh and other provinces for the Winter-Spring crop.

According to the evaluation by local technical staff at all levels, as well as experts from research institutes and training institutions, the use of organic fertilizers and microorganisms instead of inorganic fertilizers has so far not been popular in Tra Vinh. The reason is that some of the producers have not yet changed their perceptions regarding the adverse impacts on soil quality from the use of inorganic fertilizers. On the other hand, HPs doubt the actual positive effects of using organic fertilizer and microorganisms and are not convinced enough to change current practices. Advantages of using organic fertilizers as compared to chemical ones as well as proper trails and demonstration efforts to educate and convince farmers have been lacking so far resulting in the limited take-up of the use of organic fertilizerers.

4.2.3.2. Production

There was broad consensus amongst stakeholders that one of the factors which limits the competitiveness of Tra Vinh peanut products was the inefficient ability to mechanize the stages of planting, harvesting and post-harvesting. Compared with other provinces with large peanut growing areas such as An Giang, Tay Ninh and Long An, the level of mechanization in peanut production in Tra Vinh was still relatively low. Reasons for low levels of mechanization were the still traditional production practices and limited accessibility of and/or interest in innovative technologies. The survey showed that many HPs did not even know the name of the peanut varieties that have been used. They even did not remember and were not sure the brand names of the pesticides and fertilizers used. This affected the cost of peanut production of Tra Vinh negatively- resulting in one of the core competitive disadvantages of peanut products of the province.

The consequence of technical gaps in the production process may additionally be one of the reasons that HPs could not control the fungal disease of peanut fruits caused by nematodes over the past years. This has reduced the quality of the outside appearance of peanuts as well as the value of raw and roasted peanut products in the value chain.

In addition to the technical limitation on the level of production, the HPs still lack of market and business capacity, especially in understanding the price-setting for their produce and in their ability for collective action for example in the purchase of fertilizers or seed stock. During the survey, it was realized that not one HP conducted record and calculation of the production costs. Most of the HPs/CGs were also passive in connecting with buyers.

Another difficulty is that the overall area suitable for peanut growing is limited, particularly limiting production in the rainy season. Moreover, other natural conditions like unfavorable weather, temperature and drainage may affect production figures. Meanwhile, the experiment of peanut growing in the rainy season has just been initiated by the AMD project, so that, the results related to economic efficiency were not yet evaluated and summarized to their full extent. Another option could be investments in building a system of storage facilities enabling the preservation of seeds in the Summer-Autumn season (about 5-6 months) to be used for the Winter-Spring crop.

Although the current shortage of water for peanut crops in Tra Vinh was not yet common, in the long term, according to experts' assessment, the use of water from drilled wells would affect the under-ground water level. While some HPs were using river water, others applied sprinkler/drip system to save water source and labor.

4.2.3.3. Collection

One of the difficulties faced by collectors/wholesalers/PCFs was the current practice of relying on informal verbal agreements with suppliers causing high levels of contract breach and default. Moreover, the production area of the HPs was still

fragmented and small, increasing costs for sourcing and bulking and affecting uniformity of produce. In addition, the competition from Chinese traders has caused many difficulties for creating vertical linkages between domestic collectors/wholesalers/PCFs, while it was in the meantime questionable whether the purchasing activities from Chinese traders are really sustainable.

4.2.3.4. Preliminary and commercial processing

Since most of the PCFs in the province are Vietnamese enterprises, they still operated based on the traditional business awareness and habits. Although there was a number of PCFs that have been supported by the AMD project to develop new products, they did not seem willing to scale such innovative practices or technologies. Design, packaging and labelling of products was still very basic, hence not really attractive to consumers. Additionally the PCFs were not very interested to invest in quality machinery and equipment that could enhance quality. For example, the local peanut PCFs were currently still using coal drying equipments affecting the quality of food hygiene and safety so the products would not be licensed for trading. Additionally, the production units still lacked 3-phase power supply in using electric devices. The PCFs also did not yet engage in product promotion and trading. In addition, as mentioned above, the market linkage capacity of these actors was also very limited, mainly relying on the traditional markets only, not looking for market diversification and new product market combinations. Specifically, most of the confectionery PCFs sold their products to supermarkets, but taken the brands, packaging of these supermarkets.

4.2.3.5. Trading

As analyzed in Section 2, one of the weaknesses in trading is that the actors in the value chain were not able to control the quality, quantity and price of peanut varieties purchased from other provinces in order to supply to the HPs/CGs. Apart from the imbalance peanut supply- demand relationship in the Winter-Spring crop, there was still no link or coordination between collectors/wholesalers within the province when buying peanut seeds from other provinces.

In addition, Tra Vinh's peanuts were facing stiff competition from suppliers from other provinces in the country, as well as from imported produce from China and India. This despite the quality of peanuts of Tra Vinh having great competitive advantages as regarded superior in quality as compared to offered produce from elsewhere. According to experts, one of Tra Vinh's causes of the peanut quality decline was due to the degeneration of varieties. Also, according to the collectors, who often purchase peanut seeds from other provinces, the quality of peanut varieties from those locations has failed to compare to the quality of Tra Vinh peanuts yet collectors have to purchase peanut

seeds from such locations because Tra Vinh did not produce enough seeds to provide to its farmers.

In addition, packaging and label of Tra Vinh's processed peanut products were not yet attractive to consumers with limited interest of processors to improve on this in the short run.

