BASIC INFRASTRUCTURE FOR INCLUSIVE GROWTH IN THE NORTHEASTERN PROVINCES SECTOR PROJECT

Output 3: Improved ARVC infrastructure in Lang Son

PREPARED FOR
PEOPLE'S COMMITTEE LANG SON PROVINCE
ASIAN DEVELOPMENT BANK

BY
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CURRENCY EQUIVALENTS
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Currency Unit	–	Vietnam Dong
Đ 1000	=	$0.04
Đ 22,350	=	$1

ABBREVIATIONS

ADB	:	Asian Development Bank
ARVC	:	Agricultural and Rural Value Chain
CPC	:	Commune People' Committee
DARD	:	Department of Agriculture and Rural Development
DoST	:	Department of Science and Technology
DoIT	:	Department of Industry and Trade
DPI	:	Department of Planning and Investment
EIRR	:	Economic Internal Rate of Return
EU	:	European Union
FIRR		Financial Internal Rate of Return
GSO	:	General Statistics Office
GDP	:	Gross Domestic Product
GI	:	Geographical Indication
GMS	:	Great Mekong Sub region
GoV	:	Government of Vietnam
HACCP	:	Hazard Analysis and Critical Control Points
IFAD	:	International Fund for Agricultural Development
INGO	:	International Non-Governmental Organization
LURC	:	Land Use Rights Certificate
PAM	:	Project Administration Manual
PGS	:	Participatory Guarantee Scheme
PMU		Project Management Unit
PPC	:	Provincial People's Committee
PPP	:	Public Private Partnership
PPTA	:	Project Preparation Technical Assistance
Viet GAP	:	Vietnamese Good Agricultural Practices
WTO	:	World Trade Organization

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A. Rationale

1. Agriculture is a significant sector in Lang Son, second only to services, and its share of provincial Gross Domestic Product (GDP) in 2015 was 25.7%. Since 2010 its share of GDP has been consistently just over 25%. Crop and forestry production represents over 60% of the agriculture sector's output with the balance being livestock. Cereal crops are the dominant activity and have the highest economic output and consistently produce about 40% of the crop sector's outputs as shown in Table 1. Star anise produces 20% of the crop sector's output while vegetables and flowers contribute about 14% with fruits accounting for 12%.

2. Output 3: Value Chain will encompass the major higher value traded crops with market potential including spices, fruits and vegetables, both tree and annual crops and these are referred to as horticultural crops. Cereals and forestry are not included in the scope of Output 3. Areas of the main crops and their production data over the period 2010 to 2015 are shown in Appendix 1.

Table 1: Production Value of Selected Crop Categories for 2011 to 2015

Unit: VND million - Fixed priced at 2010

Category	2011	2012	2013	2014	2015
Crop	3,394,097	3,572,888	3,600,175	3,664,379	3,601,987
Cereal	1,335,695	1,516,228	1,551,450	1,542,723	1,558,970
Vegetables (includes flowers and beans)	487,507	469,961	480,454	496,291	528,315
Annual Industrial crops	407,172	425,624	436,867	426,443	246,291
Perennial	9,562	10,387	11,531	12,703	12,585
Fruit	462,869	492,285	445,870	458,085	476,433
Star Anise	691,292	658,403	674,003	728,134	749,742

Source: Lạng Son Government Statistics Office (GSO), Department of Agriculture and Rural Development (DARD)

3. Lang Son's overall agricultural sector development strategy is to better utilize its land endowment, including the mountainous areas and the relatively favorable climate. Forestry on the mountainous areas, fruit trees and industrial crops are the main development priorities. Fruit trees and industrial crops include star anise, cinnamon, Chinese Mesona (black grass jelly) and tobacco.

4. Capitalizing upon Lang Son's strategic location, as the main road border gate to China through Dang Dong Friendship Gate on National Highway 1 and the province's improving road access to Hanoi[1] are key opportunities for agricultural sector development. Excellent road access to Hai Phong port is an additional feature. The combination of natural resources that favor the growth of specialist horticultural crops[2] and forestry, and the province's strategic location close to main potential markets, provide a platform for the development of the horticultural crop sector.

[1] The Bac Giang Lang Son expressway scheduled for completion in 2025 is expected to reduce travel ties to Hanoi city to approximately 2 hours and Noi Bai airport for airfreight to less than 2 hours

[2] Vegetables and fruits, both annual and perennial, including tree crops.

5. Despite these natural and strategic locational advantages Lang Son's agricultural sector and in particular the horticultural crop subsector, remains under-developed. DARD is aware that the market orientation of producers is weak and that the farmers and other product value chain members do not always produce the quality of product that the market demands. Use of modern processing technology is limited, farmer skills and knowledge are traditional, and there is low capital investment available in any of the sector value chains. The average size of holdings of agricultural land is small, with cultivable land amounting to only 0.12 hectare (ha) per capita, and although many farmers also have forest land, the area of commercial crops on this forest land is also small (less than 2 ha). These factors all combine to contribute to a spatially dispersed, highly fragmented sector that is characterized by low farm output, low quality products, and consequently low farm income.

6. Analysis of Lang Son's agricultural sector by DARD does not mention the small and fragmented nature of the horticultural sector with its many crops, and lack of value adding activities, as being a constraint to the sector's growth and development. Moreover, the DARD development plans do not address this critical aspect, especially value adding to increase economic returns. The majority of the horticultural crops are small in area, and production volume, and their weak value chains have limited processing (see Table 2). The value chains[3] associated with these crops consist of small, often under-capitalized, businesses that perform many functions including collecting, accumulating product, some product enhancement, and selling. The sale of output remains opportunistic rather than market driven, providing little continuity that could mitigate market risks faced by producers. These higher than necessary market risks transmit into reduced producer investment of capital, land or time and a loss of potential value capture. Instead these production systems continue to rely upon opportunistic sales with producers adopting weak price taking product disposal marketing strategies.

7. Star anise is an exception. It has a much larger area than the other horticultural crops and its value chain has an export focus with some investment into local value addition. Currently only the star anise product value chain has an industry association that represents farmers and chain businesses. Lang Son's other horticultural crops, in contrast, do not have processing facilities and vertical (and horizontal) linkages between chains members is weak. For instance, although the area of vegetables increased significantly in 2015 only a very small proportion of vegetables are marketed to outlets in Hanoi. Black jelly is another crop that illustrates both weak vertical and horizontal linkages. While a big increase in production of black jelly has occurred in response to demand in China, virtually all the black jelly produced is sold by individual farmers to local traders who in turn sell it on to Chinese traders. There are no farmers' group activities to aggregate black jelly, the farmers have little power in setting prices, and no district level processing businesses have emerged.

Table 2: Areas for Selected Horticultural Crops 2012 to 2015 (ha)

Crop	2012	2013	2014	2015
Tea	894	892	856	873
Tamarin	966	947	1,064	1,098
Litchi	3,495	3,230	3,053	3,105
Custard Apple	2,223	2,290	2,369	2,448

[3] The term value chains is used for the product chains associated with the Lang Son horticultural crops but there is limited value adding in the chains, and the other features that characterise efficient and effective value chains are mostly absent eg, quality assurance. The Lang Son horticultural crop value chains are really commodity chains.

Vegetables	4,816	4,910	4,921	7,330
Black Jelly	1,856	1,945	2,014	2,852
Star Anise	33,698	33,701	33,755	33,760

Source: DARD Five Year Production Plan

8. The lack of an overall horticultural sector development strategy for the fragmented horticultural sector is compounded by the equally fragmented Government of Viet Nam (GoV) support for the value chains. DARD is responsible for production with its agriculture division being the agency that is responsible for crop quality assurance and certification including Viet Nam Good Agricultural Practice (VietGAP). The Department of Science and Technology (DoST) has the responsibility for any science related aspects (such as new technology, value addition, and organic production), and the Department of Industry and Trade (DoIT) for market advice and support. Extension support is provided by both provincial and district extension services while DARD's Plant Protection unit is responsible for advice and regulations on pest and diseases. Each GoV agency deals with a specific segment of the horticultural sector product value chain within its own mandate often with little knowledge recognition or integration with the related mandates. There is no overcall coordination of government services (one stop shop) for any of the value chains.

9. Development of the horticultural product value chains requires that businesses deal with all these various departments. Information on markets, trade requirements, new technology, product standards and services is all highly dispersed, and costly to access. The provincial agricultural sector development plan does not address the need for a coordinated approach with key provincial agencies collaborating to facilitate and support the development of horticultural products and their respective value chains. The silo nature of current institutions, as well as a focus on production orientation within institutions, has created significant barriers to the emergence of an effective market driven value chain for export crops. Currently, Lang Son can be described as having locational, climatic and soil comparative advantages however its competitive advantage remains low due to weak coordination resulting in higher transaction costs, within and across, all levels of the value chain.

10. Lang Son's horticultural sector exhibits a high level of market failure. The sector is dominated by small producers of a range of commodities that face unstable markets due to a lack of information about consumer demand (including quality requirements), and price (informational asymmetry). The large numbers of small producers and local collectors do not have adequate information to make coordinated production and marketing decisions to fully exploit existing and potential market opportunities. Market failure is also present in the type of information required for farmers to make better informed production decisions. Viet Nam consumers are increasingly demanding better quality and safe food products. Information about market quality assurance is poorly disseminated. Moreover, the public service provision of quality assurance and safe food services for both consumers and producers is limited. Market failure is also exhibited in the dominant role of Chinese businesses in certain commodities, especially in the star anise sub sector. The Chinese businesses are able to exert a high level of control over the Lang Son star anise market through their credit leverage over district traders. Limited farmer and trader financial resources reduce their options, and their capacity to hold and store produce to gain higher prices. The Chinese business exploit the traders limited credit facilities and pay them on a delayed shipment basis to ensure the continuity of supply. The same market exploitation situation is also starting to occur in the smaller, but developing, black grass jelly market. Farmers and agribusinesses in the horticultural sector are too small, uncoordinated and fragmented to have formal industry associations to represent their interests:

star anise is the one exception. Thus the sector members have limited voice to lobby the provincial government over policies to better address the market failure challenges they face. This situation is compounded by the weak coordination of the provincial government agency services along the horticultural value chains. Each government agency has specific responsibilities for just a small segment of the value chain. Government services also contribute to market failure through the inadequate provision of services, such as extension, market information, and research, as well as adequate infrastructure. While government services cannot address all the causes of market failure the services they provide must address modern market orientated value chains requirements. They must include such service and information elements as quality assurance, safe food and environmental sustainability. The latter two are both important public good elements.

11. DARD in their production plan for 2016 to 2020 have identified several priority enterprises for development but these primarily state the production sector based on comparative or perceived comparative advantages. The plan does not assess or respond to the competitive environment and the margins producers and other value chain actors are able to secure. As such the DARD plan is built on technical opportunities as opposed to delivering the underlying imperatives that enable producers to achieve a return on their investment of time, land and capital4.

12. The DARD horticultural priorities that are of most relevance to the Project Preparation Technical Assistance (PPTA) Feasibility Study are: star anise, vegetables and custard apple. Forestry is also a priority and this includes the shorter term forestry crops of acacia and eucalyptus, however, the Government and Asian development bank (ADB) agreed to exclude forestry from the Project. Both of these crops compete with star anise for forestry land as they are short rotation crops and able to be harvested within five years. Star anise in contrast is much slower to produce with the first fruit production occurs about year five with full production being attained in year 10. The weakness in the DARD plan is that it is production based with little analysis of markets and opportunities for the proposed products. It does not attempt to address market failure in the crop sector.

13. Although the close proximity to China presents a potential market opportunity it is also a contributing factor to the low profitability of star anise farmers. Traders from China are very competitive due to their well-established collector networks in Lang Son. For products such as star anise and black grass jelly they can compete with Viet Nam businesses to purchase the farmers' products due to their modern and more efficient processing plants and the higher value markets for their products (both export and in China). It is estimated that Chinese traders regularly purchase 60% to 70% of the annual star anise crop: but there is no star anise border export data to confirm this.

14. Viet Nam's Agricultural Restructuring Plan (ARP)5 presents the case, strategy and policies for restructuring of the agricultural sector. Challenges recognized by the ARP include the underdeveloped agro-processing industry, and the low levels of value adding. One of the ARP policy reform responses is to better adapt to new trends in both the domestic and international markets and restructure agricultural production to create and facilitate new value chains. Features of these new value chains are to include enhanced value adding activities, market diversification, quality improvement, assure food quality and hygiene, as well as

[4] Given that DARD's mandate is mostly limited to activities within the farm gate this focus is not surprising.
[5] MARD 2015

reflecting wider socio-cultural values. Developing rural entrepreneurship is also recognized by the ARP and the need to provide support through better infrastructure, credit, technology, and trade promotion. The ARP also highlights the importance of improved vertical and horizontal linkage between stakeholders in production and trade. The need for agricultural enterprises to build linkages with farmers, and for the farmers to improve their participation in business activities is emphasized in the ARP.

B. International Experience – market linkages

15. The Global Agriculture Practice[6] has promoted linking farmers to markets to improve the inclusiveness of modern agriculture value chains through improved competitiveness and entrepreneurship. The use of productive alliances has proved to be the preferred platform for achieving these outcomes through combining smallholder producers, with buyers and the public sector into a business planning model. The subproject investments consist of (i) productive investments, technical assistance and (iii) business development.

16. Successful subproject receive support in the form of matching grants justified through their contribution of positive externalities and the lack of accessible commercial finance. Across the program the average beneficiary contribution to the program is 30% excluding in-kind contribution. Key success factors include the integration of both horizontal linkages and vertical alliance from producers to buyers. Beneficiary's involvement reflects stability of pricing, assured sales, as well as improved product quality and revenues reflecting improved negotiating powers. Producers receive payments far quicker than those outside of the alliances. A significant spin off is the increasing "harmonization of public and private services" to improve smallholder market integration. The role of the public sector is to (i) provide the convener role facilitating the emergence of alliances and for the provision of public good services. An ongoing challenge that remains elusive is the inability to move smallholders onto commercial finance arrangements due to the low coverage of rural areas by financial institutions, lack of collateral, regulatory issues that prevent financial institutions providing loans to groups of producers.

17. Key outcomes include (i) the number of beneficiaries per group is generally lower than planned, (ii) excellent impact in terms of inclusiveness especially for women, disadvantaged groups, and indigenous people, (iii) significant gains in production, sales, income, and employment both farm and non-farm rural jobs, (iv) generally adequate returns relative to the hurdle of 12% but with widely varying results mostly due to the accuracy of market information, (v) alliances between buyers and smallholders persist over the long run, and (vi) sustainability that is driven by vertical linkages that are established over the longer term with producers and buyers.

18. Lessons from the alliance include (i) competitive subproject selection processes are important, (ii) grant awards need to be linked to merit defined by the viability of business pans with evidence based market demand, (iii) selection of value chains needs to be driven by market potential to ensure effectiveness. (iv) adopting a multisector approach involving a range of institutions, become challenging, such that during startup implementation needs to adopt simplicity as a guiding principle, with close technical support and supervision to creating learning environments, (v) include assessment criteria and monitoring of these to control uncompetitive buyer or elite capture through imperfect market conditions.

[6] World Bank, November 2016., Linking Farmers to Markets Through Productive Alliances. An evaluation of $1 billion investment in 21 projects.

C. Investment Opportunities

19. Investment that strengthens the Lang Son horticultural sector through an effective horticultural sector industry organization, horticultural product value chains though value adding, quality assurance and a much stronger market driven focus is the identified investment opportunity. Lang Son's horticultural sector has a number of product value chains that have the potential for investment.

20. Without increased coordination and market linkages in the sector the ability to generate added value is minimal and any investment would need to be justified on the basis of cost savings over very low total product volumes.

21. To address this issue it is proposed that three representative be prioritized with one being to form a coordination and support function for the development of horticultural value chains, with the other two being for specific commodity chains. It is agreed with the Project owner, Department of Planning and Investment (DPI), that the star anise and vegetable value chains will be assessed as representative subprojects for assessing the feasibility of the investment into proposed value chains.

1. Horticultural Sector Industry Organization

22. Establishment of a Lang Son Horticultural Industry Sector Organization is necessary to provide the coordination and leadership role if the sector is to grow and develop. Many of the constraints that limit the sector's growth have been outlined above. This includes the horticulture sector's fragmented institutional nature, many small holder producers, product groups are small, and the lack of any overarching sector development strategy. However, in addition to these structural issues are factors relating to markets, market access, quality standards and compliance that need to be understood and integrated into sector planning and investment decision making. The public good in these investments lies in the generation of business and commercial activity with related employment in value addition, and the service sectors. The size and number of producer and value chain actors preclude them from obtaining the necessary knowledge to identify opportunities and offset the risk of investment.

The Vision for the Horticultural Industry Sector Organization is to achieve the following outcomes:

- Coordinated and coherent strategy for the sector's development;
- Market, trade and other services provided to sector members;
- Sector product groups involved in sector planning and development;
- GoV agencies with a coordinated service focused approach to sector support;
- Competitive market led value chains for selected products developed;
- Inclusive growth for the sector and its members, including women and men farmers.

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23. The need for greater collective action at the industry level has been recognized[7]. Industry organizations, especially those that are professional and technical in their functions and that represent commodity group members are most prominent in the larger sub-sectors such as coffee and rice. Smaller commodity groups have few industry groups and where these exist they tend to have a high proportion of government sector members. There is a need for industry groups that provide such functions as product promotion, industry codes of practice – especially related to quality, communication with industry members, lobbying of government, and ensuring that the industry has a coherent development strategy.

24. For these reasons, it is proposed that the Basic Infrastructure for Inclusive Growth project supports the establishment of a Horticultural Industry Sector Organization. Once established it will be used to support the horticultural value chain development in Lang Son starting with the two representative value chains of Star Anise and Safe Vegetable production. The formation and establishment of the association will be assisted through using it as a Project Implementation Unit that reports to the Provincial People's Committee (PPC) and the Project Management Unit (PMU).

2. Star Anise Value Chain

25. Star anise is Lang Son's most important horticultural crop economically. GSO and DARD data show that it produces 14%-20% of crop sector economic output (Table 1). Star anise's planted and harvested areas are by far the largest of the horticultural crops. The planted area is about 34,000 ha and several data sources agree with this figure. The estimated star anise harvested area, however, differs between sources. The PPTA Feasibility Study's estimate of harvested area is about 24,000 ha, whereas some estimates are as low as 13,500 ha. The balance between total and harvested area being plantings that are yet to come into production.

26. Output data is much more variable and there are no formal records of production of fresh fruit or the equivalent amount of dried fruit. Exports of star anise to China are only recorded under a general agriculture category at the border gate if at all. Thus, the quantity of star anise exported to China is not known.

27. Star anise production varies considerably between years and this contributes to varying output estimates. Data in the DARD five-year production plan shows output varying between 5,100 t to 9,000 t of dried fruit. An industry estimate is that annual production is higher at 10,000 t of dried fruit.

28. Production of star anise is centered in two districts: Van Quan and Binh Gia, that account for 50% of the total planted area and at least 60% of the province's output. Of the remaining districts Trang Dinh and Van Lang have the larger production areas. It is estimated by DARD that about 10,000 farm households are involved in star anise production, but district level data suggests that this figure is probably higher. Each household's star anise production area is between 1 ha to 2 ha with few households having more than 2 ha.

29. Little information is available on the short and medium term market demand for star anise. FAO data for a group of spices that includes star anise shows that the international export quantity from this group has increased from 264,610 t in 2010 to 394,543 t in 20138. The

[7] World Bank. 2016. *Transforming Vietnamese Agriculture: Gaining More from Less.* Vietnam Development Report. Washington, D.C. World Bank.

[8] Other spices in the FAO grouping are coriander, badian, and fennel.

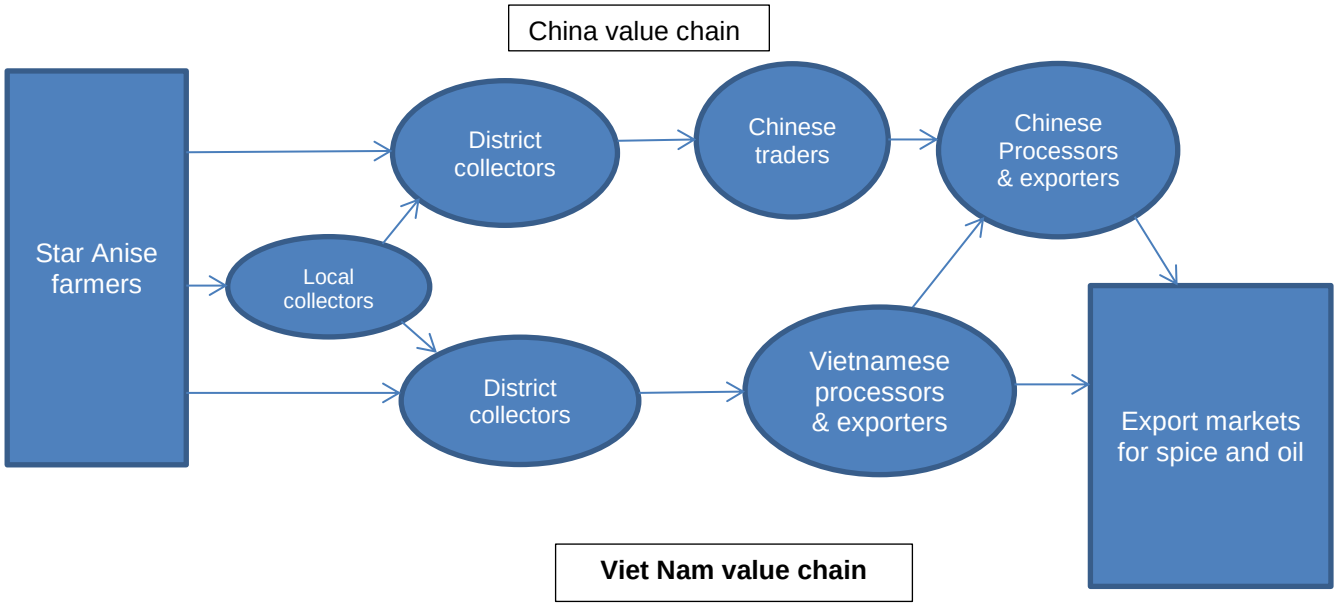
2010 value of exports was $510 million rising to $742 million in 2013, according to FAO. The data suggest that spice demand is increasing and the prices are steady.