In summary, the research results indicate that there were still some bottlenecks in the peanut market system in Tra Vinh. These challenges were currently severely constraining the further development of the value chain for Tra Vinh peanuts. The most prominent bottlenecks were shown in Figure 3.

4.3. Analysis of the value chain supporting function

4.3.1. Peanut seeds supply and production services

Currently, there was not any economic organization acting as a convenor and bridge builder to connect and coordinate among traders to provide seed-stock meeting demands in terms of quality (consistency, quality of varieties) and volume (particularly for the winter-spring season). The inability for concerted or coordinated action in seed supply seriously limited the bargaining power of provincial actors in dealing with suppliers from outside the province. The limited bargaining power made it difficult to demand guarantees concerning quality of supplied seeds and in negotiating reasonable and fair price-setting.

Despite the reality that the local demand for peanut seeds outstrips the local supply systematically, no efforts have been undertaken yet to develop a plan for setting up areas for peanut seed production or invest in storage and preserving facilities and services to provide sufficient peanut varieties for local HPs/CGs from own sources.

Due to the absence of coordinated and long-standing linkage between the HPs/CGs and the varieties suppliers, stable markets for good quality peanut seeds have not yet been formed in Tra Vinh.

The above three interactive constraints have made the peanut production of the HPs/CGs in Tra Vinh increasingly dependent on the external markets for peanut seed stock, thus creating instability and reliance/independence for the provincial peanut sector as a whole.

4.3.2. Trade promotion and business support services

One of the weaknesses of the peanut PCFs in Tra Vinh is related to the lack of capacity to add value to the products. The roasted peanut PCFs were not really interested in improving packaging and labeling. The peanut separating PCFs only focused on selling fresh nuts to retailers and wholesalers. They still had no idea about expand their

markets by making roasted peanuts or peanuts roasted with chili and salt. The peanut candy processing facilities were still not interested in building their own brands. They just prefer to sell their products in the forms of non-branded product for big supermarkets. These supermarkets then used their own packaging and labels to pack and sell products to the end consumers. The results of the survey showed that processors prefer to wholesale their products in modest ways, hence, it was not necessary to invest in product promotion while they did not have to invest and avoid risks caused by the market instability.

Over the past years, the Provincial Center for Industrial Promotion, AMD and SME projects and Department of Science and Technology have mobilized and invested in provincial PCFs to develop processed products with value added while building and registering labels for those products. However, actual take-up was low and concerned PCFs have not yet invested in any progressive moves. They mostly pursued the increase in profit and added value through the difference in market prices. They have not focused on generating profit in the long term, especially in the context of the increasing economic integration. Recognizing this inadequacy, the Department of Planning and Investment, the Department of Industry and Trade and the SME project also had training and support activities for the PCFs in order to improve their market and business capacity. Yet, the capacity building efforts were not really effective in reality. Currently, there was not any private organization/unit in the province which provides business support services to processing units, except for the Department of Planning and Investment where there was a Business Support Office to support enterprises, yet merely limited to rendering legal aid services.

In addition to the limitations in processing, another weakness of the PCFs was the capacity to organise production and engage in coordinated marketing efforts. The survey showed that the actors engaging in product and trade promotion were relatively passive. They only focused on sale, not using marketing tools to promote their products, thus were not willing to invest in branding, packaging and promotional activities. Therefore, compared with some other products of the same type, Tra Vinh peanut products were not yet a preferred choice of consumers, and the competitiveness with other products produced elsewhere was limited. Meanwhile, there was currently not any organization/unit in the province, that could provide marketing services or capacity building services in marketing to the PCFs. Some support has been offered in the past though; the Department of Industry and Trade yearly organized events to promote products such as fairs, exhibitions and markets held in Tra Vinh and Ho Chi Minh City for the PCFs. Additionally, there has been the support of many projects such as GTZ, IFAD, CIDA, SME in the field of trade promotion over the past decade. However, the effectiveness of this kind of support has apparently not been very effective, leading to

significant changes. According to the assessment of the Department of Industry and Trade and experts, the cause of this obstacle was due to the small scale of production and processing of the PCFs. The product design was not yet attractive, while the business awareness of these facilities was very modest. Therefore, these PCFs were still not really ready to capitalize in improving and promoting their products.

Survey results showed great confidence of all actors in the chain regarding the supreme quality of Tra Vinh peanuts all claiming that their peanut quality was the best compared to those produced in other locations. However, until now, there has been no any official research or recognition of this supreme quality that could aid and improve the market positioning of peanut products from Tra Vinh. Through the sectoral expert's assessment, the quality of Tra Vinh's peanuts was competitive, but tended to decline due to the situation of dissimilar varieties quality. In addition, Tra Vinh peanuts were relatively expensive compared to peanuts produced elsewhere. According to experts, the main reason was due to the low mechanization rates and degenerative seed quality which causes a reduction in the productivity. Both issues were currently addressed by the local authorities and AMD project. Yet, how long foreseen support will last and how it will be shaped concretely has yet to be answered.

4.3.3. Supporting to value chain establishment

The actual surveys of actors in the value chain, as well as the results of consultations with local authorities, functional departments and sectoral experts show that the vertical linkages among the actors in the PVC in Tra Vinh were limited. Moreover, the nature of the linkages between the HPs in the CGs in Tra Vinh in selling outputs and supplying inputs (fertilizers and peanut varieties) was still very weak. Although at present, the CGs have been supported by several functional bodies such as Department of Agriculture and Rural Development, Cooperative Alliance, Local government at all levels and domestic and foreign programs/projects, the weakness in the input supply has remained and slows down the market power of HPs in dealing with fertilizer dealers/stores. This has restrained the cost effectiveness of HPs, as due lack of bargaining power, prices for inputs were relatively high as compared to competing producers elsewhere.

4.3.4. Services for supplying agricultural machines

In the context of increasingly scarcity of rural labor, together with the high demand for labour input in peanut production, mechanization in stages of production, harvest and post-harvest becomes relevant and could potentially contribute to reducing the production cost, and thus improving the competitiveness of Tra Vinh peanut value chain. The actual surveyed show that the price of peanuts in Tra Vinh was often higher than that in other places. However, compared to An Giang, Long An and Tay Ninh, the

level of mechanization in peanut production in Tra Vinh was still lower. Currently, there were not any public and private economic organization in the province providing this service, as well as machinery and equipment to the HPs/CGs. So far no local research efforts have been carried out to mechanize the peanut production in Tra Vinh.

4.3.5. Agricultural extension services

The survey results showed that very few HPs were using organic fertilizers and microorganisms to fertilize their peanuts, although the amount of cow dung in the locality was high and the market for microbial fertilizer is relatively abundant and potential. Due to the traditional farming practices, HPs were not familiar with the use of manure to make fertilizers for crops, although local authorities have also instructed farmers to adopt techniques for making and using organic fertilizers. According to local officials, the HPs who raised cows and grow vegetables prefer to collect cow manure for sale rather than use it to make organic fertilizers for own use. Vegetable growing HPs that did not raise cows, considered making and using microbial fertilizers as too time consuming. Also, many HPs complained that, at present, they can't assess the quality of microbial fertilizers in the market. This has hindered their motivation to use microbial fertilizer instead of inorganic ones. In addition, market information (quality and price) of the microbiological fertilizers which was currently circulating in Tra Vinh has not been effectively communicated by the authorities to farmers in general and the peanut HPs in particular.

The AMD Project was currently conducting a research to build the peanut production process in the rainy season in collaboration with the Department of Agriculture and Rural Development. The aimed to ensure a sufficient source of peanut seeds for Winter-Spring season. The AMD project also collaborated with the Department of Agriculture and Rural Development to implement a demonstration model and replicate the sprinkler model for the farmers in order to save water for peanut cultivation.

The reality was that, although the HPs in the study areas have cultivated peanuts for relatively many years, their production techniques were still limited. Particularly their knowledge regarding peanut varieties and pesticides they used and amounts of fertilizer used was very limited. The peanut growing area of the province were presently suffering from the black fungus disease on peanut fruits caused by nematodes. Currently, the AMD project with the support of Can Tho University is conducting a study to prevent this disease. Experiments successfully treated more than 90% of the area which is no longer showing the sign of this disease. Yet, this project is only standing at model stage, but has not been replicated or scaled.

In addition, the surveys with the peanut PCFs in Tra Vinh and other localities in provinces of Long An, An Giang and Tay Ninh revealed that some actors have made use

of the peanut pods to produce organic fertilizers for their crops, especially ornamental plants. This has contributed to an increase in the income of these actors, which are peanut PCFs, thus enhancing profitability of the entire value chain. In Tra Vinh there was no facility to collect and utilize this by-product to produce fertilizers, although the technology for producing organic fertilizers using peanut pods, according to industry experts, was a proven concept and also feasible in the Tra Vinh context.

4.4. Analysis of business environment (rules/regulations) affecting operation of the peanut value chain

Although Tra Vinh has issued several policies, particularly based upon the Prime Minister issued Decision # 68¹ and # 62², to promote investments in developing key products of the province, including in the peanut processing industry, the actual impact on the ground has been limited so far. No investor has so far shown serious interest to engage in better coordination of the peanut value chain and build effective linkages between chain actors. Recently in August 2018, the Government issued the Decree # 98/ND-QD instead of the Decision # 62. This Decree seems to address realities in the market more effectively and uses value chain concept as approach in creating effective market linkages. Therefore, this was considered an opportunity to develop the market system for agricultural products in general and the province's peanut products in particular.

In addition, the agricultural restructuring program and the 'One Commune, One Product - OCOP program' is seen as another opportunity for the development of the market system for agricultural products in the province in general and the peanut production particularly. Accordingly, the Agricultural Restructuring Program provided an opportunity for an expansion of peanut growing area, replacing ineffective rice and other crops, in order to facilitate the strengthening of the peanut sector. Meanwhile, the goal of the OCOP Program is to create opportunities for business units as well as small and medium enterprises (SMEs) to develop value-added products and contribute to improving the value of peanut products. This approach would facilitate profitability for the entire chain, as well as develop more diversified market systems.

The policy of building large fields in agricultural production was also one of the long-term directions in agricultural and rural development of Vietnam and the Mekong Delta in general, and Tra Vinh in particular. This is considered another opportunity for development of the PVC in Tra Vinh. Yet, this policy was encountering challenges as the Tra Vinh production areas were characterized by small and fragmented production units.

¹ Decision 68/QD-TTg on approving the adjustment of construction planning for the Mekong Delta to 2030 and vision to 2050 to adapt to climate change.

² Decision 62/2013/QD-TTg of the Prime Minister on policies to encourage cooperation development, link production with consumption of agricultural products, construction of large fields

The government has developed and issued guidelines for the branding, labelling and packaging of agricultural products that apply country-wide, yet these guidelines were not well understood or not reaching enterprises at all, seriously hampering their application and compliance. Apparently, the government channels for distributing guidelines and supporting measures to make targeted audience to understand and apply these guidelines were still weak.