30. Projections by the Lang Son DARD are that market demand will remain strong and that 2025 the value of star anise production will increase from VND 603,000 billion ($27 million) to VND 1,480,000 billion9 ($66 million). DARD projects that the area of star anise will not increase and will remain at 34,000 ha while expecting total productivity to increase to the equivalent of 13,740 t of dried fruit by 2020 and 15,600 t by 2025. The increased value of output will come from the increase in harvested area, as more star anise trees reach fruit bearing age, and increased per tree productivity.

31. The PPTA Feasibility Study considers DARD's productivity projections, and associated total economic value output, to be somewhat optimistic. The lack of reliable star anise production and market data constrains planning and analysis and needs to improve if there is to be a sound basis for planning industry development.

a. Star Anise Value Chain Description and Analysis

Figure 1: Star Anise Value Chain



i. China Value Chain

32. The dominant value chain is the China chain. In each of the Lang Son districts there are 2-4 big collectors per district, and many small and medium collectors. The small and medium collectors buy fresh and dried fruit at the farm gate, transport these using motorbikes or small

[9] DARD 2016-2020 Production Plan

trucks. When they collect enough for one shipment (4 t truck or 6-10 t truck) they either sell to a local district wholesalers or sell to Chinese collectors in China. Recently, Chinese buyers prefer to buy fresh fruit. It is estimated by local collectors and local wholesaler that 70% of the 2016 star anise sold to China was fresh fruit. Local wholesalers are normally informed the star anise price daily and they collect star anise from local collectors, farmers nearby and transport the star anise to Chinese collector at the border gate. The usual payment method for each truckload to China is that Chinese buyers will pay for the previous truckload when they receive the current truckload effectively locking collectors to supply future volumes.

33. Much of the star anise bought by the Chinese is processed and higher value oils are extracted. After processing the star anise fruits are often sold back to Viet Nam companies and re-exported by the importers as lower quality spices. Chinese companies also dry fruit and sell as higher quality spices. The PPTA Feasibility Study was unable to gather data on the quantities of star anise fruit that was processed in China and the quantities of higher quality spices produced in China. There is no data available on the quantity of the processed fruits that are sold to Vietnamese businesses for export as lower quality spices.

ii. Vietnam Value Chain

34. Vietnamese companies also buy star anise in fresh and dried from farmers and from local collectors. The fresh fruit is processed for oil and some is also dried. The star anise after it is dried will be graded and selected and packed and sold to European Union (EU) and other markets. Some oil based products go to higher value markets as packaged specialist products. Some district collectors' process oil and this is usually a lower quality product and sold to China.

35. Farmer production of star anise is low input with little investment on fertilizer, tree trimmings, and weed bush clearances in most of the star anise planting areas of Lang Son. Harvesting of star anise is conducted in two period of the year (1st harvest from January to April and 2nd harvest from July to October). Often it is the farmers, especially the women members of the farm household, who do the harvesting. Farmers may also exchange labor with their relatives and neighbors, with a high proportion of women involved in the labor exchange. Some farmers hire labor with daily wage rate of Viet Nam Dong (VND) 170,000-200,000 in some case the hired labor cost is VND 5000/kg of harvested star anise. After harvesting, the star anise is collected and the major proportion of the fresh star anise is directly sold to the local collectors. Some proportion of fresh star anise may be dried by the farmer. It is interesting to note that when the price of star anise is high (over VND 15,000/kg) farmers tend to sell all the fresh star anise. If the fresh production amount is greater than 2 t then the farmers may keep and dry the fruit in order to obtain the margin on selling dried fruit.

b. Customers and Markets

36. Final customers of the star anise products vary due to the type and quality of the product. For Anise oil, customers require a high quality well processed product that can be used in making perfumes and also pharmaceuticals. Athenol is the main star anise oil and contains shikimic acid, a vital ingredient for oseltamivir (tamiflu). There is demand for small packaged oil products for beauty treatments. Lower quality oil is also used by some customers after reprocessing. Spice is the other star anise product and customers require high quality dried fruits for cooking. Some customers also use lower quality star anise fruits as a spice for cooking.

37. The Lang Son Agriculture Products Export company (Aforex) and the Viet Nam Staraniseed Cassia Manufacturing and Exporting Company (VINA SAMEX) are the two main

Lang Son star anise businesses both target differing customer segments. They are both aware of higher value markets for both spices and oil but face processing constraints that limit their ability to produce high quality oils. Production of high quality spices is also constrained by poor drying and chemical contamination of products often at the production or collector level of the value chain. Marketing is a constraining factor. Historically they have had few industry contacts in international markets and have self-funded their participation in trade fairs, and marketing in selected countries. Their marketing funds are, however, limited. Part of the Aforex strategy has been to establish a domestic market for their higher value oil based product range. The margins for oil products in the domestic and export market are much higher (up to 45%) than the export of the lower quality spices (10%) according Aforex. VINA SAMEX in contrast has concentrated upon developing higher value international markets for its oil and spice products.

38. Marketing support for the Lang Son star anise businesses has been sporadically provided by the DoIT with some assistance from the Department of Foreign Affairs. Overseas marketing trips have been supported and there have been provincially based star anise trade and marketing fairs in association with the Star Anise Association (SAA). The promotional support by DoIT has been piecemeal without any provincial marketing strategy associated with it.

39. A Geographic Indication (GI) for star anise oil has been registered by the Lang Son DoST with the Viet Nam Bureau of Intellectual Property. The GI for Lang Son Anise oil (not fresh fruit or dried spice), specifies a minimum trans-athenol of 90%, and is registered only in Viet Nam: it is not registered internationally limiting its value in promotion and marketing both domestically and especially in export markets. Aforex makes extensive use of the GI for its products. VINA SAMEX make little use of the star anise GI due the potential of an unmanaged GI label being discredited creating risks to their higher value markets. DoST as owner of the star anise GI has yet to form procedures and compliance systems to ensure the integrity of the GI label as a marketing strategy that highlights the special properties of the Lang Son star anise. Weak coordination between the provincial departments with functional responsibilities for star anise has limited use of GI and its potential value addition.

40. Seeking the legal recognition of a GI is the widely used as a means of restricting the production of a differentiated product in a legally enforceable (including through provisions under the World Trade Organisaiton (WTO). This requires international legal recognition for a traded product like star anise oil by an organization such as the World Intellectual Property Organization. The international legal recognition needs to be part of an overall strategy to protect, promote and report the unique features of the product linked to a specific geographic location. Currently the use of the Lang Son star anise GI does not provide the oil exporters with any competitive advantage over their main competitors in China. The unique qualities of Lang Son's star anise oil need more careful definition and wider promotion in the international market that enables a GI registration that can be used to promote and protect Lang Son Star Anise oil.

41. International experience with GIs is that their successful use depends upon: (i) having a consistent supply of product with specified qualities; (ii) having strong coordinating organizations for promotion and other tasks; and, (iii) working closely with downstream market players to ensure commercial success. The Lang Son star anise companies do have a consistent, albeit small, supply of product but they do not yet have a strong coordinating organization or close connections with their downstream markets. Thus, the opportunity to exploit their star anise oil GI internationally is constrained.

42. Low star anise quality due to poor drying and chemical contamination, and their lower technology oil processing units, will limit the ability of both Aforex and VINA SAMEX to quickly produce better quality products for high value markets. VINA SAMEX's marketing activities have identified that there is a strong demand for organic oil in several countries including Japan, United States and Australia. The challenge for both the firms is to improve product quality though better drying and processing. This will enable them to produce increased amounts of higher margin products for the higher value markets they have been developing.

c. Value Creation

43. Three main chain value creation activities occur:

(i) Drying - is critical to the quality of the spice and is a major quality control problem. Farmer and collector drying is usually done on concrete or tarpaulin sheets and is reliant upon adequate sunlight. Poor drying reduces the quality of the fruit and the price that can be achieved for the spice. Poor drying may also lead to the use of chemicals by farmers and collectors to enhance the appearance of the spice and achieve a higher price. Drying using coal or wood are also low tech and lead to contamination of the dried fruits;

(ii) Fruit processing – oil made from the processing of the fresh fruit. Processing quality is also an important factor and the use of steam processing technology in Viet Nam limits the products that can be extracted from the oil. It is reported that the Chinese processing capability is much more advanced than in Viet Nam and using carbon dioxide (CO_2) fluid extraction technology that enables them to extract high value products, especially shikimic aid, from the oil.

(iii) Packaging - Dried spice fruits are packaged, and so is oil. Lower quality fruit is packaged in bigger bags (from 10 kg) for lower value markets while the better packaging, often in smaller packages, is used for the higher quality spice. Oil packaging is for the higher value domestic and export markets;

44. Farm production of star anise follows a low input system and there is often no, or limited, use of chemical fertilizers and pesticide. A large proportion of the star anise farmers have never used any chemical based inputs and it is commonly stated in various provincial documents that their production is "organic". There are, however, no certified organic star anise producers and no crop specific organic standards. Yields of star anise vary considerably from year to year and the cultural reasons for the variation are not known.

45. There has been little research into the husbandry production aspects of star anise, including the use of fertilizer, pruning methods, pest control, and harvesting regimes. Some field demonstrations of better cultural techniques are being undertaken in Van Quan district by the Provincial Extension Center, but this is small scale and inadequate for an industry of the scale of star anise in Lang Son. Harvesting and post- harvest management are critical stages in the quality management of star anise. On-farm drying by farmers has been identified by both Aforex and VINA SAMEX as a cause of poor quality dried fruit and where product contamination can occur.

46. Exploitation of the "organic" status of star anise production has been formally proposed by DoST and is supported by VINA SAMEX and the star anise farmers' groups in Yen Phuc and Binh Phuc communes in Van Quan district. The potential to develop farm organic production and produce organic star anise for international markets certainly exists but will require considerable commitment and assistance if it is to be achieved. Development of an organic star

anise stream would also provide the opportunity to introduce product traceability that also could be applied for non-organic star anise as well.

47. Financial margins are low along the star anise value chain. Commune and district collectors only achieve margins of VND 600 to VND 800 per kg of fresh fruit (Appendix 2). The commune collectors only handle low quantities of star anise and the total income from their collecting work is low. District collectors deal in much larger volumes and some are handling more than 4 tonnes of fresh fruit per day. The higher volumes enable profits based upon the higher product turnover as opposed to seeking addition value through improved management of product post-harvest.

48. Profitability from oil processing by the Vietnamese companies has margins of 20%[10] although one of the companies claims that margins on sale of packaged oil are nearer to 45% (Appendix 2). Margins for the sale of spice depend upon the quality with margins of 40% for quality grade 1 star anise. Margins for grades 2 and 3 spices are 5% as these can only be exported to low value markets.

49. The financial analysis undertaken by the PPTA Feasibility Study indicates considerable potential for the Vietnamese star anise businesses to increase margins. For spice fruit producers, they need to improve the quality of the star anise through better post- harvest management – mainly drying- and stop the use of chemicals by farmers and collectors. This enables companies to increase the proportion of their spice sold in the higher value markets.

50. For the Vietnamese processing companies improved extraction technology is required for them to be able to produce shikimic acid for the higher value pharmaceutical industry. It is reported that the market price for shikimic acid is between $130 to 150 per kg, and that 100kg of fresh fruit will produce seven to ten kilograms of shikimic acid. Unless the Vietnamese businesses make the investment in the higher technology extraction plant they will remain in a lower returning segment of the oil processing business where prices are $ 15 to 20 per kg (see the gross margin analyses in Appendix 2).

51. Gross margin analysis by the PPTA Feasibility study shows that star anise farmers generate a net profit of VND14,000,000 per ha when the fresh fruit price is VND 15,000 per kg of fresh fruit. The star anise price reached VND 27,000 per kg of fresh fruit in 2016 due to increased buying by the Chinese. In previous years, the farm gate price was VND 9,000 per kg of fresh fruit. Labor is a major production cost and if the farmer is able to use more family labor then the profit will be higher (Appendix 2).

d. Chain Leaders and Competition

52. The chain leaders for the China star anise value chain are the Chinese processing companies based in Guangxi province. These Chinese businesses have a major influence, almost monopolistic on the Lang Son star anise industry through their dominance in the purchasing of the Lang Son star anise crop. It is difficult to get reliable data about the activities of the Chinese chain leaders, but as reported above, it is estimated that they purchase between 60% to 70% of the crop. The Chinese chain leaders are able to exert a high level of control over the value chain in Lang Son due the high volume of produce they purchase through their established business relationships with the Vietnamese district traders. The basis for the

[10] PPTA estimates

Chinese competitive advantage is assessed to be their superior processing technology leading to higher value products, and the marketing of their products. They are also very efficient with their logistics and the information provided to traders. The Chinese dominance in the market is illustrated in 2016 where they increased the fresh fruit price up to VND 27,000 per kg of fresh fruit and the Vietnamese processing businesses were unable to compete for product at that price. Collectors and traders in Viet Nam supplying the Chinese traders make low margins (see Appendix 2) and their profit is achieved through the volume of star anise that they are able to sell to the Chinese.

53. Vietnamese chain leaders for Lang Son star anise are the two main oil and spice businesses: Aforex and VINA SAMEX. These two businesses account for around 30% of the annual purchases of star anise in Lang Son. Aforex purchases about 2000 t of fresh fruit and VINA SAMEX 1000 t. Neither of these businesses has an obvious competitive advantage over the Chinese. The main reasons are the superior processing capacity of the Chinese plants, and the strong trader networks and business relationships that the Chinese have established. Both Aforex and VINA SAMEX have less sophisticated steam based oil processing plants and they also have limited drying facilities. Although Aforex and VINA SAMEX both operate in Lang Son they have are no logistical advantages over the Chinese. Aforex and VINA SAMEX have established business relationships with district level collectors and farmers groups and they compete with the Chinese, and each other, through these relationships.

54. Plans to compete more effectively with the Chinese traders have been implemented by both Aforex and VINA SAMEX. The companies have established, or are in the process of establishing, bases in Trang Dinh district in the north of Lang Son province. They have also strengthened their business relationships with district collectors and with farmer groups. VINA SAMEX has formally become part of a cooperative in Yen Phuc commune (Van Quan district). It is expected that these measures will enable both companies to compete much more strongly with the Chinese.

e. Business Relationships and Stability

55. Relationships along the star anise value chain are a mix of cooperative, opportunistic and antagonistic. The Chinese businesses have established relationships with the district collectors. These relationships, however, exploit the weak financial resources of the district based businesses. Chinese traders lag their payments to the district collectors by one truck delivery thus creating a situation of financial dependence.

56. The low margins in star anise collecting, and the quickly changing prices, leads to opportunistic behavior by some chain members. It is this opportunistic behavior by farmers and collectors is one of the biggest risks that Aforex and VINA SAMEX face. To mitigate this risk they have focused their relationships more on working with farmer groups, and increasing their physical business presence in the main star anise producing districts through partnerships with collectors.

57. Farmer group formation is in the early stages and is based upon the SNV project where the groups were formed for principally for the delivery of technical advice and production support. The former SNV groups in Yen Phuc and Binh Phuc communes in Van Quan district have some degree of horizontal integration. One of the Yen Phuc SNV groups has become a cooperative in association with the VINA SAMEX company, and will act as the focal point for the star anise product from the other star anise farmers in the two communes. The only other form

of what can be considered as horizontal integration is the accumulation of star anise by small commune based collectors.

58. Price stability is an important factor to farmers. The variable star anise price and yield influence their decision over replacing older or poorer performing trees, and increasing their star anise area. Alternative investments for the farmer are in the shorter rotation timber crops such as acacia and eucalyptus. Plantings of new areas of star anise have been low in recent years as farmers have preferred to invest in acacia and eucalyptus.

f. Information Flows

59. Information flows along the chain in relation to price, especially between the chain leaders: both Chinese and Vietnamese and the traders is a positive feature. Prices and quantities required change very quickly and there is constant contact between the district traders and the agents of the Chinese processors and the Vietnamese processors. One value chain member described it being like the stock market with its constant price changes. Most district collectors and farmers do not have the financial resources to hold star anise stock for long and fresh fruit once harvested must be sold within five days unless it is dried. The district collectors are under pressure to turn over their stock as their margins are so small. Information flow along the chain about quality is very limited and is a weakness in the chain relationships. This lack of emphasis upon quality and flow of information about quality is a major risk to the growth of the star anise export business in Viet Nam.

g. Quality Assurance

60. Product quality is a major risk to the development of high value star anise markets. Aforex and VINA SAMEX have achieved some internationally recognized qualify certification for their processing operations. VINA SAMEX has Hazard Analysis and Critical Control Points (HACCP) certification for its factory and Aforex had International Organisation for Standardisation 14000 certification. Both companies are aware of the importance of international quality assurance certification and have plans to extend this. One small Van Quan district based company (owned and operated by Mr Tu) processes and exports 5.0 t of oil to Belgium each year. The company has no international quality certification but is subject to a quality audit each year by the Belgium partner. Farm supplier inspections are part of the Belgium audit process. The Van Quan District People's Committee also certifies the quality of the oil exported to the Belgium client even though it does not have the technical capacity to measure oil quality.

61. Much of the quality risk, however, is with poor handling and drying at the farmer post-harvest stage. Drying by district collectors using coal and wood leads to chemical contamination: sulphur dioxide and CO2. Addition of chemicals for color enhancing and for mold suppression also causes product contamination. Water used for washing the fresh fruit also can also contain agro-chemicals used for rice.

62. No formal system exists to measure chemicals on the fruits and therefore there is no penalty for farmers and collectors who use chemicals. It also seems that the Chinese businesses are not concerned over the use of chemicals – but a high proportion of their purchases are in fresh fruit. The response by both Aforex and VINA SAMEX to the quality problem is minimize quality risks by purchasing a high proportion of star anise as fresh fruit and drying it themselves. But Aforex depends upon a sun drying method and VINA SAMEX's drying

facility has limited throughput capacity. Quality assurance is a main challenge that the value chain members must address for access to higher value markets.

h. Governance and Institutional

63. Star anise industry members are represented by the SAA. The SNV Spice of Life project supported the SAA and its main functions include working with the various provincial departments, and to assist members in production, processing and marketing. While the SAA has undertaken some activities that include providing information to members and facilitated participation in some training courses, its operations are constrained by lack of funds. The members pay no fees and association currently relies upon the support from the provincial government (through DARD) and the VINA SAMEX company. Star anise farmers participate in the SAA through periodic meetings in the districts. Not all of the district collectors and processors are SAA members. Aforex is not a current active SAA member although it has been in the past.

64. The SAA has the potential to play an important role in the Lang Son star anise industry and the initial association development work undertaken by SNV can be built upon. Roles that the SAA can play in the industry are improved member education and communications, coordination of training and technical advice activities, and lobby government over industry issues and needs.

65. Star anise farmers are assisted by provincial and district extension services. A recent extension initiative has included an on-farm demonstration of better production techniques. The extension technical support for star anise farmers is limited and there has been little effective research undertaken to improve star anise cultural aspects or into better post-harvest and processing treatments. The SNV project did try and address some on-farm and post-harvest aspects.

i. Cross Cutting Issues

66. Gender specialization is pronounced in the tasks along the star anise value chain. Harvesting, which is a physically demanding task, is predominantly undertaken by women. The harvesting work undertaken by women involves climbing the trees to harvest the fruit and the transport of the collected fruit from the hill areas to their farms. Transport may be by motorbike but is commonly by shoulder poles due to the rough terrain and lack of formed access roads. Women are also involved in collection and aggregation of the fresh fruit, and in post-harvest processing. In both Van Quan and Binh Gia districts there are women entrepreneurs that collect and aggregate fresh and dried fruit for sale to Chinese and Vietnamese processors. Some of these women entrepreneurs also process oil on a small scale for sale on various markets. The significant role of women in the star anise value chain development has tended to be understated in previous projects. Much greater emphasis will be placed upon their strategic farm production, collecting and processing role in the Project's design and implementation.

67. Star anise farmers use few agro-chemicals. Fertilizer use is low as is the use of pesticides. Chemicals to enhance star anise coloring and to suppress mold associated with poor drying is the main environmental concern. This needs to be overcome by a stronger education program over quality assurance that includes farmer and collector training. The Vietnamese business chain leaders need to play a main role in this.

j. Conclusion

68. The Lang Son star anise industry has considerable potential for development. Realizing this potential, however, is dependent upon growing the role of the two main Vietnamese companies that operate in the industry. Both companies are in the early stages of increasing their star anise business activities and challenging the Chinese businesses that currently dominate the Lang Son star anise industry. It is considered unlikely that the Chinese businesses will invest in the Lang Son industry and provide any assistance to farmers and to local collectors and processors. The Chinese business strategy will be to continue their near monopolistic role of sourcing the high - quality Lang Son fruit at as low as possible prices. Star anise farmers and collectors in Lang Son will only benefit from increased star anise prices and higher profit margins through the Lang Son star anise businesses being more active in the star anise value chain and providing more competition to the Chinese businesses.

69. Aforex and VINA SAMEX both have a strong whole of value chain focus and they aim to increase the level of vertical integration. This is evidenced by their push to develop stronger business relationships with farmers and district star anise businesses, and their marketing efforts in high-value markets and the development of better quality products for these markets. This market driven approach is essential for the companies to develop their value chains and compete with the Chinese businesses.

70. Several viability gaps exist in the star anise value chain and these needs to be addressed if the Lang Son star anise industry is to grow and provide increased benefits to farmers and other value chain members. Main viability gaps are:

(i) lack of an overall provincial strategy for the development of the horticultural sector and the main crops, including coordinated input by the various provincial departments;
(ii) no plan to develop the use of the star anise GI, and support the development of the leading star anise businesses;
(iii) marketing by Aforex and VINA SAMEX is not based upon a well formulated marketing strategy and plan, and is constrained by their budgets;
(iv) oil processing equipment for all Lang Son star anise businesses (small and larger) is unable extract high value organic chemicals or produce high quality oil;
(v) processing companies (both small and larger) lack investment funds to upgrade their processing and drying equipment;
(vi) poor farmer and collector drying and the use of chemicals;
(vii) no formal contractual business relationships exist between value chain members, and relationships are often opportunistic and there is commonly low loyalty by farmers);
(viii) weak horizontal linkages between farmers (few active farmer groups);
(ix) few access roads to star anise production areas;
(x) low technology farm level production methods, and harvesting techniques;
(xi) farmers lack funds for inputs and small-scale investments;
(xii) projects and other interventions have failed to recognize the important role of women in farm production, harvesting, and the other value chain activities; and,
(xiii) no program of research into star anise production and processing.