Tra Vinh had a huge opportunity compared to other peanut-growing provinces in the Mekong Delta in the form of two foreign-funded projects in two areas including Climate Change Adaptation (AMD) and Small and Medium Enterprise (SME) Development. Theoretically, these two projects were designed aiming at complementing each other. Accordingly, the AMD project focused on supporting producers in input and production, while the SME project prioritizes on improving business capacity for farmers' production organizations, production units and SMES participating in processing and trade. However, the coordination between these two projects had yet to become fully effective in promoting a coordinated and converged agenda and action plan. Although there were statutory regulations on the inspection and management of the fertilizer market in the whole country, there was still a lack of close coordination between administrative agencies and other functional bodies engaged in capacity building, awareness and communication activities related to quality and branding of fertilizers and particularly with regards to the use of microbial fertilizer. Therefore, the PHs have not been provided with sufficient information on how to use these products. This reality has restrained increasing the awareness of farmers with regards to organic fertilizers which resulted in limited uptake in application of organic fertilizers in Tra Vinh

Due to an ever-improving standard of living of the entire society, the demands of consumers were increasing along. This urged producers to comply with increasingly high and strict standards. The shelled peanut products dried by traditional equipment using coal fuel, will be no longer comply with food hygiene and safety standards. Hence, the existing peanut processing facilities were facing difficulties in product quality registration as they previously invested in equipments using cheap fuel source or in cases where there is no source of thermal power for production. This was a major challenge for the PCFs in trading their products.

The demand for peanut nuts was very diverse in the market. For example, confectionery manufacturers do not have criteria for buying peanuts with large sizes (6-7 mm) and also did not require uniformity of the grain. However, the roasted peanut processing facilities and restaurants/eateries often needed peanuts with large and uniform size. Restaurants/eateries often cared more about the product quality e.g. fatness and aroma. Yet, the roasted peanut processing facilities have less strict criteria, merely focussing on price only. In general, although the consumption of one-time purchase by

these two buyers was not large, their consumption volume was often regular during the year, offering a predictable and steady market to producers. Therefore, it can be considered as an important market segment for the Tra Vinh peanut. One common thing of these two buyers was that they cared much about peanut quality in terms of size, fatness and taste. Meanwhile, the survey results showed that the size of Tra Vinh peanut was not a competitive advantage, but its fatness and aroma possibly compete with similar types of peanuts produced in other provinces. However, the uniformity in size and quality of the Tra Vinh peanuts was not high enough due to the use of non-homogenous varieties.

In summary, given the analysis of the value chain, support function and business environment, some difficulties in the peanut market system which could restrain the development of the Tra Vinh PVC are presented in Diagram 3.

4.5. Problem tree of Tra Vinh peanut value chain

In accordance with the results of analysis in Sections 4.2, 4.3 and 4.4, recommendations for upgrading the Tra Vinh PVC are formulated which served as a basis for the Problem Tree presented in Figure 3.

Figure 3 shows that the core problem posed to the PVC and that needs to be addressed is the low profitability of the entire chain. Experts confirm that the current value chain did not capture the full potential in terms of adding value thus profitability. Two direct causes of this reality are; i) high cost of production, preliminary processing and commercial processing and ii) low turnover of the PVC. The factors affecting the high production costs include: inefficient supply of local peanut varieties in the Winter-Spring season which led to a situation where supply does not meet demand; low level of the mechanization in production; and lack of effective linkages among actors in the value chain. In particular, the insufficient supply of peanut varieties in the Winter-Spring season, caused by the limited production area in the rainy season, results in the use of degraded seeds thus low production figures. In addition, the limited capacity of PHs/CGs has led to the low productivity and quality of raw and commercial peanut products. Meanwhile, the underlying cause of the low turnover in the stages in the value chain was due to the inadequate competence of actors regarding market and business operation. This has led to some limitations such as lack of linkages allowing for efficient transactions among value chain actors, lack of product and trade promotion, and poor diversification of products and product design and packaging. Finally, the quality of processed peanut products of Tra Vinh was not complying with market standards due to unsatisfactory food safety conditions. The reason is that the dryers mainly used coal fuel and lack the 3-phase power source for using electric drying equipments. And the scale of production and processing was modest and fragmented. Although, up to date, the

frequency and volume of goods which had to be returned from buyers caused by this situation has not been high yet, the problem will be increasing in the near future due to increasingly high and strict food safety and hygiene standards.