3. Vegetable Value Chain

71. Vegetable are one of the main horticultural crops and contribute to 14% of the economic output of the Lang Son crop sector. The vegetable production area has remained constant at just under 5,000 ha for the last five years. DARD has identified vegetable production as one of the development priorities and projects that the area of vegetables will increase to 8,700 ha by 2020. DARD also forecasts that the economic output of vegetables will increase from VND 668,121 million ($30m million) in 2015 to reach VND 982,000 million ($40 million) by 2020, and VND 1,622,404 million ($74 million) by 2025. Programs to increase vegetable production are not specific and include a range of policies such as better application of scientific knowledge and investments in key product development. It is planned to increase vegetable production areas in most districts with bigger area increases projected for Cao Loc, Chi Lang and Loc Binh. Although Van Quan is the proposed site of the Project's pilot vegetable production area it is a lower priority area for vegetable production in the DARD 2016 to 2020 plan. The production area of vegetables in Van Quan is 650 ha, according to the data provided by the Van Quan District People's Committee.

72. Vegetable farming systems in Lang Son feature cool season production and supply local district markets, and markets in Lang Son city. There are also vegetables sales to the two Lang Son supermarkets and a few smaller more specialized safe vegetable shops. A small number of farmer vegetable production cooperatives have been formed to supply to the local supermarkets and other local outlets. Vegetable production is limited to the winter season. Water melons are a profitable later summer crop and the Lang Son water melons are sold to Hanoi. There is a steady demand for the water melons and traders are active in purchasing the melons from the farmers for sale in Hanoi. Although there is a demand for the Lang Son leafy brassicas only a small proportion of Lang Son vegetables are currently sold in Hanoi.

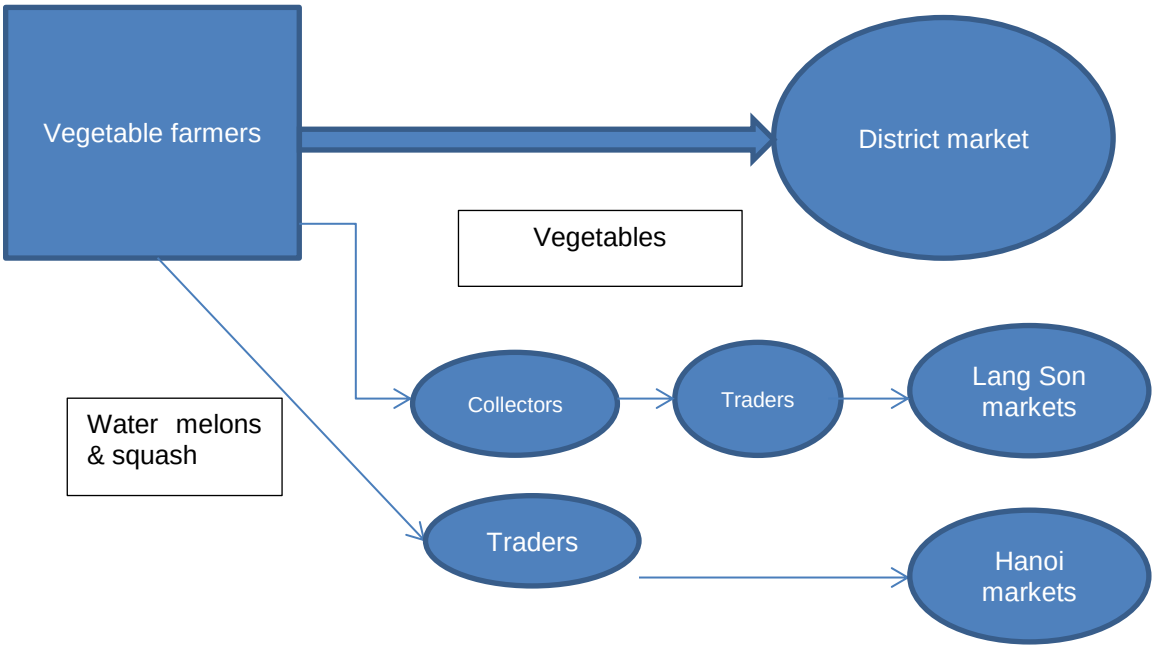
73. Vegetable production methods used by the district farmers are low intensity and consequently the yields are average to low. Many farmers have had some training in the safe use of agro-chemicals but their vegetables are not certified as safe. The range of crops grown is limited and funds for inputs are a constraint. Many of the vegetable production tasks are carried out by women, who are also responsible for selling vegetables in the market if they are not sold to visiting traders.

74. Demand for vegetables in Hanoi has increased at an annual rate of over 15% since 2005. The demand for vegetables is 2,600 t per day and currently only 55% of this is being met11. Nine provinces, plus greater Hanoi, all supply vegetables to the Hanoi market. Most of these provinces are adjacent to Hanoi but there is also supply from the further away provinces of Son La, and Lao Cai. Over 40% of Hanoi's leafy vegetables such as mustards and spinach are supplied by Lai Cao. These are vegetables that also grow very well in Lang Son. An increasing demand for safe vegetables is a feature of the Hanoi market. It is as yet, however, undersupplied as most of the nine provinces have not reached their safe vegetable production area targets. Vegetables sold through supermarkets and specialist vegetable stores are less than 10% of the total consumed in Hanoi. Only 4% of the vegetables sold in Hanoi are certified as safe, and these almost exclusively sold through the 87 Hanoi supermarkets or through specialist vegetable stores. It is projected by the National Institute for Planning and Projection (NIAPP) that the demand for vegetable in Hanoi will continue to rise as incomes rise and tourist numbers continue to increase.

[11] Source NIAPP data

75. There is also an increasing demand for organic vegetables in the Hanoi market. Several entrepreneurs have opened organic and safe vegetable shops in response to this demand. One retail chain Bac Tom has over 12 stores in Hanoi. The volumes of organic vegetables are small and increasing. The cost of organic certification is high for small vegetable producers and the Participation Guarantee Scheme (PGS) has been successfully adopted by several farmer groups in the greater Hanoi area with Thanh Xuan commune being the PGS pioneer. The basis of the PGS is an agreement between farmers, the retailer and customers over the organic nature of the vegetables produced and that pass along the value chain. PGS may offer an opportunity for the Lang Son farmers to produce organic vegetable and access Hanoi markets through retailers, such as Bac Tom. PGS farmers have strong group functions and the Lang Son farmers can benefit from applying the PGS group model.

Figure 2: Vegetable Value Chain (based upon Tu Xuyen Commune, Van Quan district)



76. The vegetable growers in Tu Xuyen commune have small and fragmented land plots of ranging from 1000 m^2 up to 3,000 m^2. Vegetables are produced over the winter period and the main varieties are: cabbage, carrot, kohlrabi, tomatoes, potatoes, cucumbers, and mustard… Low input production methods are followed and the vegetable volumes are small and are sold at the district market and to other commune members.

a. Customers and Markets

77. Customers for the current vegetable value chains are the members of the district communities who purchase at the local markets. Women are the main actors who purchase at the local markets. It is also the women farmers who take their vegetable products to the local market and sell directly to local consumer. It is estimated that 80% of vegetable volume are sold to final consumers at the district market. About 20% is sold to traders and then sold to markets in Lang Son city. For the melons, the customers are in the Hanoi market and some other nearby provinces.

b. Value Creation

78. When needed, vegetables are washed before sale and there are no other actions to create a higher quality product. Gross margin analysis completed by the PPTA Feasibility study shows that vegetables generate a net profit ranging from VND 80 million per ha for cucumbers to VND 136 million per ha for tomatoes (see Appendix 3). Analysis of local vegetable value chains shows that farmer margins are about 55%, collectors 12%, wholesalers 15% and retailers between 15 to 20% (more details in Appendix 3). While the farmer margins are high the farmers produce a low volume of vegetables. In contrast the margins of the other chain members are lower but these margins are achieved over a much larger quantity of vegetables.

c. Chain Leaders

79. The chain relationship is between the market vendor and customer and there are no chain leaders and no real vertical integration. Traders are the chain leaders for the melons and they determine the price paid to the farmers based upon the margins they can achieve in the Hanoi and other markets. There is strong competition between the melon traders.

d. Business Relationships and Stability

80. Business relationships between the melon producers and the traders are well established and relatively stable. Farmers will, however, sell to the trader who will pay the highest price and so the relationship is also opportunistic (low farmer loyalty). For the vegetables, stability is an issue. Demand in the local market fluctuates and the farmers have no alternative market. Unsold vegetables are used for animal feed, mainly pigs and chickens.

e. Information Flows

81. The vegetable farmers do not have information about market demand and need to assess this on a day by day basis. Lack of information about market demand and prices is one of the main concerns of the farmers, and is a factor that may take some time to overcome in the development of the vegetable value chain. There is also no formal information about potential demand for melons. Farmers know from previous seasons that there a strong demand for Lang Son melons in the Hanoi market. The Lang Son melons also ripen at time when there are few other melons in the Hanoi market.

f. Quality Assurance

82. Farmers use limited amounts of agro-chemicals but there is no formal or informal quality assurance systems in place. Customers must trust the vendors and farmers information about use of agro-chemicals – a common feature in local markets in Viet Nam.

g. Institutional

83. Vegetable farmers can access technical advice from the district extension agents and also from the commune extension workers. The technical knowledge and skills of the extension staff is suitable for local vegetable production but not for more intensive safe vegetable production. The extension staff's experience with the commercial aspects of vegetable value chains is also limited, including the regular supply of products to a client.

h. Cross Cutting Issues

84. Women's predominant role in vegetable production and marketing needs to be recognized in the development of the vegetable value chain. The proposed value chain Project will increase the work demand upon women and this has been taken into consideration in the final project design. Project implementation activities must also recognize the multiple tasks undertaken by women in their farm household systems. Vegetable production will be intensified and this will require a greater time and physical input by the women vegetable farmers. There will, however, be increased mechanization that will increase labor efficiency and reduce drudgery associated with tasks such as cultivation. Marketing will also be undertaken on a group basis and will be much more time efficient. Training and extension programs must ensure that they have a strong focus upon supporting women farmers. Keys features will

include timing and phasing of training to meet women's availability, timing of extension activities, use of training methods that are tailored to address any low literacy issues, and ensure that women farmers are the primary extension and training target.

85. Agro-chemical use is low but the type of pesticides and fertilizers, and their source, is not well known. Safe vegetable development will require a better regime of agro-chemical and fertilizer use and their documentation.

i. Conclusion

86. The existing production and selling of vegetables at the local markets can be considered as a low - level value chain. Few value chain functions are completed. There are more of the usual value chain functions, such as business relationships with traders, undertaken in the melon chain.

87. Developing a vegetable market driven value chain based upon the vegetable producers in the Van Quan district (and other Lang Son districts), to supply the Hanoi market safe vegetable supermarkets and specialist stores, has some risks. The vegetable value chain analysis has highlighted a number of viability gaps that will influence the development of a successful vegetable value chain: (i) farmers' high market risk aversion; (ii) virtually no experience with contractual market supply agreements-quantity, quality and timing; (iii) no previous experience of working in cooperative producer and marketing groups; (iv) knowledge of more intensive vegetable production methods is low; (v) little experience in the production of safe vegetables and post-harvest management; (vi) important role that women farmers play in both production and in marketing; and, (vii) no capital for farm investment and limited farm working capital.

88. Gaps also exist in the institutional support for the vegetable value chain. District extension services do not have: (i) adequate safe vegetable technical skills and knowledge; (ii) farm management skills and knowledge for planning and implementation of intensive vegetable production systems; (iii) knowledge of good extension and training practice when dealing with women farmers; (iv) experience with the formation and operation of farmer production and marketing groups; and (v) expertise in the commercial aspects of vegetable production.

II. OUTPUT 3 DESIGN

A. Design Concept

1. Problem Definition

89. Lang Son's horticultural sector's potential for growth is severely constrained by market failure. The Project design will address four main areas of market failure: (i) Government led sector development plans that are production based, horticultural product market demand is not the basis for the sector development priorities, and the role of the agribusiness private sector is not an integral part of the sector plan. The sector plans also fail to recognize the need for sector development to include a much greater awareness of technical barrier such as hygiene, food safety and export quarantine regulations essential for market development: (ii) Sector fragmentation. The horticultural sector is characterized by many small holders on small production areas, who have low output volumes, and with weakly formed value chains for products that are sold into lower value markets. Sector agribusinesses are small and have limited financial resources and access to investment capital is a major constraint. The farmers and the other value chain members are not coordinated into any real collective group that has the critical mass, and resources, to address the factors that constrain their development. (iii) The classic market failure condition of poor information also prevails. Farmers know little about consumer demand and prices for their products. They also do not have information about potential higher value markets, and the technical requirements for these markets: both national and export. Many of the product value chain actors also have limited information about markets, prices and market technical requirements. There is also a market failure with the provision of government public good information services to farmers and agribusiness. This includes timely price information, quality assurance requirements and potential new markets. The Lang Son provincial government has a piecemeal approach to sector support, and departmental assistance is weakly coordinated across the departments with horticultural sector responsibilities; and, (iv) Dominance by Chinese agribusiness in the purchase of products also contributes to market failure. While star anise is the main product where this occurs, there are other products where Chinese businesses are developing strong positions. In the star anise sector the Chinese have a competitive advantage due to their superior processing capacity coupled with their strategic use of credit to fund the purchase of product through local traders. Farmers and traders commonly have weak cash flows and take advantage of the cash buying by the Chinese businesses.

90. Overcoming the market failure especially the constraint of a fragmented small product industry size and developing competitive export product value chains is the major strategic challenge the Lang Son horticultural industry faces. Horticultural sector development is constrained by the small scale of all the product groups. Only star anise has small to medium sized commercial businesses, but even these businesses do not have the financial resources to fund their own development. Successful product development requires a mix of support measures that will enable the small immature product industries, and their value chains, to become more commercial and market orientated. The mix of measures must also recognize the significant role that women plan in both the star anise and vegetable value chains. The prospect of the small Lang Son horticultural product industries growing into stable and profitable export value chains is unlikely without a significant commitment to building strong market led strategies.

2. Proposed Response

91. The proposed investment will address the need for coordinating the small, fragmented and disjointed structure of the existing horticulture sector and the associated market failure. The proposed investment will support the establishment of a Horticultural Sector Industry Organization (working title HortLangSon) as the institutional basis for initiating and sustaining commercial market focused commodity groups and value chain development and growth.

92. Design of Output 3 targets investment into two elements of the horticultural sector. The first invests in the establishment of a horticultural sector industry organization and its operation. The second is the development of horticultural product value chains based on strong market and quality control principles, and with an inclusive business approach for all chain members. Two value chains will be initially supported by the Project with subsequent decisions over what product value chains to support being made by the horticultural sector industry organization.

93. HortLangSon will lead and coordinate the development of the Lang Son horticultural sector. HortLangSon is expected to support small industry groups into a larger grouping creating a critical mass sufficient to promote market led commercial horticulture with an emphasis on value creation within Lang Son Province. HortLangSon will be an industry organization that represents the private sector: horticultural industry organizations are a common in major horticultural exporting countries such as Australia and New Zealand[12].

94. The role and functions of HortLangSon will be designed to add value to existing State management responsibilities of the various government departments through providing an overall strategic coordination and vision at a value chain scale. The functions will not compete or overlap. HortLangSon will provide a focal point for coordinated input by the various State and non-state management agencies into horticulture sector development in the value chain segments that the departments are responsible for.

95. International experience in horticultural product export market value chains is that the industry organization can provide a range of services critical to the sector's successful development and ongoing market access and viability. The industry organization provides assistance to small emerging product groups to developing their export strategy, setting industry product standards, trade access advocacy in partnership, and most importantly ensuring compliance with international quality standards: food safety being paramount. Industry education and awareness, as well as enforcing quality standards are vital functions. Successful value chain developments recognize the role played by different social and ethnic groups in value chain activities, and that women have an increasingly important role at all values chain stages.

96. The weight of international horticultural sector export product development experience is that small low volume - product value chains have limited chance of success unless they are supported by a solid performing industry organization. The importance of having a horticultural sector industry organization is highlighted by the increased competition, on both export and local markets, that Lang Son farmers will face due to agreements such as the ASEAN –China Free Trade Agreement (ACFTA). While ACFTA and other agreements provide export opportunities they will also lead to greater competition within Vietnam from imported horticultural

[12] See http://www.hea.co.nz/

crops. Lang Son's small horticultural product industries will need to quickly develop if they are to compete with the larger production scale that the Chinese fruit and vegetable farmers enjoy.

3. The Outcome

97. The expected outcome is improved horticultural sector economic performance through a coordinated industry-led, market focused approach to sector development built on value chains linked to high value "export" markets. These value chains will prioritize quality assurance, build strong business relationships between value chain actors, where income for all actors, including farmers, is increased. The value chain development will enhance inclusive growth along the chain and provide increased economic opportunities for ethnic minorities and women that will enhance their empowerment. The Output 3 Value Chain Matrix is presented in Appendix 4.

4. Lessons Learned

98. There are a number of lessons from projects in Viet Nam that have featured value chain development and public private partnerships (PPP) that need to noted. The International Fund for Agricultural Development (IFAD) experience is that the project should not try and pick the businesses and value chains that are expected to succeed (pick the winner method). It is better to create the opportunity for value chain entrepreneurs to prepare and present their business cases. Successful product and value chain development must also be based upon thorough market analysis. Production driven approaches will not succeed unless there is a market for the product. Lang Son's horticulture sector has several potential products but investment in these must be justified on the basis of market analysis. The project can then make a decision over funding support based upon the merits and feasibility of the proposal, including a market analysis. There should also be some contestability over the funding.

99. Efforts by IFAD and the World Bank to develop a PPP model for agribusiness value chain development with small agribusinesses and small holder farmers have had variable success to date. In the Agricultural Competitiveness Project (World Bank) agribusinesses were supported by a matching grant scheme to facilitate their business connection with commercial farmer based groups. The business relationship had some initial success but there has not been any follow up studies to assess sustainability. The IFAD model has included a mix of grants for agribusiness, access to credit through commercial banks, and funding of inputs for farmers. While the IFAD support value chains have had some success they are still in their early stages. Funding of business development by the use of public (project loan) funds is a main feature of these so - called PPP models. The investment made by the agribusiness and also by the farmers is limited, especially in the initial stages when the value chain relationship is being established. Design of the Output 3 value chain component is informed by the lessons learned from the recent IFAD and World Bank PPP experience in Viet Nam.

100. Failure to sustain contractual partnerships between farmer groups and the business partners after the first cycle of project support is an experience from a World Bank project. Reasons for this have included the farmers' lack of working capital to reinvest in the second production cycle. Some farmers also failed to honor their contracts and sold their produce to other businesses – the risk of side-selling is high and repeatedly documented. The World Bank project was influenced by the limited agribusiness knowledge and experience of the provincial and district project implementers that were mostly public sector officials. As a result, critical inputs for seasonal activities were late or delayed, and little proactive monitoring of important production and marketing stages, as well poor information flows to farmers. Where agribusiness partners have assumed an active role in the provision of information and technical advice and

assistance to farmers the value chain relationships have been more successful. The ability to establish and nurture relationships is a critical success actor in all value chain programs.

101. The IFAD program in Viet Nam has the most experience with grants for agribusinesses in product value chains. IFAD has made provided grants of just over $4 million to some 74 agribusinesses since 2012. Financial returns for the large majority of the agribusinesses are reported by IFAD to be very satisfactory with a low number of business failures. Grants to agribusinesses were also a feature of the Agricultural Competitiveness Project as mentioned above. Lessons from the IFAD experience is that any grant scheme should be competitive, that the larger agribusinesses should make a contribution (IFAD require 51%), business plans are required, and each investment proposal must be evaluated using a sound financial analysis criteria (as for commercial loans). In their grant activities IFAD have also given weighting in the evaluation of proposals to such factors as the percentage inclusion of poor households. For smaller agribusinesses and farmer groups business plans are also required as well as some co-investment contribution. Farmer groups that provide the basis for horizontal integration are a necessary requirement for the value chain development. The size and the functions of the groups need to be carefully considered. Successful groups are built upon a sound training program and they require good leaders. Several International Non-Governmental Organisations (INGOs), including VECO, have useful experience in the institutional development of farmer business groups in the northern mountains region, some of which have become cooperatives. The INGO and World Bank projects have clearly demonstrated that women make significant contributions to farmer groups and there are many instances where women have been very successful group leaders. In the Second Northern Mountains Poverty Reduction Project over 4,000 women's production groups have been formed, and are led by women, and the vast majority of these operate successfully.

102. Use of Block Grant funding and force accounts for communes, and farmer groups, has been a successful feature in a number of recent projects in Viet Nam. The UNDP and Irish Aid technical support program for the National Target Program - Sustainable Poverty Reduction (2012 to 2015) piloted the use of Block Grants. Due to the success of the Block Grants these will be used as the basis for funding farmer support activities in the National Target Program - Sustainable Poverty Reduction (2016 to 2020). Moreover, the World Bank's Second Northern Mountains Poverty Reduction Project has also featured the extensive use of Block Grants for farmer groups and small scale investment activities in over 230 communes. The Australian Aid program projects in Quang Ngai also demonstrated that communes were effective and efficient in the planning and management of Block Grants for commune investments and farmer group activities.

a. Regional Program Lessons

103. Weak agricultural sector strategies that fail to address market failures are common in many provinces in Viet Nam, and in other Great Mekong Sub region (GMS) countries. There is a predominance of disjointed production based planning that fails to adequately recognize market demand and opportunities. Value chain development is commonly proposed as the latest best solution to address market failure and connect farmers to markets. But unless value chain development encompasses a wider platform of sector support initiatives and measures including market assessment, strength and viability of chain actors, and tackles quality assurance and food safety it has a lower probability of success.