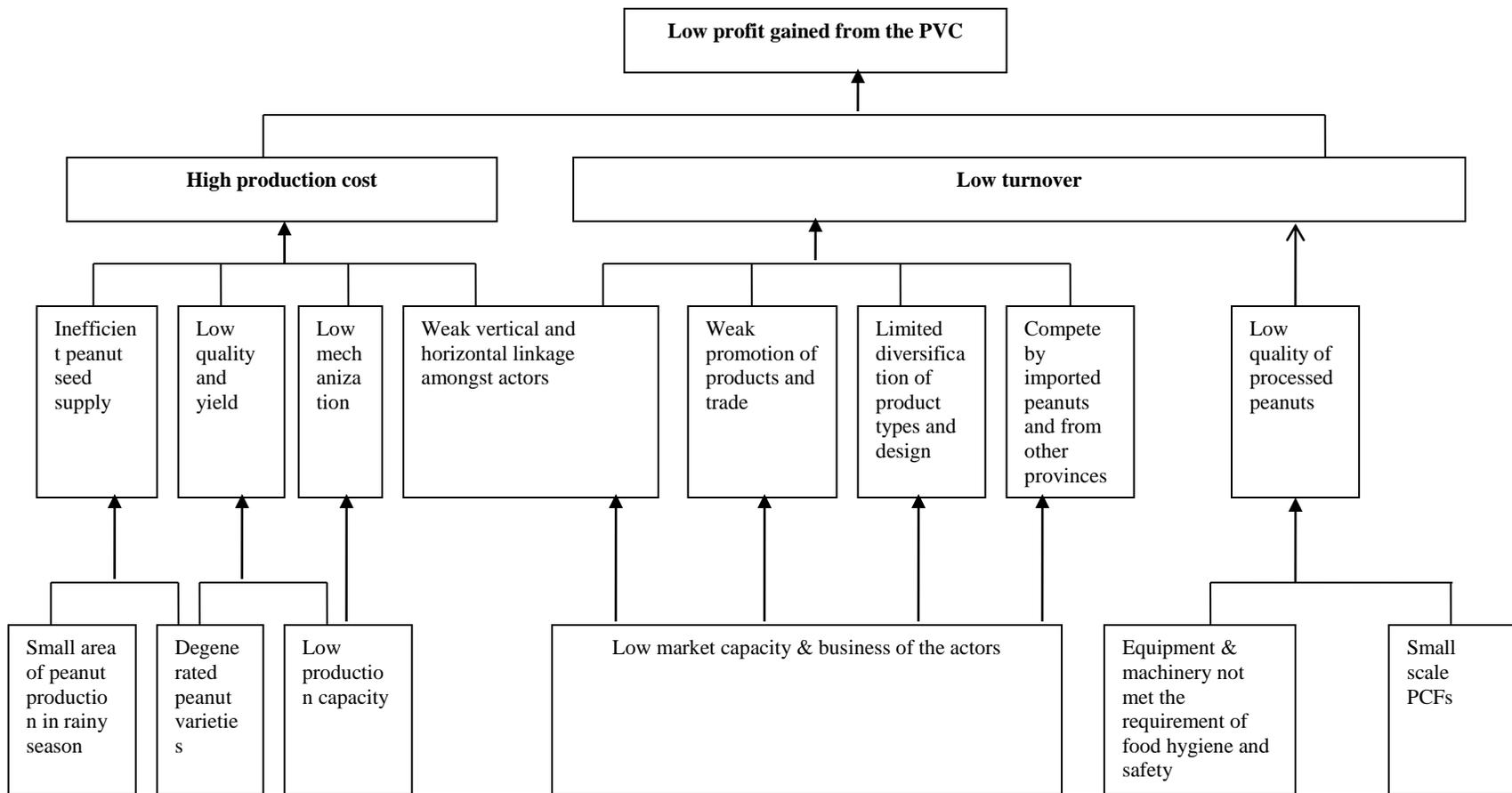


Diagram 3. Problem tree of the Tra Vinh Peanut Value Chain

5. SOLUTIONS FOR THE TRA VINH PEANUT VALUE CHAIN

With the analysis of problem tree and opinions of experts, local authorities, officials of departments and agencies and projects, along with experience of the research group, solutions and activities proposed to improve PVC of Tra Vinh are drawn in Diagram 4 - Solution tree. In order to reach the overall objective to increase the profitability of the entire PVC in Tra Vinh, two Specific Objectives are formulated as follows: i) reduce the costs of primary production, and commercial processing and, ii) increase revenues in all stages of the chain.

The following three solutions are proposed to reduce the costs of primary production and commercial processing:

(1) Reduce the shortage in complying with existing demands for seed-stock for the in the Winter-Spring season. This solution will contribute to a reduction in the price of peanut seeds, thus reducing the cost of commercial peanut production. In turn, it will contribute to reducing the cost of raw materials for local PCFs, and improve the profit for the whole PVC of Tra Vinh. To implement this solution, there are three activities proposed such as: (i) expanding area for peanut cultivation in rainy season, (ii) increasing the level of intensive farming to improve productivity and overall volume of production; and (iii) invest in the system of seed preservation and storage for the Winter-Spring cropping season.

(2) Invest in promoting mechanization in primary production, harvest and post-harvest through buying seeders, peeling and husking machines, sprinkler systems, water pumping systems to collect water from canals or rivers to water peanuts. This solution will help to reduce the labor price as dominant cost in producing fresh shell peanuts products. This is especially relevant in the context of increasingly scarce rural labor sources, and thus will contribute to reducing expense of purchasing input materials of the PCFs. Finally, this will improve profitability for the entire value chain. In addition, the solution also contributes to minimizing the impact on the environment due to limiting groundwater overuse. At the same time, it is necessary to continue investing in sprinkler systems for the HPs to save water resource and labor, and thus contribute to further reducing production costs.

(iii) Improve productivity and quality of varieties and unprocessed commercial peanut products. The improved quality and uniformity and increased productivity will reduce production expenses per unit of output, and thus reduce overall cost involved in the production and processing stages. Similarly, the increased quality of peanut seed products will also contribute to increasing the harvest. All these results will enhance the total profit of the entire PVC. Therefore, in addition to investing in the storage and storage system of peanut seeds for the Winter-Spring season, three other activities are

proposed, namely (i) implementing seeds selection, (ii) developing peanut cultivation processes in the rainy season and (iii) mobilizing the producer household to use organic fertilizers and microorganisms instead of inorganic fertilizers.