104. The horticultural sector market led approach proposed for Lang Son features a market led strategic direction that encompasses the coordinated development of the product groups in

the sector. This is in contrast to the narrower value chain focused approach common in some other value chain projects. The product value chains in the sector will only be developed if the investment can be justified on the basis of market demand and viability of the chain businesses. The proposed industry sector organization provides the opportunity for other provinces and neighboring GMS countries to learn from the proposed coordinated horticultural industry level approach that provided the platform for viable value chain development. It is proposed that the ADB GMS Core Agriculture Support Program monitor the Lang Son program and use it as case study to develop a more comprehensive industry based value chain policy and intervention strategies.

B. Output 3.1: Horticultural Industry Organisation Development

105. **Objective**: To develop a horticultural sector industry body mandated for coordinated strategic sector planning and oversight, enhanced quality control standards, trade relationships and compliance, and representing the product members.

1. Description

106. Output 3.1 will establish the horticultural sector industry organization (HortLangSon) that will:

(i) prepare a strategy for the sector's growth and development;
(ii) engage with private sector organization's and members and government departments to plan and implement the sector strategy;
(iii) initiate and implement a program of sector enhancement activities that includes assisting value chain development;
(iv) prioritize product quality assurance and standards for export, food safety, trade relationships and member education;
(v) manage and deliver a program of business and production advice and support;
(vi) ensure that sector development interventions actively and equitably target, and are inclusive of, ethnic minorities and women; and,
(vii) act as a Secretariat to represent commodity groups, sector agribusinesses and farmer members.

107. Establishment of HortLangSon will be managed by the PMU. Over the life of the Project the aim is for HortLangSon to become a fully functional and viable horticultural industry sector organization. HortLangSon will be established initially as an association and the horticultural sector commodity groups will be the members. In the early stages of HortLangSon the province will be responsible for the operational costs - through the Project. It is envisaged that as the commodity groups develop and have increased financial resources that they will take over the funding responsibilities for HortLangSon's operations. Commodity group levies will be the basis for funding. Further details are included in the Project Administration Manual (PAM) and Management Implementation Manual.

108. Governance of HortLangSon will initially be through an Interim Board consisting of five private sector members and three government members, one of whom will be a PPC Deputy Vice Chairperson or a delegated representative. The PMU Director will be an *ex officio* member during the implementation period of the project. An elected private sector member will chair the Interim Board with the PPC member the co-chair. The Interim Board will be formed by the PMU through a process that involves consultation and nomination with the horticultural sector. After three years of HortLangSon's operation the private sector members of the Interim Board will be replaced by an elected Board. The province will continue to have three members appointed by the PPC. Tenure of the board members will be limited to two five - year terms unless the Board

itself deems otherwise and the subsequent Member's Annual General Meeting votes their support of the proposal for an extended term. Women will be members of the HortLangSon board and the requirements are detailed below in paragraph 113 (and in the Management Implementation Manual). At the stage where the commodity groups assume full financial responsibility for HortLangSon the PPC will be represented by one non-voting board member.

109. HortLangSon's main functions will be wide ranging and will embrace horticultural sector planning, coordination, and address the viability gaps identified during Project design. Close liaison will be required with the Government departments responsible for State management. An objective for HortLangSon will be to mentor departmental staff in the better execution of these State Management tasks to improve services provided to the horticultural sector members, and increased accountability for the delivery of these services. Provision of capacity building in the interim years will be prioritized. Governance will be a strategic capacity building topic and will be primarily for leading women involved in agribusiness in the sub sectors. The aim being to build a cadre of women who can participate in the commodity groups, and also can be candidates for the HortLangSon board.

110. Key functional areas for HortLangSon are: (i) horticultural sector coordination and provide the various commodity groups with a platform to build their small sector industries; (ii) strengthen market knowledge and information to better tackle market failure causes and issues; (iii) initiate measures to make the small commodity group industries and their value chains more competitive; (iv) product quality assurance to meet international and trade standards, and; (v) export-trade linkages development. Outreach and education will underpin all of the HortLangSon's functions with greatly enhanced sector communications being a priority. This is especially in the initial stages of HortLangSon operations when creating an awareness of the HortLangSon role and functions will be a priority task.

111. HortLangSon's functions and tasks will be implemented through a Secretariat that will support the Interim Board and manage the organization's operations. For the first three years of the Project the Secretariat role will be undertaken by the contracted Implementation Supervision and Contract Management service provider (Terms of Reference Appendix 7). The PMU will manage the procurement of the Implementation Supervision and Contract Management service provider and this will be initiated immediately after loan effectiveness. The Implementation Supervision and Contract Management service provider role will essentially consist of two main task areas: (i) support the development of the Secretariat role of HortLangSon and establish the institutional basis for its effective operations; and, (ii) provide the range of technical, production, business, and marketing services for product value chain development. These two main tasks will be undertaken concurrently once the Supervision and Contract Management service provider has been contracted. Provision of services to implement the star anise and vegetable value chain developments will be a major role for the Implementation Supervision and Contract Management service provider along with identification of additional value chain product groups. This role will also include a comprehensive program of advice and support for all value chain members: (i) processors and retailers; (ii) small and medium sizes collectors and processors, and; (iii) farmers and their farmer groups. At the end of the first three years the service provider role will be reviewed and a decision about renewal of the contract will be made at that stage.

112. Commodity group formation and the subsequent development of the respective product value chains will require functional relationships with a number of different provincial departments. The main departments will be DARD, DoST and Department of Industry and Trade (DoIT). These departments will be required to provide mandated services to value chain members and these services will be part of their normal functions and cannot be funded through

the Project. To facilitate a well - coordinated relationship with the respective departments HortLangSon will establish a commodity group value chain coordination working group. Initially there will be a pilot working group for star anise and one for vegetables. Capacity development of the working group members, through on-the-job training, will be a HortLangSon task.

113. The Project will not form a district level PMU in Van Quan district (or any other districts) to implement the star anise, vegetable and other subsequent value chain interventions. HortLangSon will, however, have technical service provider staff based in the district to support both the vegetable and star anise farmer groups, and other value chain members. HortLangSon's staff will work in coordination with the district and commune extension staff, and provide formal and also on-the-job training for these staff. The district will be required to form an active Project Coordination Committee led by a Vice Chairperson that will be responsible for Project activity oversight and implementation of their functional responsibilities to support Project activities. These responsibilities will be defined in the Output 3 Management Implementation Manual. The Project will not provide funding to the district for management and service delivery. Therefore, the district must ensure that their annual budget submitted to the PPC includes an adequate allocation for their Project management and service delivery tasks.

114. Once the HortLangSon Secretariat has operated for two years the Implementation Supervision and Contract Management service provider will assist the Board with the search for professional staff to manage the Secretariat. After the professional staff are appointed the service provider will implement an ongoing capacity development program for them over the third year of the Project.

2. Inputs

115. Project investment inputs to assist horticultural sector industry development and the sector value chains will all occur under Output 3.1 (see Appended - Cost Schedule) and include: (i) HortLangSon establishment and operational costs; (ii) HortLangSon Implementation Supervision and Contract Management service provider procured and contracted; (iii) Lang Son horticultural sector strategic and marketing plan prepared; (iv) Contestable funds established, procedures defined, administration and approval systems agreed. Funds to be accessed by value chain businesses, farmer producer groups and for market development, improved value addition, innovative and research activities; (v) Trade access and market information services provided to sector members; (vi) Quality assurance systems and procedures established for the sector and for individual value chains; (vii) Industry commodity groups formed and operational; (viii) Sector outreach and education programs, and; (ix) design and implement system to monitor and assess sector performance. Details of these nine investment areas are provided in the implementation section below.

3. Implementation

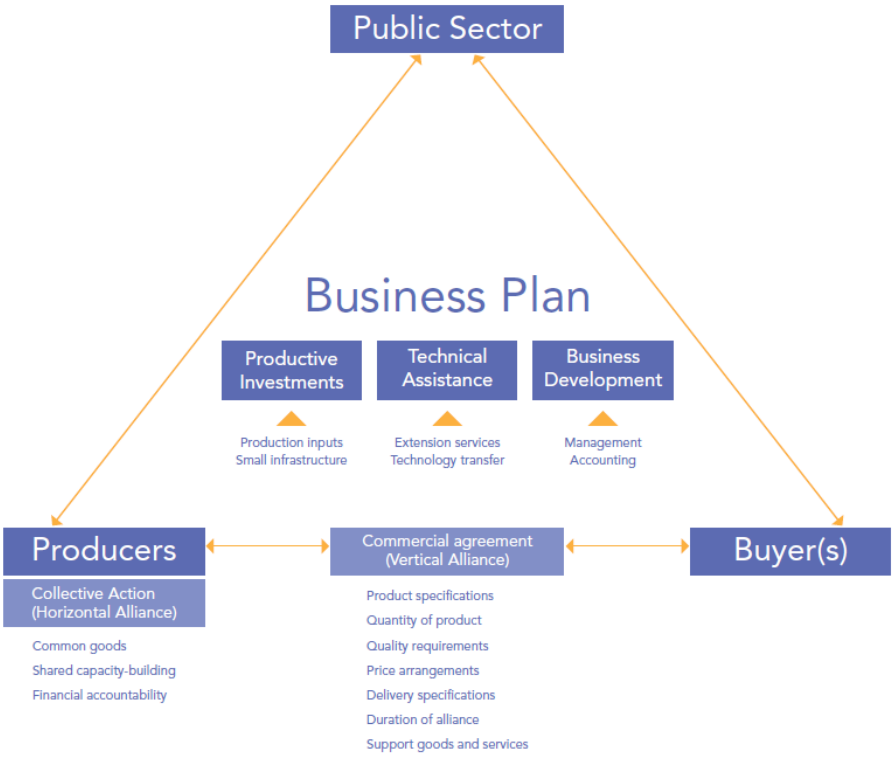
116. Procurement of the Supervision and Contract Management service provider is expected to be completed six month after loan effectiveness. The first tasks for the service provider will be to: (i) undertake a short inception activity and prepare an Inception Report; (ii) commence sector consultation that will lead to the appointment of the horticulture sector members of the Interim Board; (iii) prepare the HortLangSon business plan; (iv) prepare the horticulture strategic plan[13]; and, (v) initiate HortLangSon establishment. The timing of these tasks is shown in Figure

[13] Tasks (iii) and (iv) will be undertaken together as the HortLangSon business plan will be based upon the strategic assessment of the horticulture sector.

3 and it also shows the timing of two value chain developments, and also proposed timing of the subsequent product value chain activities. The main activities for Output 3.1 Horticulture Sector Industry Organization implementation are further described below (see also Appendix 3: Value Chain Design Matrix for more information).

117. Activity 3.1.1 The establishment of HortLangSon will commence once the service provider has been contracted, including the appointment of the Interim Board. There will be five horticulture private sector members on the Interim board, one of whom will be the Board Chairperson. At least two (2) of the private sector members must be women. The other three members will be from GoV agencies, and at least one (1) of these members must be a woman. There will be a program of sector consultation workshops before the Interim Board is appointed.

118. Activity 3.1.2 - HortLangSon will be managed through a core Secretariat that will establish the operational basis for the organization. The Secretariat will be initially staffed by the contracted Implementation Supervision and Contract Management service provider who will be a locally registered Viet Nam agribusiness that has current and past experience in working with agricultural value chains at all levels from trade, processing and enterprise development, producer groups and quality control systems etc. Experience with agribusiness development involving ethnic minorities and women are also a requirement. The first main task for the service provider will prepare a business plan that, once approved by the Interim Board, will provide the basis for the operation of HortLangSon. The service provider Team Leader will act as the interim HortLangSon Chief Executive Officer for at least the first two years of the Project.



119. HortLangSon will be responsible for delivery of the key sector services as defined above in paragraph 111. Its operations will be overseen by the Board and the Board will report to the

PPC through the PMU. HortLangSon will prepare an annual workplan and budget that will be submitted to the Board by October prior to the year that budget applies to. The Board will review the annual plan and budget document and then submit to the PMU. Final approval of the HortLangSon annual workplan and budget will be by the PPC. The annual workplan and budget will contain key performance measures that will be used to monitor performance and progress[14]. A separate bank account will be established by the PMU for HortLangSon for its operational activities. Funds will be transferred to the bank account on a quarterly basis in response to a formal funding request prepared by HortLangSon. The fund transfer will be subject to satisfactory performance as determined by the agreed performance measures. HortLangSon will provide monthly financial reports to the Board and to the PMU. Annual financial accounts will be prepared and these must be audited by an internationally certified audit firm.

120. Activity 3.1.3 Preparation of the strategic plan for the horticultural sector will be the first major sector development task undertaken. Strategic plan preparation will involve extensive sector product group consultation. The Secretariat, through the service provider, will be responsible for this task and subsequently for the plan's implementation. The horticultural sector strategic overview plan will help to define the priority commodity groups that will be supported by the Project. While it is proposed that star anise and safe vegetables will be the two exemplar products for value chain development these must be confirmed at as part of the horticulture sector strategy preparation. A market assessment for star anise and safe vegetables will be undertaken as part of the overall horticultural sector strategic assessment. Preparation of the HortLangSon business plan will be aligned with, and occur in coordination with, the horticulture sector strategy.

121. Subsequently a market assessment and plan will be an important requirement for the different commodity groups. Moreover, the market assessment and plan must show that the commodity group has sound market prospects to be eligible for investment support by the Project. This includes star anise and vegetables. Towards the end of the second year of implementation more detailed market assessments for the priority commodity groups (other than star anise and vegetables) will be undertaken. Using the market assessment information HortLangSon will recommend the products that will be supported for the next round of Project support. It is emphasized that Project investment in the products and their value chains must be justified on the basis of the market analysis and potential: this includes star anise and vegetables. Formation of the commodities groups will be facilitated by HortLangSon and a key condition for commodity group support by the Project is that at least 50% of the group's governance board must be made up of women.

122. Strategy development will encompass two levels. First the vision and strategy for HortLangSon will be prepared. This will then be followed by the commodity group strategies with the star anise and the vegetable strategies being the first two prepared. Commodity group strategy preparation is feature of the Project support provided through HortLangSon and it will focus upon the marketing objectives and targets for each respective commodity group[15]. HortLangSon will assist the commodity groups to prepare their strategies and define the industry systems and standards for both national and export markets. Once the commodity group marketing strategy, with its targets and standards is defined, the role of HortLangSon will be to assist the commodity group to implement the strategy. Star anise will be the export exemplar and vegetables the national market exemplar. It is envisaged that the provision of the

[14] The performance measures will include social and gender indicators from the DMF and Design Matrix (Appendix 4)

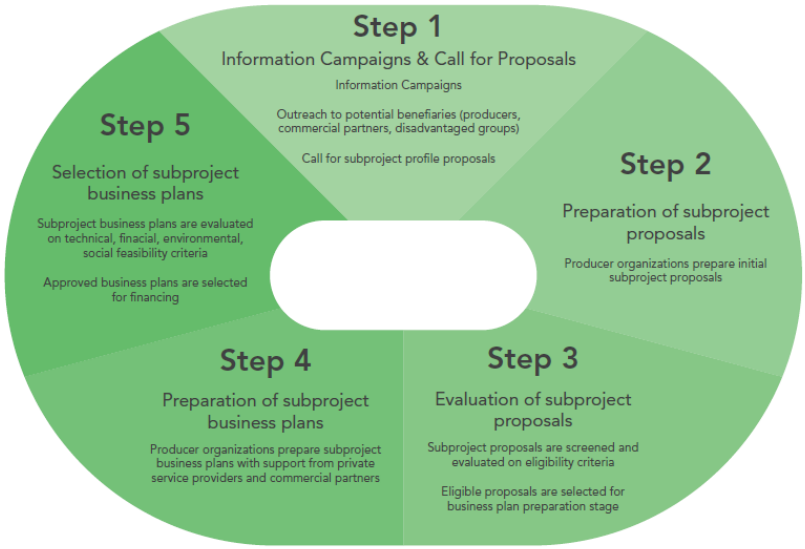
[15] It is expected that some of the smaller product groups may combine and their strategies, systems and standards will be similar.

HortLangSon services will act as a catalyst for some commodity group members (other than star anise and safe vegetables) to undertake their own product development and investment programs. The HortLangSon services, once they are established and operational, will be available to all horticultural sector members, and made available to a wider product range than just the star anise and safe vegetables commodity group members.

123. Activity 3.1.4 Establishment of the contestable funding mechanism and associated regulations will be undertaken by the Secretariat. Contestable funding will be available for four main purposes and conditions for their access to investment funds are summarized in Appendix 6 and more detail is provided in the Management Implementation Manual: (i) Grants to assist value chain agribusinesses to invest in equipment and facilities for product processing and enhancement. Agribusinesses will include farmer cooperatives, larger processors, and also district level processors (most of whom are small). Agribusinesses that propose to invest in multifunctional facilities that provide services such as processing, packaging and cool storage to several horticultural products are to be encouraged. Agribusiness investment proposals that align with PPC agro-industrial zone developments will also be encouraged. The PPTA design team noted that there are many small agribusinesses in the sector, this is especially the case for star anise and associated commodities such as cinnamon. A fair proportion of these small agribusinesses are operated by women. As part of the program to assist small agribusinesses apply for grant funds HortLangSon will support and encourage women entrepreneurs with their applications. The initial focus being the star anise agribusinesses in Van Quan, Binh Gia and Trang Dinh districts; (ii) Farmer producer group grants that will provide an investment package using a Block Grant mechanism. The investment activities will be defined in each producer group's business plan. The eligible expenditure items for star anise and vegetable groups are shown in Appendix 6; (iii) Innovation fund – that will be provided for innovations to support research in production, processing, post-harvest quality and product enhancement and any other areas that will lead greater efficiency and increase value chain output and profitability. Innovative product development will be encouraged. All innovation proposals must be in partnership with horticultural sector industry members; and, (iv) Market development grants where market promotion and development will be supported on matching grant basis. Businesses will be eligible for two years of market assistance based upon their business plan – see also Appendix 6.

Figure 3 Steps in Subproject and Matching Grant Award

(WB, 2016 Productive Alliance IN Agriculture)



124. Grants will be provided on a co-investment basis, except for Block Grants to the farmer producer groups. The agribusiness co-investment grants will require a feasible business plan and an investment contribution by the agribusiness of at least 51% of the total investment. Special conditions will, however, apply for co-investment grants to smaller district based agribusinesses. Farmer producer group will be required provide an in-kind co-investment that will be defined in their group's business plan. Innovation grants are to encourage investment in more risky product and processing developments and the co-investment requirement by the partner will be 30%. Marketing grants will be provided on a 50% matching grant basis. Details of the grant program are summarised in Appendix 6 and the Management Implementation Manual defines how they will operate.

125. Activity 3.1.5 Trade, market and quality assurance services provided to horticulture sector members. This is a core function for HortLangSon that will assist sector businesses to have much better access to services that will provide trade and market information as well as information about the quality standards required in different export markets. Women play a major role in vegetable marketing and also in star anise, as has been highlighted earlier. HortLangSon will encourage women agribusiness members of the two exemplar value chains to actively utilize the market information services and the market development grants. Once these core HortLangSon services are established it is expected that sector agribusinesses will utililise them, without project grant investment support, to develop their markets, improve their post harvest and quality assurance systems to access higher value markets. The outreach program (Activity 3.1.8 below) will be used to make sector members aware of the HortLangSon services.

126. Activity 3.1.6 Quality Assurance systems establishment is one of the major activities that LangSonSon will initiate and implement. It will be implemented to assist the product value chains to implement quality assurance systems along the respective chains. Quality standard setting and compliance, establishing traceability systems, and meeting international certification requirements will all be included. Development of quality assurance systems is a high priority activity for the Project. The quality standards for market will be defined as part of the overall

commodity group strategy and marketing plan. The commodity group members will be required to comply with the quality standards in order to receive support from the Project and HortLangSon. Once quality standards are set, systems implemented and complied with HortLangSon will initiate the process of negotiation with provincial and national agencies for export licensing. Star anise products are strong candidates for export licensing. Quality standards for national and export markets will be set by the requirements of the market. For national markets these will be set by the retailers eg supermarkets for vegetable. For export markets the importing country quality standard regulations will apply. It is expected the United States Food and Drug Administration standards will be a benchmark and GlobalGAP is also being used by some Vietnamese fruit and vegetable exporters.

127. Activity 3.1.7 Each of the main commodity groups will have a formal industry organization formed. These commodity groups will be focal point for each group's involvement with HortLangSon. The Secretariat will support the various commodity groups and their operations. The SAA will be first commodity group assisted. Membership will be made up of private sector members only, and each group's board must have at least 50% representation by women. Some GoV department staff may be ex officio members, but their inputs will be limited to an advisory role.

128. Activity 3.1.8 A strong sector outreach and education program will be developed and implemented, with communications being a key role for HortLangSon. Weak communications have previously constrained sector development as have limited education programs. Moreover, the PPTA observation is that the technical and business development communications and capacity building activities that have been part of previous projects and GoV programs have been far too focused on men. Guidelines and regulations for the participation of women in capacity building activities are contained in the Management Implementation Manual and the PAM. For both the star anise and vegetable value chain farmer groups at least 50% of the group members will be women. More effective training and extension methods, and communications, than have been practiced in the past are required under this output. HortLangSon will apply best practice outreach methods that: (i) focus on key sector members, a significant proportion of whom are women; (ii) use effective communications methods that are inclusive and recognize that a proportion of the sector stakeholders do not speak Kinh language, that some are illiterate, and that some may not regularly attend village meetings; (iii) schedule training and extension events to match the availability of the farmers and other chain members. Timing to match the daily work schedule of women must be a feature; and, (iv) training and extension activities must have a strong applied learning emphasis and delivery should be field based.

129. Scope of the overall outreach program will be wide and address what is required to develop a modern horticulture sector with value chains focused on high value national and export markets. Outreach activities will be aligned with what is required to ensure that an inclusive agribusiness approach is followed. Capacity building will include governance of sector organisations and business entities, business planning and management, marketing, quality assurance, as well as technical and advanced husbandry training. Learning needs will be formally assessed once implementation commences. Building the resilience of all value chain members will be a feature as will the strong theme of better targeting women with all the outreach activities. Accelerator programs for women will be a feature, with the women's governance training being an early priority. Information about Land Use Rights Certificates (LURC) will be part of the communications program.