The following three solutions are proposed to add value thus increase revenues for the PVC:

(1) Improve packaging, labeling and reinforce product promotion. This solution is suggested based on the current operation of the PCFs. Although these facilities do carry out packaging and labeling of products, this is, according to the assessment of experts and provincial officials, still not really attractive and up-to-standard. In addition, almost all processing facilities run their business in a traditional manner maximizing revenues without investing in strategies and activities for product promotion or tapping into new markets. Therefore, the consultant team expects that this solution will attract more consumers, and therefore revenue and profit of the entire PVC will improve. To implement this solution, Business Development Services (BDS) for PFCs involved in the PVC are required. These services could be provided by public or private service organizations, as well as support of the SME project.

(2) Create value-added products such as shell roasted peanuts with salt, roasted peanuts with salt and chili, fish skin peanuts. Make use of by-products like the applying organic fertilizer by using peanut pods. As discussed above, if PCFs only pursue their business by direct sales of fresh peanut products to Chinese traders or other buyers outside the province, it is hard to add value locally and achieve maximum profit in a long-term and sustainable way. The reason is that the added value of peanut products in processing stages is much higher than for the sale of raw products, not to mention the utilization of by-products (pods) to make organic fertilizer supplied to the farming sector. Therefore, by implementing this solution, total turn-over and profitability of the PFC will improve. To implement this solution, two activities are proposed notably: (i) utilizing peanut pods to produce organic fertilizer for crops and (ii) creating new types of roasted peanut products targeting new market segment e.g. restaurant, supermarket and retailer.

(3) Invest in improving the quality of shell peanut products. The fact is that Tra Vinh peanuts are frequently infected with black fungus caused by nematodes, which makes the outer appearance of peanuts less attractive. This has affected attractiveness in the market thus consuming power for the roasted and boiled peanut products. Therefore, it is necessary to apply measures to control nematode disease in the production stage. In addition, Tra Vinh's shell peanut products also have problems regarding food hygiene and safety. This is because processors are using charcoal for frying peanuts. Therefore, it is necessary to invest in a frying system which uses electricity instead of coal to contribute to increase quality, price-setting thus profit for the whole PVC. In order to implement this

solution, two activities are proposed, notably: (i) investing in the thermoelectric drying system instead of using coal and (ii) support for PFCs to use high-capacity machines and equipment by using the 3-phase power electricity.

Overall, developing a coordinated value chain with effective linkages between all value chain actors is regarded as a core to improve the profitability of the PVC in Tra Vinh. When this solution is implemented, through vertical links for seed and fertilizer supply, the HPs would purchase input materials with guaranteed quality and desired quantity and lower price-setting. Besides, this solution would help buyers (collectors/wholesalers and PFCs) to get more stable supply in terms of quantity, price and product quality allowing for maintaining or even expanding their market shares. Based on the consultant group's point of view, this solution is considered to be relatively important, but most difficult to enforce because it requires the commitment of all chain actors and a shared business vision. In other words, developing chain linkage is a process that cannot be rushed and that is based on the subjective interest of concerned chain actors as well as those of organizations/supporting units who are promoting the value chain. Finally, in order to implement this solution, in addition to providing BDS to the actors in the value chain, it is necessary to strengthen the search and call for businesses to invest and link with HPs/CGs to provide raw peanut sources, in parallel with promoting horizontal linkages among actors in the same stage of the value chain in order to benefit from 'economy of scale'.