130. Activity 3.1.9 Management information system will be designed and implemented that will focus upon much improved information about horticulture sector performance. This includes production, processing, and export data (especially China export data). Gender disaggregated data will be a requirement and is detailed in the PAM, and associated project documents.

131. Star anise product value chain support will be initiated once HortLangSon is established and operational. The star anise development will be used as a representative value chain subproject for the processes defined by HortLangSon that will be used to develop other horticultural product value chains. Preparation of the business plans for the star anise businesses that wish to apply for Project funding will occur under Output 3.2.4. This funding will be contestable and grants awarded based upon criteria that will include: (i) technical feasibility; (ii) financial viability; (iii) enhanced business relationships with value chain members, especially farmer groups, and; (iv) being social, gender and environmentally compliant. Details are provided in the PAM.

C. Output 3.2: Star Anise Value Chain Development

1. The Vision

Vision for the Lang Son star anise value chain:

- Lang Son province recognised internationally as the producer of unique high quality star anise spice and oils;
- Star anise industry making a significant contribution to Lang Son's social and economic growth;
- Women and men star anise farmers with increased income and using sustainable and environmentally friendly star anise production methods;
- High quality star anise spices and oil produced by processers using environmentally friendly methods and exported to high quality markets.

3. Description

132. Star anise, as the largest of the horticultural sector product groups, is the logical first product to be assisted by the Project through HortLangSon. Star anise has the SAA that will be further developed to become a more effective commodity group. Output 3.2 will consist of the activities that will coordinate star anise export orientated product development through the commodity group and value chain development. The HortLangSon Secretariat will manage this process through the Implementation Supervision and Contract Management service provider.

133. The Project's approach to product group and value chain development will not be prescriptive and attempt to pick winners. It will follow a logical process whereby the star anise product group businesses will be supported using a contestable funding mechanism. Businesses will prepare proposals for financial support and these will be assessed by HortLangSon (Secretariat and Board) - managed by the Secretariat –see Activity 3.1.4 above. Proposals for funding assistance will be encouraged from the star anise value chain businesses, including the district collectors.

134. Farmer producer groups will also be assisted, but there will no support for farmers that are not part of a formal group. Groups may be cooperatives, or groups that are registered with the local authorities. Other group requirements, including those related to women's

membership, are detailed in the appendices and in the Management Implementation Manual. The primary business of the farmer groups must be star anise production and may also include processing. There will be a funding package using the Block Grant method available for the farmer groups that will have a limit of $55,000 per group. Each group will have some flexibility over how the funding package is applied. The items that may be included are: (i) the group legal formation costs; (ii) feeder roads within the commune; (iii) farm inputs such as fertilizers; (iv) aerial harvesting equipment; and, (v) contracted technical advice. Both the feeder roads and aerial harvesting equipment will reduce the women farmers' harvesting burden. More details are shown in Appendix 6. Funding for farmer groups must be based upon a viable business plan and all groups will be vetted by the Secretariat before funding is provided. The Secretariat will assist the farmer groups to prepare their business plans that will be the basis for their funding applications made under Activity 3.1.4.

135. The Project features a market driven approach to develop high quality production and processing standards. Project support will prioritize assistance for improved marketing and quality assurance along the value chain. The implementation supervision and contract management service provider will have expertise in both marketing and in quality assurance. Assistance will be provided to assist the star anise businesses to prepare their business plans that will be the basis for their applications for funding assistance (Activity 3.1.4).

4. Inputs

136. No investment inputs will be provided through Output 3.2 as these are all included in Output 3.1. HortLangSon will provide a number of direct services and funding that will assist star anise product development and these are all defined in Output 3.1 above and include: (i) Investment grant funds for businesses and farmer groups (Activity 3.1.4); (ii) Trade and market information and associated services (Activity 3.1.5); (iii) Quality management systems developed and implemented (Activity 3.1.6), and; (iv) Product groups formed and operations assisted (Activity 3.1.7).

137. HortLangSon will, however, provide a wide range of technical services and these are outlined in the next section c) Implementation.

5. Implementation

138. Implementation timing of the main tasks associated with the star anise value chain are shown in Figure 3. Tasks associated with the star anise value chain development will commence soon after the service provider is appointed and it is expected that by later in Year 2 and Year 3 that the interventions will start to have an impact. The star anise value chain will be the initial value chain investment and that the core HortLangSon services eg market and trade services, quality assurance and post harvest systems will be developed in conjunction with the star anise support program.

139. Through the early HortLangSon activities the star anise product group will have been formed, based upon the SAA. The star anise commodity group will be used to inform the industry members about the Project and the ways that they can be assisted. The Secretariat will follow up the communications program with a plan for assistance for three main value chain segments: (i) farmer groups; (ii) district collectors and processors, and; (iii) marketers and processors.

140. At the farmer producer level a pilot program that will initially concentrate upon the farmers' groups in Yen Phuc and Binh Phuc communes in Van Quan district will be undertaken. This includes the Yen Phuc Star Anise Cooperative group. The Yen Phuc and Binh Phuc farmers' groups will be assisted to prepare their group's business plans and applications for funds. HortLangSon will also assist the district collectors and small processors to prepare business cases through their business plans and fund applications. Assistance to district based women involved in star anise agribusiness will be a feature of the HortLangSon support. The larger star anise marketers and processors will also be assisted to prepare their business plans and any grant funding applications.

141. The grant funding applications will be initially assessed by the HortLangSon Secretariat and the PMU, and all grant applications over $50,000 will require the approval of the HortLangSon Board. Applications of under $50,000 will be assessed and approved by the HortLangSon Secretariat and the PMU.

142. Activities 3.1.3 and 3.1.4 are where the Implementation Supervision and Contract Management service provider (based in the HortLangSon Secretariat) will provide significant assistance to the farmers groups with the group activities and with farm production. Some of the Implementation Supervision and Contract Management service provider staff will be based in the districts to assist value chain members with their business operations and assist the farmers and the farm groups. This will not be a traditional extension role, but will focus on building the capacity and self- reliance of the value chain businesses and farmer producer groups.

143. Once the first cycle of business plan assistance and funding proposals is completed and implementation started the PMU, with the HortLangSon Secretariat, will commence upon a second cycle. It planned that in Project year 1 that five (5) farmer producer groups will be formed and in year 2 this will increase to 10, and to 20 in year 3.

D. Output 3.3: Safe Vegetable Value Chain Development

1. The Vision

The Vision for safe vegetable production in Lang Son is:

- Lang Son province recognised as a leading producer of high quality safe vegetables;
- Women and men vegetable farmers in Lang Son districts producing high quality safe vegetables for Hanoi and other high value markets;
- Women and men vegetable farmers in Lang Son districts producing high quality safe vegetables using environmentally friendly methods;
- Women and men small holder vegetable farmers with increased income from producing high quality safe vegetables.

2. Description

144. Output 3.3 safe vegetable value chain development will be based upon intensifying district vegetable production farming systems that are currently producing for local markets. The Project will connect the farmers with safe vegetable markets in Lang Son city and in Hanoi.

Analysis by the PPTA Feasibility Study shows that there is a high demand for safe vegetables in Hanoi that is a long way off being met. There will be a formal business relationship developed between the farmers, through farmer producer groups, with the supermarkets and specialist vegetable retailers. The HortLangSon Secretariat will be responsible for implementation management with an evolving input by the vegetable commodity group. It was also identified during the PPTA field work that there have been several safe vegetable groups formed by as part of programs by the DoIT and the provincial Women's Union (WU),

145. Vegetable farmer producer groups will be formed, and will consist of farmers who are experienced winter season vegetable producers. Women perform the majority of the vegetable production tasks, and the composition of the farmer groups will recognize this and is further defined in the Management Implementation Manual. Formal groups will be established, either cooperative or groups approved by commune authorities. The Project will assist the group formation and investments for intensive safe vegetable production and these will be provided through Activity 3.1.4. There will be an investment package (Block Grant) with an upper limit of $40,000. Some flexibility is needed with investment activities in the package as the conditions in the various commune production sites will vary. Investments items in the package may include: (i) group formation and legal costs (ii) trickle feed irrigation equipment and water tank; (iii) shade (green) houses; (iv) feeder roads to improve access to production areas and land levelling - if required; (v) working capital for vegetable inputs; and (vi) contracted technical and business advice. The irrigation equipment and shade houses must be shared on a group basis. The Project will not fund any investment in upgrading of the commune's irrigation canals. The final mix of investment items will be decided by the group and presented in their business plan. Once the initial Block Grant funds have been utilised the farmer groups will be responsible for managing their own working capital requirements. More details of the eligible items are shown in Appendix 6.

146. Each group will be assisted by HortLangSon to prepare their safe vegetable production business plan that will be the basis for the Project's support. Preparation of each group's business plan will take into consideration the other work demands of women, especially their household duties. The business plans will include techniques to reduce labour demands upon women and also tasks that men are responsible for. Conditions for the Project's funding assistance to farmer groups will include a contract (or formal business agreement) with a safe vegetable retailer. HortLangSon will also be responsible for building the market connections with the Lang Son and Hanoi based supermarkets. Farmer training in intensive safe vegetable production will be led by HortLangSon, and involve the use of local training resources. Training and extension activities will be planned and timed to ensure that the women group members are able to participate. Safe vegetable certification will be initially coordinated by HortLangSon, but will be responsibility of the relevant DARD division.

147. It is proposed that the business relationship between the farmer groups and the safe vegetable retailer follow the PGS approach. The advantage of this approach is that the retailer and any customers can visit the farm and meet the farmers and assess the production methods being used. The farmers can also go to the supermarkets and meet customers and understand more about the customer's requirements. It is not envisaged that the farmers will become organic vegetable producers, however.

148. In addition to the safe vegetable producer groups that will be supported by the Block Grants HortLangSon will also provide services to the existing safe vegetable groups formed under other programs. These safe vegetable groups are well established and practice safe vegetable production. Most supply safe vegetable to kiosks in the Lang Son city market.

Access to higher value safe vegetable markets is a constraint for virtually all of these groups and is where HortLangSon can immediately assist, with the probability of some early wins.

3. Inputs

149. No investment inputs will be provided through Output 3.3 as these are all included in Output 3.1. HortLangSon will provide a number of direct services and funding that will assist vegetable product development and these are all defined in Output 3.1 above and include: (i) Investment grant funds for farmer groups (Activity 3.1.4); (ii) Trade and market information and associated services (Activity 3.1.5); (iii) Quality management systems developed and implemented (Activity 3.1.6), and; (iv) Product groups formed and operations assisted (Activity 3.1.7).

4. Implementation

150. Safe vegetable value chain development will be initiated by HortLangSon late in the second year of the project with the formation of the safe vegetable commodity group. Safe vegetable production activities for the project formed vegetable producer groups will get under way in Year 3 and may include some fruit production (melons and squash) and winter vegetables later in the year. The proposed implementation schedule is shown in Figure 3.

151. Implementation will be piloted in the Van Quan district commune of Tu Xuyen. Once the proposed four (4) pilot groups are formed they will be assisted to prepare their vegetable development business plans. HortLangSon will be responsible for this and will commence to mentor the Van Quan District Extension Station staff. A safe vegetable training program will be prepared by HortLangSon and will be delivered using applied methods on a just-in-time basis. The District Extension Station staff and Commune Extension Worker will also be involved. HortLangSon will provide training for the Van Quan extension staff in best practice extension methods that features applied learning and methods for working with women farmers. The Project will follow a business and technical production development approach that concentrates upon the farmer groups and their leaders. This will be led by the Implementation Supervision and Contract Management service provider staff, some of whom will be district based. It will be a Project requirement that at least 40% of the HortLangSon field staff are women.

152. Market contract development will be managed by HortLangSon and involve the leaders of the four vegetable groups. The Tu Xuyen Commune People's Committee (CPC) will also be a party to the contract as the CPC will authorize the formation of the farmer vegetable groups. These groups may subsequently become registered cooperatives.

153. In the second year of the Project the number of safe vegetable production groups will be increased to 10, and to 30 in year 3. These groups may include established safe vegetable groups formed by other programs. HortLangSon will assist these groups through its market development services.

E. Output 3.4: Other Product Value Chains

154. Support for the other product value chains will commence at the end of the third year of the Project. The decision over what product value chains will be assisted will be made by HortLangSon Board based upon the market assessments. It is reiterated that the Project investment in product value chains must be justified by market analysis showing that the

product has sound market prospects. The experience of the two exemplar value chains will enable HortLangSon to efficiently manage the implementation of the selected value chains.

155. Investment inputs will be available for the value chain members including the farmer producer groups. These inputs will be on the same basis as for star anise and safe vegetable value chain members with some flexibility matched to any particular feature of the product value chain. Further details are shown in Appendices 4, 5 and 5.

III. FINANCIAL AND ECONOMIC ASSESMENT

156. Output 3 includes two pilot value chain activities – star anise and vegetable production. The financial performance of these enterprises is discussed in this appendix, to assess the likely impact of value chain development on participating farmers and other value chain participants – including processors, transporters, exporters and retailers.

A. Star Anise

1. Financial Performance

157. In order to develop the foundation of broader value chain in the star anise industry, a pilot model covering 400 ha of established SA is assessed, together with new plantings totaling 20 ha. Both the new planting and established plantation performance is summarized in Table 3.

Table 3: Annual production and costs of 1 ha of star anise

	Unit	Quantity	Unit cost	Cost	Total
			Đ	Đ'000/ha	Đ'000/ha
I. **Basic Investment**					
a. Labor					
Land preparation	days	50	180,000	9000	
Hole digging and filling	days	40	180,000	7200	
Transporting seedling plants	days	7	180,000	1260	
Gap filling and protection	days	8	180,000	1440	
b. Materials					
Plant	plant	550	8000	4400	23300
II. Caring from year 2 -year 10					
Weeding	days	270	180,000	48600	
Gap filling	plants	180	8000	1440	
Tools		9	200000	1800	51840
Total Costs until year 10					**75140**
III. Production Cost (starting from year 10)				Đ/year	Đ/year
Weeding	Đ/ha	7	180,000	1260	
Gap filling	Đ/ha	6	8,000	48	
Harvesting	Đ/ha	67	200000	13333	
Transporting	Đ/ha	2	500000	1000	
Tools	Đ/ha	1	200000	200	15841
Total cost	Đ/ha	**2000**	**15000**		**30000**
Total revenue	Đ/ha				**14159**
Margin on fresh product	Đ/kg fresh				**7079**

158. Table 4 summarizes the potential profitability of a new planting of SA with and without the project. Average yield at full development (year 10 onwards) is expected to increase from an average of 2 t/ha to 2.2 t/h and price of fresh product at the farm gate from Đ15,000 to Đ18,000 per kg. These prices are both lower than those of the past two years, which were exceptional based on longer term trends. If price increases to the current level of Đ20,000 per kg, farm margin would increase substantially, but processor margins would be threatened. The improved performance should allow farmer gross margin (GM) to increase from around Đ13 million to Đ24 million per ha, generating an internal rate of return of 18% compared to 11% without the project.

Table 4: Star Anise farmer cash flow, new planting without and with project

Year	Units	Cost Đ/unit	Planting Đ mil	2 Đ mil	3 Đ mil	4 Đ mil	5 Đ mil	6 Đ mil	7 Đ mil	8 Đ mil	9 Đ mil	10 Đ mil	11-30 Đ mil
Inputs													
Establishment													
Labor	days	180,000	105	54	48	42	36	30	24	18	12	6	
Plants	number	8000	550	90	90								
Production													
Labor													
Weeding	days	180,000					7	7	7	7	7	7	7
Gap filling	days	180,000					0.3	0.3	0.3	0.3	0.3	0.3	
Harvest	days	200,000					17	27	37	47	57	67	67
Without project													
Revenue													
Production	kg						500	800	1100	1400	1700	2000	2000
Price	Đ/kg	15000											
Sales	Đ mil						7.5	12.0	16.5	21.0	25.5	30.0	30.0
Costs													
Establishment labor	Đ mil		18.9	9.7	8.6	7.6	6.5	5.4	4.3	3.2	2.2	1.1	
Plants	Đ mil		4.4	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tools	Đ mil			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Production labor	Đ mil						4.7	6.7	8.7	10.7	12.7	14.7	14.7
Transport	Đ mil						0.2	0.3	0.4	0.5	0.6	0.8	0.8
Other	Đ mil						0.4	0.6	0.8	1.1	1.3	1.5	1.5
Total cost	Đ mil		23.3	10.6	9.6	7.8	11.9	13.2	14.5	15.8	17.0	18.3	17.2
Cashflow	Đ mil		**-23.3**	**-10.6**	**-9.6**	**-7.8**	**-4.4**	**-1.2**	**2.0**	**5.2**	**8.5**	**11.7**	**12.8**
IRR			**11%**										
Labor y2-10	days			1.8	1.6	1.4	1.2	1	0.8	0.6	0.4	0.2	
With project													
Production	kg						550	880	1210	1540	1870	2200	2400
Production gain	kg	10%					50	80	110	140	170	200	200
Price	Đ/kg	18000											
Sales	Đ mil						9.9	15.8	21.8	27.7	33.7	39.6	43.2
Increase in costs													
Labor	days/ha						2.5	4.0	5.5	7.0	8.5	10.1	10.1
Additional cost	Đ mil	200,000					0.5	0.8	1.1	1.4	1.7	2.0	2.0
Total costs	Đ mil		23.3	10.6	9.6	7.8	12.5	14.0	15.6	17.2	18.7	20.3	19.2
Cashflow	Đ mil		**-23.3**	**-10.6**	**-9.6**	**-7.8**	**-2.6**	**1.8**	**6.2**	**10.6**	**14.9**	**19.3**	**24.0**
IRR			**18%**										
Increase in margin with project			**0.0**	**0.0**	**0.0**	**0.0**	**1.9**	**3.0**	**4.2**	**5.3**	**6.5**	**7.6**	**11.2**

159. Table 5 summarizes collection and processing costs without and with the project, based on data provided by one of the processing companies. Notable are that the collection margin for local sale or sale in China are low at Đ688/kg of fresh SA. Processing margins are also tight without the project and in the early years with the project.

Table 5: Collection and processing cost

	Unit	Quantity	Unit cost Đ'000	Cost Đ'000	Margin Đ/kg fresh
Without Project					
Local collector margin					
Purchase of fresh anise	Kg	4,000	15.0	60000	
Labor	days	6	150.0	900	
Transport	shipment	1	500.0	500	
Customer fee	shipment	1	250.0	250	
Car renting	shipment	1	1600.0	1600	
Total				**63250**	**15813**
Revenue		**4,000**	**16.5**	66000	
Margin				**2750**	**688**
Processor 1000 kg dried star anise					
Fresh	Kg	4,000	15.0	60000	
Labor	Đ	4	300.0	1200	
Transportation	Đ	4	500.0	2000	
Cleaning	Đ	4	300.0	1200	
Total				**64400**	**16100**
Revenue		**1000**	**68.0**	68000	
Margin				**3600**	**900**
With Project					
Processor 1000kg packed dried star anise					
Fresh	kg	4100	15.0	61500	
Labor	Đ/day	9	158.0	1422	
Packaging	Đ	1	500.0	500	
Transporting	Đ	1	1300.0	1300	
Operating cost	Đ	2 %		1640	
Total Cost	Đ			**66362**	**16186**
Revenue	Đ	**1000**	**78.0**	78000	
Margin				**11638**	**2,839**
Processor 1000 kg star anise powder					
Fresh	kg	4200	18.0	75600	
Labor	Đ	51	158.0	8058	
Transporting	Đ	5	1300.0	4200	
Operating cost	Đ	2 %		1680	
Grading/packaging		4200	0.7	2999	
Promotion	Đ	8 %		6720	
Storage	Đ	5 %		4200	
Marketing	Đ	9 %		7560	
Total Cost				**111017**	**26433**
Revenue	Đ	**1000**	**130.0**	**130000**	**30952**
Margin				**18983**	**4520**
Processor Star anise oil (1000 L)					
Fresh	kg	20000	18.0	360000	20000
Labor	Đ	150	158.0	23700	1185
Grading	Đ			2000	100
Transportation	Đ			4680	234
Promotion	Đ	2%		8000	400
Total Cost	Đ			398380	21919
Oil	l	1000	350.0	350000	17500

By- product	kg	13000	14.0	182000	9100
Total Revenue	Đ			532000	26600
Margin	Đ			**133620**	**4681**
Non-labor cost per liter of oil					**14680**

Table 6: Without and with project processed product revenue

		Grade 1 (spice)	Grade 2 (spice)	Grade 3 Spice	Grade 3 oil	Total
Without project						
120 t dried SA from 300 ha						
Percentage (%)	%	10%	70%	20%		100%
Volume (ton)	t	12	84	23.6	0.4	120
Price ($)	$	4000	3000	1500	8300	16800
Total ($)		**48,000**	**252,000**	**35,400**	**3,320**	**338,720**
	Đ mil	1073	5632	791	74	7570
	Đ/kg fresh	2235	11734	1648	155	15,772
With project						
Revenue/t green						
1 ha yielding 2 t/ha = 500kg dried						
Percentage	%	10%	70%	20%		100%
Volume	kg	50	350	98	2	500
Price	Đ/kg	89400	67050	33525	185505	
Total	Đ mil	**4.47**	**23.47**	**3.29**	**0.37**	**31.59**
	Đ/kg fresh	2235	11734	1643	186	15797
With project y2-3						
Percentage	%	70%	10%	20%		100%
Volume	kg	350	50	98	2	500
Price	Đ/kg	89400	67050	33525	556515	
Total	Đ mil	**31.29**	**3.35**	**3.29**	**1.11**	**39.04**
	Đ/kg fresh	15645	1676	1643	557	19520
With project y4 onwards						
Price	$/kg	6000	4500	2250	33200	
	Đ/kg	134100	100575	50288	742020	
Total	Đ mil	**46.94**	**5.03**	**4.93**	**1.48**	**58.38**
	Đ/kg fresh	23468	2514	2464	742	29188