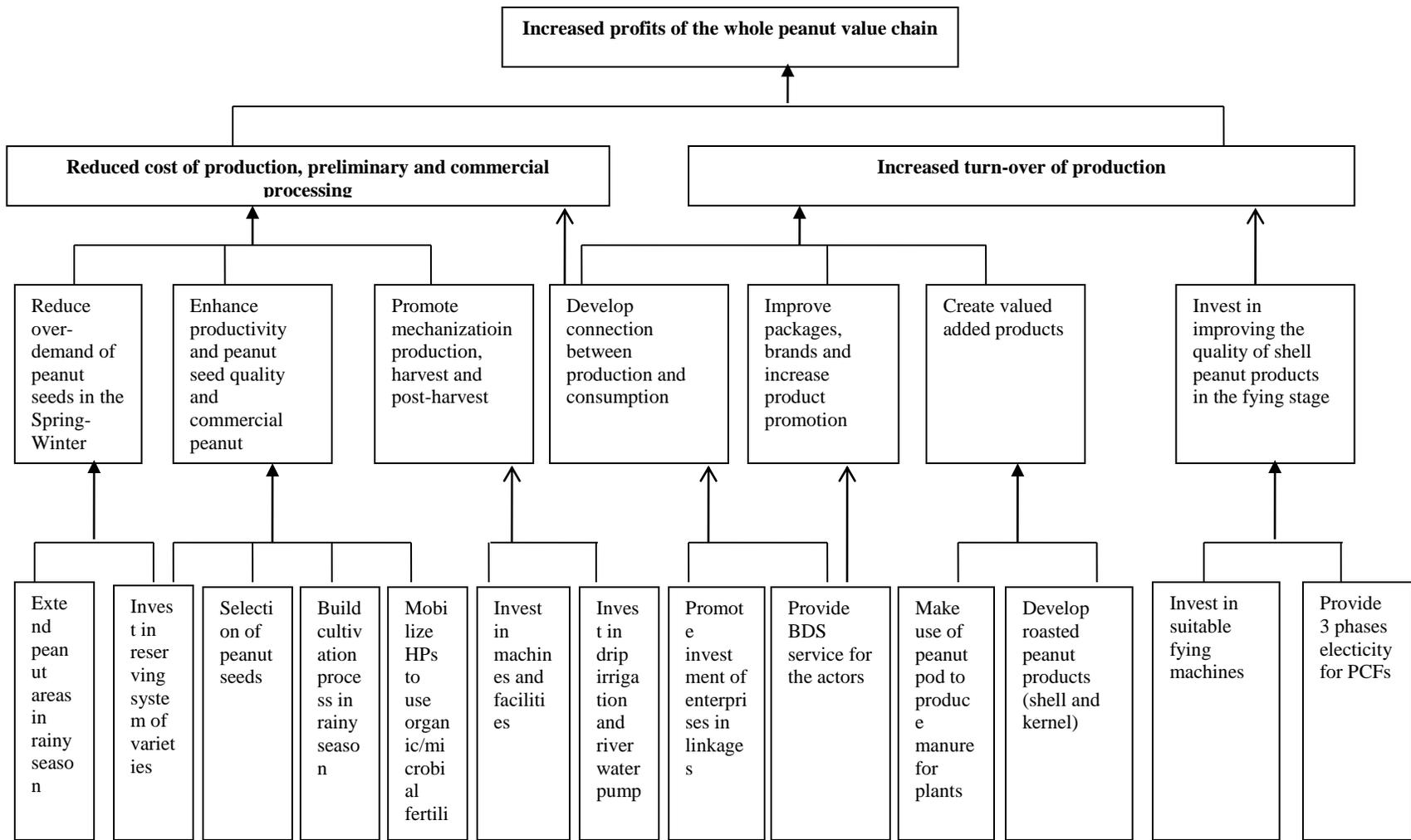


Diagram 4. Solution tree for enhancing the Tra Vinh peanut value chain

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

The research findings show that the Tra Vinh peanut value chain is rather complex, with six supply channels functioning in parallel at the time of the study. The dominant supply channel comprises raw materials /peanuts of HPs being sold to local collectors/wholesalers/PFCs, then these actors resell to traders outside the province. Particularly in the past two years, Chinese traders have directly participated in the market of purchasing fresh shell peanut products. The quantity of products consumed through this channel is very large but unstable and future prospects are unclear. From the perspective of the whole value chain, if Tra Vinh's peanuts are increasingly traded through this channel, it will make affect the potential for local value adding thus local economic development in the long term. Although current profits for the HPs are good this channel also is regarded risky and volatile in the long term.

The most important challenge in the current PVC functioning is the shortage of seed-stock for the Winter Spring season. This has pushed up the price of peanut products in Tra Vinh, leading to a reduction in competitiveness compared to similar products produced from other provinces. In addition, the peanut variety in Tra Vinh has been degraded as seed-stock is sources from many different sources in an un-controlled manner, hence reducing the overall productivity and quality of peanuts produced. This situation is typical for Tra Vinh province and does not occur in other peanut producing provinces. In comparison with other peanut production areas such as Long An, An Giang and Tay Ninh, the mechanization level of Tra Vinh production is relatively low. This also leads to increased production costs. The next major challenge is the limited capacity to develop effective horizontal and vertical linkages between chain actors, necessary to improve chain integration and coordination. Also, the awareness and business capacity of HPS, CGs, PFCs and collectors/wholesalers participating in the value chain are relatively limited. The capacity of creating value-added products as well as making use of peanut by-products to produce organic fertilizers provided to other production units in the farming sector has not yet attracted the interest of chain actors. Finally, being typical for the overall agricultural sector in Tra Vinh, the use of organic fertilizers and microorganisms instead of inorganic products by the HPs has not yet taken up on a significant scale. Trade, packaging and improving designs for the peanut products as well as product and trade promotion efforts have not been paid due attention and do not have the interest of the PFCs.

The Department of Agriculture and Rural Development and Department of Industry and Trade are the main support and promotion agencies for the PVC actors. However, these two agencies mainly focus on production and basic processing. It is

however found that the AMD project has a positive impact on the PVC of Tra Vinh. Yet, in case proper coordination and integration between the AMD and the SME project would be in place, particularly in the trading stages of the PVC, further improvements would be feasible and potentially result in a breakthrough for this value chain.

In fact, local authorities have supported policies for this value chain, especially based upon Decree 98 of the government and OCOP program, which are about to be implemented in the whole country in general and in Tra Vinh particularly. Yet, applying policies issued is hampered due to the lack of a network of public business development support services, while there are currently no private business development service providers.

To improve the PVC in Tra Vinh, it is necessary to implement the 6 solutions and 13 connected activities as described in this report. Accordingly, as per the assessment of the consultant team, experts and supporting organizations, solving the issues regarding varieties quality improvement, increasing the supply of seed sources in Winter-Spring season and the creation of horizontal and vertical linkages among actors involved in the PVC are of vital important and urgent measures required to improve the overall functioning thus profitability of the PVC in Tra Vinh.