Table 7: Farmer and processor cashflow, without and with project

		1	2	3	4	5	6	7	8	9	10	11
Year		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028-47**
1. Farmers/Production												
Without project												
Yield	t/ha	2.0										
Cashflow												
Existing plantings												
Area affected	ha	400	400	400	400	400	400	400	400	400	400	400
Production	t	800	800	800	800	800	800	800	800	800	800	800
GM/ha without project, existing area	Đ mil/ha											
Total GM without project	Đ mil	5137	5137	5137	5137	5137	5137	5137	5137	5137	5137	5137
With project												
Grants to farm groups	No	5										
Cost	Đ mil	6146										
Training courses (1 day)	number											
Cost per course	Đ mil	160	160									
New planting of SA	ha											
Cost (from FM sheet)	Đ mil/ha	932	426	382	312							
Planting credit (revolving fund)												
Total farm group investment costs	Đ mil	**7238**	**586**	**382**	**312**							
Price	15000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	
Yield	t/ha	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Production with project	t	800	840	880	880	880	880	880	880	880	880	880
GM with project	Đ mil/ha	12.8	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total GM with project	Đ mil	5137	9613	9613	9613	9613	9613	9613	9613	9613	9613	9613
New plantings	ha											
Production	t	0	0	0	0	22	35	48	62	75	88	96
Cashflow	Đ mil	-932	-426	-382	-312	-102	73	248	422	597	772	961
Total GM with project	Đ mil	4205	9187	9230	9300	9511	9686	9860	10035	10210	10385	10574
Increase in GM	Đ mil	-932	4050	4094	4164	4374	4549	4724	4898	5073	5248	5437
Farm level cashflow		**-8170**	**3465**	**3711**	**3851**	**4374**	**4549**	**4724**	**4898**	**5073**	**5248**	**5437**
2. Collectors with project												
Training course on handling and quality												
One course per district	no											
Cost	Đ mil	24	48									
Increase in production	t	0	40	80	80	80	80	80	80	80	80	80
Margin/ton	Đ mil											
Increase in margin	Đ mil	0	28	55	55	55	55	55	55	55	55	55
Collector cashflow	Đ mil	-24	-21	55	55	55	55	55	55	55	55	55
3. Collectors/Processors												
Without project												
Sold by collectors direct to China	t	640	640	640	640	640	640	640	640	640	640	640
Purchase of fresh star anise	t	160	160	160	160	160	160	160	160	160	160	160
Of which dried	t	80	80	80	80	80	80	80	80	80	80	80
Packed dried	t	40	40	40	40	40	40	40	40	40	40	40
Powder -Spice	t	40	40	40	40	40	40	40	40	40	40	40
Oil	t	0	0	0	0	0	0	0	0	0	0	0
Margin per kg fresh SA equivalent												
Of which dried	Đ mil	72	72	72	72	72	72	72	72	72	72	72
Packed dried	Đ mil	114	114	114	114	114	114	114	114	114	114	114
Powder	Đ mil	181	181	181	181	181	181	181	181	181	181	181
Oil	Đ mil	0	0	0	0	0	0	0	0	0	0	0
Total margin w/o project	Đ mil	366	366	366	366	366	366	366	366	366	366	366

Table 7 continued

Year		1 2018	2 2019	3 2020	4 2021	5 2022	6 2023	7 2024	8 2025	9 2026	10 2027	11 2028-47
With project												
Investment costs												
Cooperative processing unit												
Drying square 3000m2	Đ mil	3000										
Cool storage 2000m2	Đ mil	6000										
Indoor drying system capacity 10 t/day	Đ mil	5200										
Quality control laboratory	Đ mil	4000										
Distillation system	Đ mil											
Office 200m2	Đ mil	800										
Processing system	Đ mil	3000										
Packaging system	Đ mil	2000										
Total capital cost	**Đ mil**	**24000**										
Market development grants		447	447									
Total investment		**24447**	**447**									
Production												
Purchases from farmers	t	100	336	440	616	880	880	880	880	880	880	880
Cost (at Đ18,000/kg fresh)	Đ mil	1800	6048	7920	11088	15840	15840	15840	15840	15840	15840	15840
Proportion to Grade 1 spice		10%	40%	55%	70%	70%	70%	70%	70%	70%	70%	70%
Grade 2 spice		70%	40%	25%	10%	10%	10%	10%	10%	10%	10%	10%
Grade 3 spice		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Oil												
Quantity												
Grade 1 spice	t	2.5	33.6	60.5	107.8	154.0	154.0	154.0	154.0	154.0	154.0	154.0
Grade 2 spice	t	17.5	33.6	27.5	15.4	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Grade 3 spice	t	5.0	16.8	22.0	30.8	44.0	44.0	44.0	44.0	44.0	44.0	44.0
Oil	t											
Total production		**25.0**	**84.0**	**110.0**	**154.0**	**220.0**	**220.0**	**220.0**	**220.0**	**220.0**	**220.0**	**220.0**
Price												
Grade 1 spice	Đ'000/kg	89	89	89	134	134	134	134	134	134	134	134
Grade 2 spice	Đ'000/kg	67	67	67	101	101	101	101	101	101	101	101
Grade 3 Spice	Đ'000/kg	34	34	34	50	50	50	50	50	50	50	50
Oil	Đ'000/kg											
Revenue												
Grade 1 spice	Đ mil	224	3004	5409	14456	20651	20651	20651	20651	20651	20651	20651
Grade 2 spice	Đ mil	1173	2253	1844	1549	2213	2213	2213	2213	2213	2213	2213
Grade 3 Spice	Đ mil	168	563	738	1549	2213	2213	2213	2213	2213	2213	2213
Oil	Đ mil	0	0	0	0	0	0	0	0	0	0	0
Total revenue		1565	5820	7990	17554	25077	25077	25077	25077	25077	25077	25077
Production cost												
Spice		23433	23433	24933	26433	26433	26433	26433	26433	26433	26433	26433
Grade 1 spice		234	3149	6034	11398	16282	16282	16282	16282	16282	16282	16282
Grade 2 spice		1640	3149	2743	1628	2326	2326	2326	2326	2326	2326	2326
Grade 3 Spice		469	1575	2194	3256	4652	4652	4652	4652	4652	4652	4652
Oil		0	0	0	0	0	0	0	0	0	0	0
		2343	7873	10970	16282	23261	23261	23261	23261	23261	23261	23261
Margin												
Increase in margin with project	Đ mil	-779	-2054	-2980	1271	1816	1816	1816	1816	1816	1816	1816
Cash flow from processing	Đ mil	-25226	-2054	-2980	1271	1816	1816	1816	1816	1816	1816	1816
Residual (25% of processing investment cost)	Đ mil	6112										
Overall activity cashflow	Đ mil	-26182	1976	1168	5490	6245	6420	6595	6770	6944	7119	7308
FIRR		**19.4%**										

160. Farm level margin under the activity is relatively high, generating a high return, since the yield and price gains involve few farm-level investment costs even without allowing for any

residual value in the SA plantations. Addition of a residual at say 10 times farm margin (or an additional Đ54 billion in 2047) would not affect return.

161. IRR with a 25% residual value attached to the processing plant investment is estimated at 18% a high level for an investment of this nature. No value is attached to the SA plantations. Removing the residual does not affect FIRR.

2. Economic Performance

162. EIRR is higher than FIRR, since farm labor at least is shadow priced, while the removal of tax from the investment costs at a rate of around 10% reduces negative economic cashflow in the first two years. There is thought to be no need to border price the processed SA products, since most production will be exported, and there are no export taxes. Thus, the market price is effectively the border price. On these assumptions EIRR is 20% - a high level though mostly generated at the farm level.

Table 8: Economic Internal Rate of Return

		1	2	3	4	5	6	7	8	9	10	11
Year		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028-47
Investment cost (ex tax)	Đ mil	24567	447									
Increase in farm level financial GM	Đ mil	-932	4050	4094	4164	4374	4549	4724	4898	5073	5248	5437
Saving due converting labor by SWR	Đ mil	113	178	172	165	179	185	190	196	201	207	207
Processing cashflow	Đ mil	-24	-21	55	55	55	55	55	55	55	55	55
Processing cashflow	Đ mil	-779	-2054	-2980	1271	1816	1816	1816	1816	1816	1816	1816
Residual (25% of processing investment cost)	Đ mil	6142										
Economic farm cashflow	Đ mil	-26188	1708	1340	5655	6424	6604	6785	6965	7146	7326	7515
EIRR		**20%**										

B. Vegetable Production

1. Financial Performance

163. The following tables summarize the performance of the first group planned for support under the safe vegetable production activity in Tu Xuyen commune, Van Quang district. It is expected that the group will grow two vegetable crops on their entire area in Winter and Spring and a rice crop over the summer wet season, when the land may be too wet for efficient vegetable production. The area of the land owned by the group is 1.7 ha, but the area for vegetable production is estimated at 1.2 ha net of roads, bunds and other non-productive areas. A simplified cropping model is assumed using spring tomato and winter cabbage for the "with project" scenario. Gross margins without and with the project are developed in Table 9.

Table 9: Vegetable enterprise gross margins without and with the project

	Unit	Spring paddy	Summer paddy	Winter vegetable	Unit cost	Spring paddy	Summer paddy	Winter vegetable	Total
Without project					Đ'000	Đ'000/ha	Đ'000/ha	Đ'000/ha	Đ'000/ha
Revenue									
Output/ha	Kg	5100	3400	5000					
Sale price	Đ'000/kg	5.5	6.0	5.0					
I. Total revenue/ha						**28050**	**20400**	**25000**	**73450**
1. Material cost						**10225**	**7025**	**5084**	**22334**
Seed	kg	55	45	7	300	935	765	2100	3800
Urea	kg	250	100	120	9	2200	880	1056	4136
Phosphate	kg	300	240	85	4	1050	840	298	2188
Potash	kg	250	150	70	9	2250	1350	630	4230
Manure	kg	5000	3000	3000	0	1500	900	900	3300
Pesticide	kg	2	2		120	240	240		480
Weedicide	kg	2	2	4	25	50	50	100	200
Pumping	kg								
Machinery	Day	2	2		1000	2000	2000		4000
Others									
2.Labor cost						**15750**	**12750**	**9600**	**38100**
Ploughing	days	15	10	3	150	2250	1500	450	4200
Rake	days	15	5	9	150	2250	750	1350	4350
Seedling	days	15	5	2	150	2250	750	300	3300
Transplanting	days	25	25	10	150	3000	3000	1500	7500
Caring	days	25	30	10	150	3750	4500	1500	9750
Harvesting	days	20	20	10	150	2250	2250	4500	9000
3. Other costs						**1299**	**989**	**734**	**3022**
II. Total cost						**27274**	**20764**	**15418**	**63455**
III.Net Income						**776**	**-364**	**9582**	**9995**

Table 9 continued

With project

Item	Unit	Spring tomato	Summer paddy	Winter cabbage	Unit cost	Spring tomato	Summer paddy	Winter cabbage	Total
Revenue					Đ'000	Đ'000/ha	Đ'000/ha	Đ'000/ha	Đ'000/ha
Output/ha	Kg	28000	3700	22160					
Sale price	1000VN§	8.0	6.0	5.5					
I. Total revenue						**224000**	**22200**	**121880**	**368080**
1. Material cost						**22864**	**7025**	**20928**	**50816**
Seed	Seedlings Or kg	22160	45	24930	300	4432	765	7479	12676
Urea	kg		100	300	9		880	2640	3520
Phosphate	kg	1385	240	831	4	4848	840	2909	8596
Potash	kg	277	150	200	9	2493	1350	1800	5643
Manure	kg	20000	3000	20000	0	6000	900	6000	12900
Pesticide	kg	28	2		120	3324	240		3564
Weedicide	kg	2	2	4	25	50	50	100	200
Pumping	kg					1600		800	2400
Machinery	Day		2		1000		2000		2000
Others		1717				1717			1717
2.Labor cost						**51750**	**12750**	**33750**	**98250**
Ploughing	days	25	10	25	150	3750	1500	3750	9000
Rake	days	20	5	20	150	3000	750	3000	6750
Seedling	days	15	5	15	150	2250	750	2250	5250
Transplanting	days	25	25	25	150	3000	3000	3750	9750
Caring	days	250	30	110	150	37500	4500	16500	58500
Harvesting	days	80	20	25	150	2250	2250	4500	9000
3. Other costs						**3811**	**989**	**2774**	**7573**
II Total cost						**80025**	**20764**	**58251**	**159040**
III.Net Income						**143975**	**1436**	**63629**	**209040**
Incremental margin									**199,045**

164. Table 10 lists the likely development costs for the planned initial group in Tu Xuyen commune, with 10 members and a combined area of 1.7 ha. Investment cost is estimated at Đ568 million ($25,400) plus a revolving fund of Đ89 million to meet working capital needs The costs for other groups may be higher due to larger size, distance from river or road or specific needs. A cap of $40,000 is consequently suggested for all groups, with actual payment dependent on the specific group business plan. The revolving fund is not included in the financial analysis of the pilot group, but will need to be included in the overall project budget.

Table 10: Indicative group and infrastructure development cost

Costs for group			Đ mil	$	$/ha
Group formation and support			44.7	2000	1667
Pump	Piece	2	33.5	1500	1250
Pipe from weir	m	100k/m 60mm	33.5	1500	1250
Levelling, road + drainage	m		67.1	3000	2500
Water tank for shade house	m3	40 m^3	89.4	4000	3333
Elevated tank for drip system			22.4	1000	833
Drip irrigation	1.2 ha		107.3	4800	4000
- Shade house	m2	1700 m2@$3	114.0	5100	4250
- Assembly place	m2	50	55.9	2500	2083
Total investment capital			**567.7**	**25400**	**21167**
Farm group revolving fund			89.4	4000	3333

Total								**657.1**	**29400**	**24500**

165. The budgeted financial performance of the pilot group is summarized in Table *.9. Without the project, the total gross margin on the 1.7 ha area is budgeted at Đ15 million, or around $450/ha, after meeting farm family labor costs at the rural wage rate of Đ150,000/day. The low returns are due to the limited financial performance of rice.

Table 11: Without and with project gross margins and cashflow for 1.7 ha group

Without project		**Construction year**	**2**	**3**	**4**	**5**	**6**	**7-20**
		2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025>**
Area								
Spring paddy	ha	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Summer paddy	ha	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Winter veg	ha	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Yield								
Spring paddy	kg/ha	5100	5100	5100	5100	5100	5100	5100
Summer paddy	kg/ha	3400	3400	3400	3400	3400	3400	3400
Winter veg	kg/ha	5000	5000	5000	5000	5000	5000	5000
Price								
Spring paddy	D'000/kg	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Summer paddy	D'000/kg	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Winter veg	D'000/kg	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Revenue								
Spring paddy	D'000/ha	28050	28050	28050	28050	28050	28050	28050
Summer paddy	D'000/ha	20400	20400	20400	20400	20400	20400	20400
Winter veg	D'000/ha	25000	25000	25000	25000	25000	25000	25000
		73450	73450	73450	73450	73450	73450	73450
Costs								
Seed	D'000/ha	3800	3800	3800	3800	3800	3800	3800
Urea	D'000/ha	4136	4136	4136	4136	4136	4136	4136
Phosphate	D'000/ha	2188	2188	2188	2188	2188	2188	2188
Potash	D'000/ha	4230	4230	4230	4230	4230	4230	4230
Manure	D'000/ha	3300	3300	3300	3300	3300	3300	3300
Pesticide	D'000/ha	480	480	480	480	480	480	480
Weedicide	D'000/ha	200	200	200	200	200	200	200
Pumping	D'000/ha	0	0	0	0	0	0	0
Machinery	D'000/ha	4000	4000	4000	4000	4000	4000	4000
Others	D'000/ha							
Labor	D'000/ha	38100	38100	38100	38100	38100	38100	38100
Other costs	D'000/ha	3022	3022	3022	3022	3022	3022	3022
Total direct costs	D'000/ha	63455	63455	63455	63455	63455	63455	63455
Average gross margin	D'000/ha	9995	9995	9995	9995	9995	9995	9995
Gross margin on 1.7ha	D'000	16991	16991	16991	16991	16991	16991	16991
	$	760	760	760	760	760	760	760
	$/ha	447	447	447	447	447	447	447

166. The with-project budget in Table 12 assumes a net productive area of 1.2 ha out of the gross farm area of 1.7 ha. It assumes that a grant of Đ568 million is provided to the group to meet development expenses and a further Đ90 million as a revolving fund to meet working capital needs. It is noted that other groups may have higher support needs, particularly if they are further from road or water, or larger in area. Thus the capital grant and revolving fund limit would need to be set at perhaps D900 million ($40,000). Conversely, some groups may have lower needs.

Table 12: With project estimated financial performance

		Construction year 2019	2 2020	3 2021	4 2022	5 2023	6 2024	7-20 2025>
With project								
Area								
Spring tomato	ha		1.2	1.2	1.2	1.2	1.2	1.2
Summer paddy	ha		1.2	1.2	1.2	1.2	1.2	1.2
Winter cabbage	ha		1.2	1.2	1.2	1.2	1.2	1.2
Yield								
Spring tomato	kg/ha		16800	22400	28000	28000	28000	28000
Summer paddy	kg/ha		2220	2960	3700	3700	3700	3700
Winter cabbage	kg/ha		13296	17728	22160	22160	22160	22160
Price								
Spring tomato	D'000/kg		4.8	6.4	8.0	8.0	8.0	8.0
Summer paddy	D'000/kg		3.6	4.8	6.0	6.0	6.0	6.0
Winter cabbage	D'000/kg		3.3	4.4	5.5	5.5	5.5	5.5
Revenue								
Spring tomato	D'000/ha		80640	143360	224000	224000	224000	224000
Summer paddy	D'000/ha		7992	14208	22200	22200	22200	22200
Winter cabbage	D'000/ha		43877	78003	121880	121880	121880	121880
Total revenue			**132509**	**235571**	**368080**	**368080**	**368080**	**368080**
Costs								
Seed	D'000/ha		10141	11408	12676	12676	12676	12676
Urea	D'000/ha		2816	3168	3520	3520	3520	3520
Phosphate	D'000/ha		6877	7736	8596	8596	8596	8596
Potash	D'000/ha		4514	5079	5643	5643	5643	5643
Manure	D'000/ha		10320	11610	12900	12900	12900	12900
Pesticide	D'000/ha		2851	3208	3564	3564	3564	3564
Weedicide	D'000/ha		160	180	200	200	200	200
Pumping	D'000/ha		1920	2160	2400	2400	2400	2400
Machinery	D'000/ha		1600	1800	2000	2000	2000	2000
Others	D'000/ha		1374	1546	1717	1717	1717	1717
Labor	D'000/ha		78600	88425	98250	98250	98250	98250
Other costs	D'000/ha		7573	7573	7573	7573	7573	7573
Total direct costs	D'000/ha		**128746**	**143893**	**159040**	**159040**	**159040**	**159040**
Average gross margin	D'000/ha		3762	91678	209040	209040	209040	209040
Gross margin on 1.2 ha	D'000		4515	110014	250848	250848	250848	250848
Incremental GM	**D'000**	**-16991**	**-12476**	**93023**	**233857**	**233857**	**233857**	**233857**
Estimated capital expenditure	D'000	567690			85154			85154
Residual (25% y20)	D'000							
Activity cashflow	**D'000**	**-584681**	**-12476**	**93023**	**148704**	**233857**	**233857**	**148704**
FIRR		**23.8%**						

167. Financial internal rate of return is estimated at 23.8%. Increasing residual to 40% of initial investment does not affect FIRR. Increasing investment cost by 10% reduces FIRR to 21.8%. A reduction of 10% in product price or yield with-project reduces FIRR to 20.9%.

2. Economic Performance

168. A simplified model has been used to assess economic performance. The major changes are that paddy sales are border priced leading to a reduction of about 10% in economic paddy price. Farm labor inputs are shadow priced at 85% of the rural wage, and fertilizers increased in price by 8%, reflecting their import parity price. Investment costs are reduced by 10% reflecting the taxation proportion.

Table 13 Economic performance of vegetable production group

Year	units	Construction year 2018	2 2019	3 2020	4 2021	5 2022	6 2023	7-20 2024>
Without project								
Financial value of product sales	Đ'000/ha	73450	73450	73450	73450	73450	73450	73450
Less border price adjustment paddy (-10%)	Đ'000/ha	-4845	-4845	-4845	-4845	-4845	-4845	-4845
Economic value of sales	Đ'000/ha	**68605**	**68605**	**68605**	**68605**	**68605**	**68605**	**68605**
Financial costs	Đ'000/ha	63455	63455	63455	63455	63455	63455	63455
Less border price factor (fertilizer +10%)	Đ'000/ha	899	899	899	899	899	899	899
Less shadow price of labor (-15%)	Đ'000/ha	-5715	-5715	-5715	-5715	-5715	-5715	-5715
Economic direct costs	Đ'000/ha	**58639**	**58639**	**58639**	**58639**	**58639**	**58639**	**58639**
Economic gross margin	Đ'000/ha	**9966**	**9966**	**9966**	**9966**	**9966**	**9966**	**9966**
Economic GM on 1.7 ha	Đ'000	**16942**	**16942**	**16942**	**16942**	**16942**	**16942**	**16942**
With Project								
Financial value of product sales	Đ'000/ha		132509	235571	368080	368080	368080	368080
Less border price adjustment paddy (-10%)	Đ'000/ha		-799	-1421	-2220	-2220	-2220	-2220
Economic value of sales	Đ'000/ha		**131710**	**234150**	**365860**	**365860**	**365860**	**365860**
	Đ'000/ha							
Financial costs	Đ'000/ha		128746	143893	159040	159040	159040	159040
Less border price factor (fertilizer +10%)	Đ'000/ha		1377	1550	1722	1722	1722	1722
Less shadow price of labor (-15%)	Đ'000/ha		-11790	-13264	-14738	-14738	-14738	-14738
Economic direct costs	Đ'000/ha		**118334**	**132179**	**146024**	**146024**	**146024**	**146024**
Economic gross margin with project	Đ'000/ha		**13376**	**101971**	**219836**	**219836**	**219836**	**219836**
Economic GM on 1.2 ha	Đ'000		**16051**	**122366**	**263803**	**263803**	**263803**	**263803**
Increase in cashflow	Đ'000	-16942	-892	105423	246861	246861	246861	246861
Financial capital cost	Đ'000	**567690**			**85154**			**85154**
Adjustment for tax (-10%)	Đ'000	-51092			-8515			-8515
Economic capital cost	Đ'000	**516598**			**76638**			**76638**
Economic cashflow	Đ'000	**-533540**	**-892**	**105423**	**170223**	**246861**	**246861**	**170223**
EIRR (20-year)		**27.7%**						

169. All four adjustment factors tend to boost economic internal rate of return (EIRR), leading to a high base case return of 27.7%. Increasing residual to 40% of initial investment does not affect EIRR. Increasing investment cost by 10% reduces EIRR to 25.5%. A reduction of 10% in product price or yield with-project reduces EIRR to 24.8%. There is some debate on the

shadow pricing of fertilizer since phosphate is now manufactured in Viet Nam. However, removing the border price adjustment or even making it negative does not affect EIRR.