6.2. Recommendation

In order to implement six solutions as presented, the consultant team has formulated the following recommendations to be taken up by the chain actors and supporting agencies in the province:

- (i) The Department of Agriculture and Rural Development and the Department of Industry and Trade in coordination with the AMD and SME projects should conduct demonstration models to expand peanut planting areas in the rainy season as well as ways of engaging in peanut preservation and storage securing sufficient seed-stock. It is then necessary to make an assessment of the economic efficiency of these models to determine the most proper forms in which peanut seeds are supplied for the Winter-Spring season;
- (ii) The Department of Agriculture and Rural Development and the Department of Industry and Trade, in coordination with the AMD project, should implement pilot models on mechanization in the production stage such as investment in sowing machine, peanut shelling machine and nut separator, sprinkler system and water pumping system by using river and canal water;
- (iii) The Provincial People's Committee and Department of Planning and Investment should create enabling conditions for the PFCs to have access to the 3-phase power sources so that they can equip and invest in electric power drying systems

to ensure food safety and hygiene for peanut products in the drying stage. This would enhance quality of the product hence competitiveness in the markets and assure compliance with regulatory frameworks regarding food safety and hygiene. The Department of Agriculture and Rural Development, the Department of Industry and Trade and the Department of Planning and Investment, in consultation with the SME and AMD projects, should implement the Decree 98/CP-ND with urgency in order to facilitate market linkages among chain actors. At the same time, it is necessary to strengthen and develop vertical linkages among actors involved in the same stage of the value chain;

- (iv) The Department of Industry and Trade should coordinate with the SME project to provide business support services to the actors in the value chain, especially PFCs in improving packaging and labeling, as well as trade promotion in order to increase market positioning and potentially explore new market segments for value added products. The Department of Agriculture and Rural Development should coordinate with the AMD project to develop a model to utilize peanut pods to produce organic fertilizers;
- (v) The Department of Industry and Trade and Department of Agriculture and Rural Development, in collaboration with local authorities at district and provincial levels, should build a market information system to provide the HPs detailed and timely information on the quality and price-setting of fertilizers available in the market. Local authorities at district and provincial levels should regularly mobilize and propagate the HPs to restrict the use of water from drilled wells to irrigate peanuts, as well as provide for policies that ease access to credit for those households that want to apply sprinkler and drip irrigation systems to save water resources;
- (vi) The Department of Agriculture and Rural Development should strengthen training trajectories to producers in order to improve farming techniques and market and business knowledge for the HPs;
- (vii) The Department of Agriculture and Rural Development should coordinate with the AMD project to replicate the best practices in preventing crop diseases caused by nematode fungus.

Annex 1. Area and yield of peanut in Tra Vinh for the period from 2012 - 2017

Location /Year	Area (ha)						Yield (Ton)					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
<i>Whole province</i>	<i>4,662</i>	<i>4,642</i>	<i>4,614</i>	<i>4,672</i>	<i>4,420</i>	<i>4,376</i>	<i>22,057</i>	<i>23,561</i>	<i>23,633</i>	<i>24,351</i>	<i>22,657</i>	<i>21,740</i>
<i>By districts</i>												
Tra Vinh city	30	23	26	23	24	25	104	77	92	83	86	93
Cang Long	57	59	60	47	44	42	145	156	165	126	111	107
Cau Ke	100	89	88	85	78	75	419	390	390	375	340	326
Tieu Can	2	1	3	2	3	2	6	3	6	6	7	5
Chau Thanh	238	248	243	221	207	193	1.050	1.210	1.126	1.115	1.087	996
Cau Ngang	3,237	3,245	3,365	3,372	3,397	3,465	14,463	16,162	16,486	16,615	16,743	17,021
Tra Cu	177	145	109	110	183	177	1,094	756	567	591	937	925
Duyen Hai	821	830	722	811	313	157	4,776	4,806	4,799	5,441	2,254	944
Duyen Hai					173	240					1.092	1,323

Annex 2. List of peanut cooperative groups in Tra Vinh province

<i>No</i>	<i>Name</i>	<i>Hamlet</i>	<i>Commune</i>	<i>District</i>
01	Peanut Cooperative Group	Tha La	Ngoc Bien	Tra Cu
02	Ong Cui	Bon Thanh	Ngu Lac	Duyen Hai
03	Peanut Cooperative Group	Lac Hoa	Hoa Son	Cau Ngang
04	Peanut Cooperative Group	Lac Hoa	Hiep Hoa	Cau Ngang
05	Paddy-Peanut Cooperative Group	Soc Soai	Hiep Hoa	Cau Ngang

Annex 3. List of peanut trading and processing units in Tra Vinh

<i>No</i>	<i>Owner of units</i>	<i>Hamlet</i>	<i>Commune</i>	<i>District</i>
01	Tran Thi Hang	Huong Phu A	Da Loc	Chau Thanh
02	Tang Thi Thu Loan	Hamlet 3	Dai An	Tra Cu
03	Lam Van Minh	Hamlet 3	Tra Cu	Tra Cu
04	Hai Dang	Ong Rang	Long Son	Cau Ngang
05	Tran Thi Hanh	La Bang	Don Chau	Duyen Hai
06	Minh Loi	Hamlet 1	Ward 6	Tra Vinh
07	Kim Loi	Hamlet 1	Ward 6	Tra Vinh
08	Cong Lap Phat	Hamlet 8	Ward 7	Tra Vinh
09	Ngoc Thanh	Hamlet 2	Ward 2	Tra Vinh
10	Phu Vinh	Hamlet 8	Ward 7	Tra Vinh
11	Vinh Xuong			Tra Vinh

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