APPENDICES

Appendix 1: Lang Son Crop Data

Table 14: Lang Son Crop Areas, Yields and Total Production - 2011 to 2015

Units: Area: ha; Yield: quintal/ha; Production: tons

Item	2011	2012	2013	2014	2015	Growth rate %
1. Rice						
a. Whole year Rice						
+ Area	49,670	50,344	50,742	50,732	49,827	0.08
+ Yield	34.20	40.29	41.01	41.97	42.25	5.43
+ Production	169,830	202,823	208,108	212,898	210,532	5.52
b. Spring Rice						
+ Area	15,534	16,096	16,069	16,122	15,834	0.48
+ Yield	51.31	52.13	52.19	51.64	51.76	0.22
+ Production	79,704	83,912	83,868	83,261	81,956	0.70
c. Rainy Crop						
+ Area	34,136	34,248	34,674	34,609	33,705	-0.32
+ Yield	26.42	34.72	35.83	37.46	38.15	9.62
+ Production	90,179	118,911	124,239	129,637	128,576	9.27
2. Maize						
+ Area	20,876	21,790	21,978	21,562	22,057	1.39
+ Yield	48.26	47.64	47.94	45.66	47.33	-0.49
+ Production	100,745	103,799	105,367	98,444	104,406	0.90
3. Sweet potatoes						
+ Area	2,162	2,260	2,112	2,102	2,019	-1.70
+ Yield	53,48	53,66	55,59	60,03	58,86	2.43
+ Production	11,564	12,127	11,740	12,616	11,886	0.69
4. Cassave						
+ Area	5,920	5,974	5,526	4,916	4,518	-6.53
+ Yield	98.80	103.52	102.30	104.50	100.05	0.31
+ Production	58,488	61,842	56,534	51,841	45,205	-6.24
5. Ground Nut						
+ Area	2,663	2,850	2,875	2,783	3,089	3.78
+ Yield	16.07	15.82	15.46	15.19	15.56	-0.80
+ Production	4,280	4,508	4,445	4,227	4,805	2.93
6. Tobacco						
+ Area	5,278.4	5,095.1	5,629.3	5,776	2,251	-19.19
+ Yield	20.59	20.55	18.51	18.56	20.11	-0.59
+ Production	10,869	10,472	10,419	10,720	4,527	-19.66
7. Soy beans						
+ Area	1,418	1,314	1,234	1,156	1,080	-6.58
+ Yield	14.60	13.73	14.21	14.27	14.18	-0.73
+ Production	2,070	1,804	1,753	1,650	1,531	-7.26
8. Tea						
+ Area	916	894	892	856	873	-1.19
+ Area	845	872	864	821	833	-0.36
+ Yield	29.04	30.85	34.17	38.99	38.91	7.59
+ Production	2,454	2,690	2,952	3,201	3,241	7.20
9. Tamarin						
+ Area	1,386	966,8	947,6	1,064	1,098	-5.66
+ Harvested Area	652,9	646,6	650,7	721	783	4.65
+ Yield	36.96	39.25	37.48	34.79	34.74	-1.54

Item	2011	2012	2013	2014	2015	Growth rate %
+ Production	2,413	2,538	2,439	2,508	2,720	3.04
10. Lychi						
+ Area	4,602	3,495	3,230	3,054	3,105	-9.37
+ Harvested Area	4,185	3,316	3,060	2,838	2,927	-8.55
+ Yield	32.79	43.40	43.28	47.00	44.34	7.84
+ Production	13,721	14,392	13,243	13,338	13,768	0.09
11. Diospyros kaki						
+ Area	2,148	1,635	1,603	1,611	1,730	-5.27
+ Harvested Area	1,530	1,234	1,136	1,180	1,339	-3.28
+ Yield	53.54	54.39	58.75	63.25	61.55	3.55
+ Production	8,192	6,712	6,674	7,463	8,242	0.15
12. Custard Apple						
+ Area	2,308	2,223	2,290	2,369	2,448	1.48
+ Harvested Area	2,205	2,095	2,165	2,086	2,181	-0.27
+ Yield	65.62	78.98	81.31	85.24	85.24	6.76
+ Production	14,469	16,547	17,604	17,781	18,591	6.47
13. Vegetable						
+ Area	4,723	4,816	4,910	4,921	7,330	11.61
+ Yield	119	120	122	125	117.74	-0.27
+ Production	56,204	57,792	59,902	61,513	86,307	11.32
14. Potato						
+ Area	1,985	2,057	2,135	2,208	1,039	-14.94
+ Yield	114	116	115	116	118.67	1.01
+ Production	22,629	23,861	24,553	25,613	12,331	-14.08
15. Beans						
+ Area	2,514	3,716	2,154	2,363	1,467	-12.60
+ Yield	11.5	11	12	12.5	11.68	0.39
+ Production	2,891	4,088	2,585	2,954	1,714	-12.25
16. Black Jelly						
+ Area	1.707,50	1.856,09	1.945	2.014	2.852,45	13.69
+ Yield	58.26	59.26	60	60.5	52.09	-2.76
+ Production	9.947,90	10.999,19	11.670	12.184,70	14.857,20	10.55
17. Anise						
+ Area	33,695	33,698	33,701	33,755	33,760	0.05
+ Harvested Area	11,742	12,133	13,426	13,545	13,548	3.64
+ Yield	19.78	29.6	28	29.9	29.1	10.13
+ Production (fresh)	23,229	35,915	37,593	40,500	39,425	14.14
+ Production (Dried)	5,162	7,981	8,354	9,000	8,761	14.14

Source: Lang Son GSO, DARD

Appendix 2: Star Anise Data

Table 15: Star Anise Establishment Costs and Gross Margin

	Unit	Quantity	Unit cost Đ	Cost Đ'000/ha	Total Đ'000/ha
I. **Basic Investment**					
a. Labor					
Land preparation	days	50	180,000	9000	
Hole digging and filling	days	40	180,000	7200	
Transporting seedling plants	days	7	180,000	1260	
Gap filling and protection	days	8	180,000	1440	
b. Materials					
Plant	plant	550	8000	4400	23300
II. Caring from year 2 -year 10					
Weeding	days	270	180,000	48600	
Gap filling	plants	180	8000	1440	
Tools		9	200000	1800	51840
Total Costs until year 10					**75140**
III. Production Cost (starting from year 10)				Đ/year	Đ/year
Weeding	Đ/ha	7	180,000	1260	
Gap filling	Đ/ha	6	8,000	48	
Harvesting	Đ/ha	67	200000	13333	
Transporting	Đ/ha	2	500000	1000	
Tools	Đ/ha	1	200000	200	15841
Total cost	Đ/ha	**2000**	**15000**		**30000**
Total revenue	Đ/ha				**14159**
Margin on fresh product	Đ/kg fresh				**7.08**

Table 16: Processor and Collector Costs and Margins

Local collector margins						
	Unit	**Unit cost**	**Quantity**	**Cost**	**Margin**	
		Đ'000		Đ'000	Đ/kg fresh	
Purchase of fresh a	Kg	15.0	4,000	60000		
Labor	days/	150.0	6	900		
Transport	shipment	500.0	1	500		
Customer fee	shipment	250.0	1	250		
Car renting	shipment	1600.0	1	1600		
Total				**63250**	**15813**	
Revenue		**16.5**	**4,000**	66000		
Margin				**2750**	**688**	
Processor 1000 kg dried star anise margin/kg						
Fresh	Kg	15.0	4,000	60000		
Labor	Đ	300.0	4	1200		
Transportation	Đ	500.0	4	2000		
Cleaning	Đ	300.0	4	1200		
Total				**64400**	**16100**	
Revenue		**68.0**	**1000**	68000		
Margin				**3600**	**900**	
Processor 1000kg packed dried star anise						
Fresh	kg	15.0	4100	61500		
Labor	Đ/day	158.0	9	1422		
Packaging	Đ	500.0	1	500		
Transporting	Đ	1300.0	1	1300		
Operating cost	Đ	%	2	1640		
Total Cost	Đ			**66362**	**16186**	
Revenue	Đ	**78.0**	**1000**	78000		
Margin				**11638**	**2,839**	
Processor 1000 kg star anise powder						
Fresh	kg	18.0	4200	75600		
Labor	Đ	158.0	51	8058		
Transporting	Đ	1300.0	5	4200		
Operating cost	Đ	%	2	1680		
Grading/packaging		0.7	4200	2999		
Promotion	Đ	%	8	6720		
Storage	Đ	%	5	4200		
Marketing	Đ	%	9	7560		
Total Cost				**111017**	**26433**	
Revenue	Đ	**130.0**	**1000**	**130000**	**30952**	
Margin				**18983**	**4520**	**4,520**
Processor Star anise oil						
Fresh	kg	18.0	20000	360000	20000	
Labor	Đ	158.0	150	23700	1185	
Grading	Đ			2000	100	
Transportation	Đ			4680	234	
Promotion	Đ		2%	8000	400	
Total Cost	Đ			398380	21919	
Oil	l	350.0	1000	350000	17500	
By- product	kg	14.0	13000	182000	9100	
Total Revenue	Đ			532000	26600	
Margin	Đ			**133620**	**4681**	**4181**
Non-labor cost per liter of oil					**14680**	

Appendix 3: Tu Xuyen Commune Data[16]

Table 17: Advantages and disadvantages of Vegetable production in Tu Xuyen

Advantages	Disadvantages
Good soils Cultivation knowledge Suitable Climate Easy to transport	Small production Farmers cultivated individually and lack of collaboration among farmers Lack of capital Lack of water accessibility Lack of machineries (irrigation equipment) Lack of post - harvest and grading facilities Production techniques need to be improved

Table 18: Vegetable crop calendar

Winter crops (October-January)	Spring crops (February-April)
Cabbages, kohlrabi, tomato, potatoes, mustards green,	Green Squash, Chilies, water melon, cucumber,

Demand for vegetable production

(i) Support in production outputs
(ii) Support for infrastructures: irrigation system, net houses
(iii) Support cultivation technique of net house production
(iv) Support seeds, fertilizers
(v) Support in group production and collaborations

Difficulties in group working

(i) No experience of group workings
(ii) No existing such group organization in the commune
(iii) No knowledge on group working

Proposed Vegetable Production Group

170. Tu Xuyen farmers proposed that 5 members in group would be the optimum for group operation with production areas of 7,200 m2 -10,000m2

[16] Data from workshop with the Tu Xuyen commune vegetable farmers

Table 19: Vegetable Gross Margins –under existing vegetable system

	Units	1. Tomatoes			2. Waky Pumpkin		
		Quantity	Unit cost	Đ'000	Quantity	Unit cost	Đ'000
Income							
Yield	kg	27700	8000		44320	4000	
Income/ha	Đ'000/ha			**221600**			**177280**
Costs							
Seed	seedlings/kg	22160	200	4432	150	22160	3324
Manure	kg	20000	0	6000	25000	0	7500
N	kg		8	0	277	8800	2438
P	kg	1385	3500	4848	970	3500	3393
K	kg	277	9000	2493	139	6400	886
Lime	kg	277	1200	332	150	1200	180
Pesticide	kg	28	120000	3324	28	70000	1939
Labor	days	416	150000	62325	332	150000	49860
Other costs		28	50000	1385	28	300000	8310
Total costs	Đ'000/ha			**85139**			**77830**
Gross margin	Đ'000/ha			**136461**			**99450**

		3. Potatoes			4. Cabbage		
		Quantity	Unit cost	Đ'000	Quantity	Unit cost	Đ'000
Income							
Yield	kg	11080	6000		22160	5500	
Income/ha	Đ'000/ha			**66480**			**121880**
Costs							
Seed	seedlings/kg	15000	1247	18698	24930	300	7479
Manure	kg	1400	0	420	20000	0	6000
N	kg	280	8800	2464	300	8800	2640
P	kg	450	3500	1575	831	3500	2909
K	kg	220	9000	1980	200	9000	1800
Lime	kg	120	1200	144			0
Pesticide	kg	28	20000	554	28	130000	3601
Labor	days	194	150000	29085	222	150000	33240
Other costs				1200			1200
Total costs	Đ'000/ha			**56120**			**58869**
Gross margin	Đ'000/ha			**10361**			**63012**

		5. Kohlrabi			6. Carrot		
		Quantity	Unit cost	Đ'000	Quantity	Unit cost	Đ'000
Income							
Yield	kg	22160	8000		30000	5000	
Income/ha	Đ'000/ha			**177280**			**150000**
Costs							
Seed	seedlings/kg	33240	200	6648	3	2300000	6440
Manure	kg	20000	0	6000	10000	0	3000
N	kg		8	0	200	8800	1760
P	kg	554	3500	1939	550	3500	1925
K	kg	180	9000	1620	180	9000	1620
Lime	kg	120	1200	144	180	1200	216
Pesticide	kg	28	90000	2493			450

Labor	days	360	150000	54015	388	150000	58170
Other costs				1200			1200
Total costs	Đ'000/ha			**74059**			**74781**
Gross margin	Đ'000/ha			**103221**			**75219**

		7. Water melon			**8. Chilies**		
		Quantity	Unit cost	Đ'000	Quantity	Unit cost	Đ'000
Income							
Yield	kg	22160	5000		24930	7000	
Income/ha	Đ'000/ha			**110800**			**174510**
Costs							
Seed	seedlings/kg	8310	500	4155	24930	150	3740
Manure	kg	10000	0	3000	10000	0	3000
N	kg	416	8800	3656	139	8800	1219
P	kg	1385	3500	4848	1385	3500	4848
K	kg	150	9000	1350	277	9000	2493
Lime	kg	180	1	216	180	1	216
Pesticide	kg	28	150000	4155	28	110000	3047
Labor	days	20	150	3000	388	150000	58170
Other costs				1200			1200
Total costs	Đ'000/ha			**25580**			**77932**
Gross margin	Đ'000/ha			**85220**			**96578**

		9. Cucumber		
		Quantity	Unit cost	Đ'000
Income				
Yield	kg	41550	4000	
Income/ha	Đ'000/ha			
Costs				**166200**
Seed	seedlings	22160	250	5540
Manure	kg+A26:B2:B8	10000	0	3000
N	kg	277	8800	2438
P	kg	831	3500	2909
K	kg	139	9000	1247
Lime	kg	180	1	216
Pesticide	kg	28	110000	3047
Labor	days	443	150000	66480
Other costs				1200
Total costs	Đ'000/ha			**86076**
Gross margin	Đ'000/ha			**80124**

Appendix 4: Output 3 Value Chain Design Matrix

Table 20: Draft Design Matrix

Narrative	Notes	Indicators	Risks
Outcome			
Improved horticultural sector economic performance through a coordinated industry led business and market focused strategy for sector growth and development that features market driven product value chains aimed at added value "export" markets, prioritises quality assurance, achieves strong business relationships between value chain actors, and where income for all actors, including women and men farmers, is increased. The value chain development will enhance inclusive growth along the chain and provide increased economic opportunities for ethnic minorities and women that will enhance their empowerment.		Increase in Lang Son horticultural sector economic output (total, %) Increase in value of exports by horticultural sector products (total, %) Number of product value chains with contracts between members (Number, %) Increase in farmer income for selected products: star anise, vegetables (total, %) Number of women members of farmer groups (number per group, %)	Export market demand for agro-food products is influenced by difficulties with trade agreements Horticulture sector product growth and development prospects are limited to due low competitiveness and weak market opportunities Horticulture sector members do not the support the formation of HortLangSon Farmers do not agree to form farmer groups Small and medium collectors do not join product groups Women are constrained by multiple duties from participation in farmer groups
Output 3.1: Horticultural Sector Industry Organization			
Objective: To develop a horticultural sector industry organisation that will be responsible for strategic sector planning and oversight, enhanced quality control standards, trade relationship and compliance, and representing the product sector members.			
Activities			
3.1.1 Implementation and Contract Supervision Service Provider	Service provider will be responsible for developing the role of HortLangSon, its	Service provider contracted	

Narrative	Notes	Indicators	Risks
appointed	Secretariat, and technical services to support the product value chain development. PMU responsible for this task		
3.1.2 Horticulture sector industry body established (HortLangSon) and operational	HortLangSon will be established with an interim Board of private sector and government department representatives	HortLangSon formation approved by PPC	Not enough suitably experienced private sector members to be appointed to the interim Board
3.1.3 Horticulture sector strategic plan, and associated business plan prepared	Strategic Plan will provide the basis for sector development and the main products. Market plans will also be prepared first for star anise and vegetables. Subsequent market plans will be prepared for the other priority products that have been identified in the sector strategy,	Number of sector groups meetings conducted (Number of participants per meeting, gender disaggregated %) Business Plan approved by interim Board Sector Strategic and Market Plan approved by interim Board	Participation of sector members, including women, in meetings is low
3.1.4 Contestable funding mechanism established	Funding categories will include: (i) product value chain development; (ii) farmer group Block Grants; (iii) innovation fund; and, (iv) market promotion and development IFAD contestable fund criteria be used as a guide Women entrepreneurs encouraged and supported to apply for funds	Contestable funding regulations approved Number of investment proposals submitted and approved (number, %) Number of funding applications by women led businesses (%)	Sector agro-businesses, product groups and farmer groups are slow to apply for grants
3.1.5 Trade, markets and quality information and support provided to members	HortLangSon provides support and information to members about trade, markets and quality requirements for export markets Women entrepreneurs encouraged and supported to apply for marketing grants	No. of requests for trade information (number, % women) No. of requests for market information (number, % women) No. of marketing grants (number, % women)	Low demand for information by sector members
3.1.6 Quality assurance and compliance systems established	For sector awareness and to institute quality systems for products (standards, traceability, QR etc systems)	Sector quality awareness program Quality assurance system established for first product	Product value chain members are reluctant to accept and institute quality assurance standards and system
3.1.7 Commodity groups formed and operational	Form separate commodity groups based on the main horticulture products, and use as the basis for product development activities	Commodity group formed (Number, % women members)	Sector members do not understand the merits of commodity groups and do not participate

Narrative	Notes	Indicators	Risks
3.1.8 Sector outreach and education	Increase information sharing and increase awareness and knowledge of sector product group members and their value chains. Activities under 3.1.8 are where all the capacity development, extension and communications will be delivered. The scope of these is wide ranging and aligned with what is required to ensure that an inclusive agribusiness approach is applied. Learning needs will be formally assessed once implementation commences and the main theme areas will include: governance of sector organisations; business planning and management; quality assurance; marketing; and modern horticultural production techniques. Communications will actively target all sector members especially women and men farmers, and commune and district smaller scale agribusinesses. The program will also include awareness over joint title LURCs	For capacity building activities: skills and knowledge learned and applied (participants, number of women (%)) Project information from campaigns received by stakeholders (number, % women) Number of LURCs modified to include women on title	Outreach programs are poorly targeted and do not use methods to effectively communicate with all sector members Communication methods used are not inclusive
3.1.9 Design and implement system to monitor and assess sector performance	Establish system that enables sector and product performance to be proactively monitored Gender disaggregated data	Sector performance reported semi-annually interim Board and PPC	Sector members unwilling to provide information due to commercial sensitivity
Output 3.2: Star Anise Value Chain Development			
Objective: Market orientated star anise value chain developed that markets star anise spice and oil products that comply with international quality assurance standards17 to export markets and provides increased financial income to all value chain			

[17] Benchmark will be United States Food Safety Modernisation Act 2011

Narrative	Notes	Indicators	Risks
members			
Activities			
3.2.1 Prepare plan for star anise value chain development	Prepared by HortLangSon	Star anise value chain development plan prepared Number of sector groups meetings conducted (Number of participants, gender disaggregated %)	Market analysis shows that the market prospects are weak Low cooperation by chain members aligned to Chinese traders and processors
3.2.2 Implement star anise value chain development plan	Businesses and farmer groups assisted to prepare business plans. Conditionality for all project investment assistance will be a business plan	Main development plan tasks implemented (define measures based upon development plan) No. of business plans for farmer groups No. of business plans for collectors and processors	Businesses and farmers do not understand the purpose of business plans
3.2.3 Assist farmer group formation and operations	HortLangSon to form farmer groups and assist their operations and provide technical production assistance Conditionality for group Project support is that they agree to operate as a group that shares project provided resources, and establish a contractual relationship to supply star anise to a Viet Nam based processor.	Groups formed (number., females, males) Groups with women leaders (number, %)	Some farmers unwilling to work in groups Women farmers not included in groups
3.2.4 Farmer groups assisted with production and marketing advice	HortLangSon will assist farmer groups with technical production aspects	Group production and income (per season, per farmer (kg & $)) Number of training courses per group (% men, women)	Farmer unwilling to invest in, and adopt, new production techniques
Output 3.3: Vegetable Value Chain Development			

Narrative	Notes	Indicators	Risks
Objective: Lang Son farmer groups producing "certified safe" vegetables for sale under business relationship to supermarkets and specialist vegetable retailers			
Activities			
3.3.1 Prepare plan for vegetable value chain development (based on satisfactory market assessment)	Prepared HortLangSon and includes marketing plan	Vegetable value chain development plan prepared Number of sector groups meetings conducted (Number of participants, gender disaggregated %)	Low participation by vegetable farmers in vegetable sector consultations
3.3.2 Implement vegetable value chain development plan	HortLangSon will coordinate with PPMU. All vegetable farmer groups will be assisted to prepare a business plan.	Main development plan tasks implemented (define based upon development plan)	Market analysis shows that the market prospects are weak Low number of vegetable farmers want to intensify their production systems
3.3.3 Establish farmer groups and assist their operations, and technical market assistance	Farmer groups selected and formed. Conditionality for group Project support is that they agree to operate as a group that shares project provided resources, and establish a contractual relationship to supply safe vegetables to supermarkets	Farmer groups with a business plan Groups formed (Number, women members, men members %) Groups with women leaders (number, %)	Farmers have limited experience of working in groups Low numbers of women in the groups
3.3.4 Farmer groups assisted with production and marketing advice	HortLangSon will assist farmer groups with technical production aspects	Increases in vegetable production (yield -kg) of selected crops) Increase in income per season (crop, $) Number of training courses per group (% men, women)	Farmer unwilling to invest in, and adopt, new production techniques
Output 3.4: Other Product Value Chain Development			
Product value chains developed marketing products that comply with international quality assurance standards to export markets and provide increased financial income to all value chain members	Other product value chain developments will occur only after the star anise and vegetable value chains have developed and operational for two years.		
Activities			
3.3.1 Prepare plan for	Prepared HortLangSon and	Product value chain	

Narrative	Notes	Indicators	Risks
product value chain development (based on satisfactory market assessment)	includes marketing plan	development plan prepared Number of sector groups meetings conducted (Number of participants, gender disaggregated %)	
3.3.2 Implement product value chain development plan	Product group businesses and farmer groups will be assisted to prepare a business plan – this will be a conditionality for Project investment assistance.	Main development plan tasks implemented (define measures based upon development plan) Product Group businesses and farmer groups business and market plan prepared	
3.4.3 Establish farmer groups and assist their operations, and provide technical market assistance	Conditionality for group Project support is that they agree to operate as a group that shares project provided resources, and establish a contractual relationship for the supply of their product	Groups formed (number., females, males) Groups with women leaders (number, %)	
3.4.4 Farmer groups assisted with production and marketing advice	HortLangSon will assist farmer groups with technical production aspects	Increases in production (yield -kg) of selected crops) Increase in income per season (crop, $) Number of training courses per group (% men, women)	

Appendix 5 Summary Costs

	Unit	Total Quantity	Total Base cost
I. Investment Costs			
A. HORTLANGSON_Marketing Association Horticultural Values Chains			
1. Business and Support Service Provider	lump sum	1	2,400.0
2. Establishment OF HortLangSon			
a. Operating costs			
Establishment of Entity and Board	lump sum	1	50.0
Development of Business and Strategic 5 - year plan	lump sum	1	50.0
Operating costs	per year	4.5	157.5
Process and Meeting costs	per year	5	50.0
Travel Costs /a	permonth	52	156.0
Utilities	per month	52	26.0
Office	per month	52	78.0
Subtotal			567.5
3. HortLang Son Industry Membership			
Horticultural Commodity Association Formation	per each	5	200.0
Sector studies	per each	5	90.0
Thematic studies /b	per each	6	108.0
Subtotal			398.0
4. HortLangSon Core Services			
Trade Access and market definition services	per commodity	7	315.0
Quality Assurance Systems	per each	5	890.0
Advocacy, Outreach and Training	lump sum	4	720.0
Subtotal			1,925.0
Subtotal			5,290.5
B. Value Chain Post Harvest Grant Program			
Value Chain Enterprise Grants	lump sum	1	2,000.0
C. Value Chain Producer Group Grant Program			
1. Producer Group Investment			
Star Anise - Producer Group Infrastructure Investment	per farmer group	35	1,925.0
Safe Vegetable Group Infrastructure	lump Sum	44	2,200.0
Subtotal			4,125.0
2. Additional Commodity Value Chain			
Producer Group Block Grants	per farmer group	1	2,295.0
Counterpart Funded Process costs and Support	lump Sum	1	1,250.0
Subtotal			3,545.0
Subtotal			7,670.0
Total Investment Costs			14,960.5

Appendix 6: Summary of Conditions and Items Eligible for Project Grants

Conditions Item	Note
General Features: The Board of HortLangSon has the discretion to exceed the indicated funding limits by 15% based on the proposals received. If the Board requires an increase to the maximum amounts, it can seek prior approval with the PMU and the ADB with a supporting document that clearly demonstrates the benefits to the Project outcome. **General Grant Conditions:** All grants will be competitive, and all grant applications will have to meet the following basic requirement: Business plan that is both feasible and viable. All business plans must include: (i) statement of financial assets and liabilities; (ii) financial analysis of the proposed investments; (iii) cash flow projection for the proposed investment; (iv) details of the source of funds contributed by the investor, and financing details for any loans; (v) technical assessment of the proposed investment activity; and, (vi) risk analysis covering market, financial and production risks. (vii) innovation research focused on product development and processing enhancements may also be included in the business plan. The full format of the business plan for each type of grant is included in the Management Implementation Manual. Where an investor has a financial interest in more than one business entity, only one of those entities will be eligible for grant assistance by the project. Compliance with GoV environmental regulations is also a condition. Specific conditions for the Enterprise Grants and the Farm Producer Groups grants are outlined below	The use of a competitive award system is also proposed for all the grants Using this approach will enable. The successful bidders to use their own procurement systems significantly simplifying the project management and administration requirements. The resultant simplification will mitigate some of the procurement risk due to capacity identified within the P_RAMP – see Annex 3
Value Chain Grants and Financing	

Conditions Item	Note
1. Strategic Multi-Commodity or Sector level: the purpose of these grants is to encourage investment in multi-use facilities that provide processing, packaging and storage services to a number of horticultural enterprises over the whole year (multi-purpose pack house model). **Grant Amount**: two (2) grants of up to $200,000 per investment. Only one (1) grant per business. **Conditions:** (i) Investor to provide at least 51% of the total planned investment; (ii) Viable business plan that includes the financial returns from the multiple use of the facility; (iii) market plan for the investors product(s) that includes a well - founded market analysis; (iv) Evidence of formal agreements with sector businesses partners to utilise the facility. Alignment with the Lang Son PPC agro industrial zone strategy is preferred but not required if the business case for alternative location is supported.	Farmer cooperatives included in this category. Women entrepreneurs will be encouraged to apply for grants and HortLangSon will support them with their applications. District based small agribusinesses will be encouraged to apply for the grants of up $30,000. Women will also be encouraged to apply for small grants to develop village based enterprises that provide services linked to value chain activities or are value adding
2. Enterprise Viability Gap Grants: The purpose of these grants is to assist the enterprises to overcome viability gaps and become more competitive with external competitors. **Grant Amount:** Grants from $30,000 to $150,000. Only one grant per business entity allowed. **Conditions:** (i) Investor to provide at least 51% of the total planned investment; (ii) Viable business plan; (iii) Marketing plan and analysis that includes reliable data on product market demand. **Non Mandated:** Higher weighing will be given to proposals that: (i) provide evidence of value chain linkages with district and commune based small processors, traders and collectors, (ii) include poor households as active chain members.	
3. Small enterprise grants: The purpose of these grants is to assist the smaller value chains enterprises that face challenges accessing credit for investment in value adding equipment and for working capital. **Grant Amount:** Grants from $5,000 up to $30,000. Only one grant per business entity allowed. **Conditions:** (i) Business plan that will follow the conditions outlined above; (ii) marketing plan that includes a market analysis based upon reliable data on product market demand. **Non Mandated**: Higher weighing will be given to proposals that; (i) provide evidence of value chain linkages with district and commune based small processors, traders and collectors; (ii) include poor households as active chain members.	

Conditions Item	Note
Farmer Producer Block Grants	
General: Farmer producer grants will initially be made to star anise and safe vegetable producer groups as detailed below. From Project Year 2 onwards Farmer Producer Grants will also be made to groups associated with other products. HortLangSon will prepare the grant conditions for these groups. **Conditions:** (i) All Farmer producer group grants will be provided as Block Grants, and the business plan will specify expenditure for each of the eligible items; (ii) Farmer group must either be a registered cooperative or formally approved by the Commune People's Committee (*To Hop tac*); (iii) Each farmer group must prepare a business plan and this must be approved by HortLangSon. The business plan must include: the production activity with outputs, financial budget for the planned activity showing profitability, marketing plan and analysis, and risk analysis; (iv) farmer groups must have a bank account where the funds for all group activities must be deposited; (v) Block Grants can only be approved where the farmer group has a formal or established market relationship. For the safe vegetable groups this will be a contract or supply agreement with a safe vegetable retailer. For the star anise farmer groups the group must provide evidence of a prior supply agreement with a Viet Nam registered and based processor or exporter; For subsequent farmer producer groups HortLangSon will specific the market relationship required; (vi) contracts and supply agreements must specify minimum quality assurance standards; (vii) Where the farmer group does not continue operations after one or two years the items granted under the project may be recovered; (viii) The Block Grant is a once only grant. The farmer producer group will be responsible for managing their own capital to fund farm investments including operating capital once the Block Grant funds are fully utilized.	Farmer groups have a requirement for women membership. Minimum formal membership by women must be 50%.
Star Anise Producer Group	
Total Block Grant funding package per farmer producer group up to a limit of $55,000 per group. Eligible expenditure categories are: • Group formation legal fees, registration • Feeder roads (based upon New Rural Development standards) • Harvesting equipment, ropes and systems for high harvesting and transport etc • Contracted technical advisory services • Star anise inputs- fertilizer, agrichemicals, etc	. Feeder road specification Pedestrian crossing roads mainly serve the movement of people between population groups, households and from home to upland fields, fields, production facilities, small livestock ... Transportation on routes are mainly bicycles, motorized two-wheelers, rickshaws, horse-drawn carts Category D: 2.0 m bed width and pavement of 1.5m width
Safe Vegetable Producer Group	

Conditions Item	Note
Total Block Grant funding package per farmer group up to a limit of $40,000 per group Eligible categories are: • Group formation legal fees, registration etc • Feeder roads (based upon New Rural Development standards) • Irrigation pumps, storage tanks and hoses and nozzles for trickle system • Shade houses • Vegetable production inputs- seeds, fertilizer etc • Contracted technical advisory services **Conditions of Use:** (i) Farmer groups must use shade houses and irrigation equipment on a shared group basis – individual farmers are not permitted to have exclusive use of either a project funded shade house, or irrigation equipment; (ii) Farmer group Block Grant funds are not permitted to be used for upgrading of commune irrigation canals.	Feeder road specification Pedestrian crossing roads mainly serve the movement of people between population groups, households and from home to upland fields, fields, production facilities, small livestock ... Transportation on routes are mainly bicycles, motorized two-wheelers, rickshaws, horse-drawn carts Category D: 2.0 m bed width and pavement of 1.5m width
Output 3.1.5	
Marketing grants	
General: The purpose of the marketing grants is to support the enterprises to research and develop new markets (in both export and Viet Nam) for their products. **Grant Amount:** Maximum per enterprise is $100,000 with up to $50,000 per year. **Conditions:** (i) One (1) market development grant will be provided per business; (ii) The enterprise must utilize the grant over a two (2) year period; (iii) Grants are provided on a one to one (1:1) matching basis; (iv) the costed time of the enterprise's staff members are not an eligible as part of the enterprises matching grant contribution; (v) The enterprises will prepare a market development proposal as part of its marketing plan. The marketing plan must feature the market development potential based upon reliable market data; (vi) market development funding from the project must not be used concurrently with any market development funding provided by the Lang Son provincial government.	Women entrepreneurs will be encouraged to apply for marketing grants and HortLangSon will support them with their applications,
Commodity Group Formation and Planning	
General: The purpose of the commodity group funding is to enable each commodity groups to define their vision and market strategy, and to establish the basis for their core functions and operations. **Grant Amount**: Up to $10,000 per year. **Conditions:** (i) Business plan that outlines how the group plans to achieve their vision and strategy, main functions and key operations; (ii) grant funds may only be used for group operational expenses such as meetings, workshops, consumables etc; (iii) grant funds cannot be used for wages or salary for group members or for market development travel.	At least 50% of the board of each product group must be women

Appendix 7: Terms of Reference for the Agri-business Service Providers

171. The purpose of Output 3: Agricultural Value Chain Infrastructure for Lang Son province is to assist the development of Lang Son's horticultural sector using an agribusiness value chain approach.

Horticultural Sector Constraints

172. Although the horticultural sector is an important economic contributor to the Lang son economy, it is weakly developed and the main commodities exhibit low levels of commercialization. The sector's potential for growth is severely constrained by weak industry coordination and a lack of a comprehensive development strategy. Sector development plans remain production based and these fail to address a number of constraining factors, including market failure. The sector is characterized by commodities that are grown by many small holders on small areas, have low output volumes, and with weakly formed value chains with products sold into lower value markets. The value chains businesses have limited financial resources and access to investment capital is a major constraint. The Lang Son provincial government has a piecemeal approach to support, and this is weakly coordinated across the departments with horticultural sector responsibilities.

173. Horticultural sector development is also constrained by the small scale of product groups. Only star anise has small to medium sized commercial businesses, but even these businesses do not have the financial resources to fund their own development. Successful product development requires a mix of support measures that will enable the small immature product industries, and their value chains, to become more commercial and market orientated. Overcoming the constraint of small product industry size and developing competitive export product value chains is the major strategic challenge that the Lang Son horticultural industry faces. The prospect of the small Lang Son horticultural product industries growing into stable and profitable export value chains is unlikely without a coordinated sector wide approach and a significant commitment to building strong market led strategies.

Project Investment

174. The Project investment will address the need for coordinating the small, fragmented and disjointed structure of the existing horticulture sector and the associated market failure. Support for the establishment of a Horticultural Sector Industry Organization (working title HortLangSon) is a key feature of the Project investment. HortLangSon will be the institutional basis for initiating and sustaining commercial market focused product groups and value chain development and growth.

175. HortLangSon will be an industry organization that represents the private sector and will lead and coordinate the development of the Lang Son horticultural sector. It is expected to support small industry groups to grow into a larger grouping thus creating a critical mass sufficient to promote market led commercial horticulture with an emphasis on value creation within Lang Son Province. The industry support will recognize the ethnic diversity of the stakeholders, and the important role played by women in production, business and marketing activities.

176. HortLangSon's role and functions are intended to add value to the existing State management responsibilities of the various government departments through providing an

overall strategic coordination and vision at a value chain scale. The functions will not compete or overlap. HortLangSon will provide a focal point for coordinated input by the various State and non-state management agencies into horticulture sector development.

Implementation Support Challenge

177. Successful development of HortLangSon requires specialist agribusiness implementation and contract management support. Unfortunately, there is a dearth of horticulture sector agribusiness expertise in Viet Nam. The national and provincial GoV agencies do not have the required agribusiness capacity to advise and assist the development of HorLangSon. The GoV agencies also lack experience to plan and manage inclusive growth programs, especially to where women are actively involved in value chain activities. A suitably experienced specialist Agribusiness Implementation and Contract Management service provider is required to assist with the establishment of HortLangSon and to get it operational.

Objectives

178. The objectives for the Agribusiness Contract Implementation and Supervision Management service provider are to:

(i) Ensure that HortLangSon is developed as an effective horticultural industry organization that provides a coordinated business and market led approach to sector development;

(ii) Assist HortLangSon to establish a Secretariat that will support the Board and be responsible for all sector support functions;

(iii) Assist the HortLangSon Secretariat to undertake key sector functions that include sector strategic planning, enhanced quality control standards, develop trade relationships, and provide a range of services for sector members;

(iv) Assist the HortLangSon Secretariat to plan and implement the exemplar star anise and vegetable value chain development activities.

Scope of Services

179. The contracted Agribusiness Contract Implementation and Supervision Management service provider will be responsible for provision of the following services:

(i) Oversee the establishment of HortLangSon as an Industry Organization including its role and functions, constitution and mandate, Board guidelines, and defined Secretariat operational functions;

(ii) Initially fill the Secretariat role and guide the HortLangSon operations;

(iii) In the Secretariat role prepare a Horticultural Sector Strategic and Market plan;

(iv) Assist sector members to form separate product groups based around the main commodities (for smaller sub sectors some groups maybe a combination). The first product group to be formed will be based upon the current Star Anise Association;

(v) Advise and assist the PPMU to establish the contestable funding mechanism that will be basis for the Project's contestable funding grants. Manage the grant funding mechanism for the HortLangSon Board;

(vi) Establish the HortLangSon Trade, Markets and Quality information system service to support sector members;

(vii) Initiate the development of quality assurance systems for the various commodity value chains focused on quality standards and traceability. The star anise and vegetable value chains will be the priority quality assurance systems established;

(viii) Prepare and implement a sector outreach and education program aimed at enhancing the knowledge and awareness of sector product group members about issues influencing the development of the sector. An on-going education program will be based upon the priorities identified in the sector strategic plan;

(ix) Design and implement a system to monitor and assess sector performance. Note: this is not the usual project M&E system – it is a system to better monitor the key features of the horticultural sector to assist HortLangSon more effectively manage the sector, and will feature gender disaggregated data;

(x) Following the successful establishment of HortLangSon and the Secretariat functions commence the program to develop the two exemplar value chains: star anise and vegetables;

(xi) Implement the star anise and vegetables value chain developments following the Project guideline and regulations as outlined in the PAM;

(xii) Ensure that an inclusive approach is followed that ensures that the high proportion of ethnic minority sector stakeholders, and women, have equitable access to the Project's resources and support programs;

(xiii) Once the star anise and vegetable value chains have been successfully established assist HortLangSon to identify the next value chains that the Project will assist;

(xiv) Assist the HortLangSon secretariat to implement the next value chains following the Project guideline and regulations;

(xv) After two (three??) years of contract management services assist the HortLangSon Board to recruit permanent Secretariat staff members and provide the required capacity development program for the new staff.

QUALIFICATIONS AND EXPERIENCE

180. The Agribusiness Contract Implementation and Supervision Management service provider will have the following qualifications and experience:

(i) Minimum of three staff with post graduate qualifications in agribusiness and value chains, horticultural production, agricultural marketing, or agro food quality assurance systems;

(ii) Proven record of assistance to agribusinesses and the agribusiness sector in Viet Nam;

(iii) Demonstrated experience in the management and implementation of commercial horticultural value chain projects for export and national markets. Including the provision of technical support to small holder women and men farmers;

(iv) Demonstrated expertise in the implementation of internationally recognized agro-food quality assurance systems and traceability for export and national markets;

(v) Demonstrated experience in providing institutional development and capacity building services to agribusinesses and horticultural and agricultural sector organisations in Viet Nam and the GMS region;

(vi) Demonstrated experience of implementing agribusiness projects with ethnic minorities and projects that have focused on enhancing women's business and production participation in all value chain stages;

(vii) Demonstrated high quality communications expertise and proven experience with the development of sector performance management systems.

POSITION TERMS OF REFERENCE

181. Terms of reference for the Agribusiness Contract Implementation and Supervision Management service provider team positions are presented below.

Team Leader/ Agricultural Marketing and Value Chain Expert

182. Main Tasks:

(i) Provide team leadership to the service provider team, working closely with the HortLangSon Interim Board and in close liaison with the PMU. Establish working relationships with the main Lang Son government departments involved in the horticultural sector;

(ii) Initiate the establishment of HortLangSon, including assisting the PMU with the appointment of the Interim Board, and initiate sector stakeholder engagement;

(iii) Act as the HortLangSon Chief Executive Officer for the first two to three years of the project. Assist the Interim Board to recruit a substantive Chief Executive Officer during the third year of the project and subsequently mentor the Chief Executive Officer and other appointed HortLangson staff;

(iv) As the interim HortLangSon Chief Executive Officer lead the HortLangSon and the Output 3 project interventions and operations;

(v) In conjunction with the specialist members of the team establish of the HortLangSon core service functions: Trade and Market Logistics; Quality Assurance and Compliance, and; Information and Outreach.

(vi) Manage the preparation of the HortLangSon first business plan, the horticulture sector strategy and the associated market studies for star anise and safe vegetables;

(vii) Guide the development of the two representative value chain interventions for star anise and safe vegetables;

(viii) Guide the implementation of capacity development program for HortLangSon staff (once appointed), commodity groups and agribusiness sector members, farmer producer groups members and departmental staff;

(ix) Ensure that a suitable and compliant financial management and recording system is established for HortLangSon and the associated Output 3 activities. The HortLangSon board and the PMU will be provided with monthly financial reports and also with monthly fund forecasts;

(x) Prepare six monthly project reports for the HortLangSon Board and the PMU.

Post - Harvest Systems and Value Chain Expert

183. Main Tasks:

(i) Coordinate with the Team Leader Team Leader/ Agricultural Marketing and Value Chain Expert over the project's support to improve post harvest systems in the horticulture sector;

(ii) Review the post harvest practice by the farmer producer groups for both star anise and vegetables. Propose how the farmer group level post harvest practice can be improved, and initiate a program to achieve better practice;

(iii) Undertake a review of the star anise collectors, traders, processors and marketers to fully assess their post- harvest practice. Based upon this assessment, in association with the Quality Assurance and Compliance Systems Expert, propose how post - harvest practice can be enhanced with the support of the project;

(iv) Based upon the star anise assessment develop an information and capacity development program for the star anise value chain members to enhance post - harvest practice;

(v) Undertake a post - harvest assessment for the safe vegetable value chain. Based upon this assessment, in association with the Quality Assurance and Compliance Systems Expert, propose how post - harvest practice can be enhanced with the support of the project.

(vi) Develop a series of post - harvest training modules for use by the sector members from farmers to processor and marketers, as well as departmental and also extension staff. Assist in training program delivery;

(vii) Institute post - harvest systems skills and knowledge into the service functions of HortLangSon, including mentoring of HortLangSon staff (once appointed).

Markets and Trade Logistics Expert

184. Main Tasks:

(i) Assess the status of market and trade data provided to the horticultural sector members by the Department of Industry and Trade (DoIT) and other government departments. Prepare a plan for the HortLangSon role in the provision of this data to sector members, and manage the development of this service – ensure there is regular liaison with the DoIT;

(ii) Undertake the market analysis for star anise and safe vegetables as part of the horticultural sector strategic assessment. Using the findings from the market assessments assist with the preparation of the business plans for value chain agribusinesses and also farmer producer groups. This task will be undertaken in coordination with the Financing and Grant Management Expert, and Agricultural Producer Groups and Market Linkage Expert.

(iii) Initiate the market grant program through Commodity Group meetings (star anise and safe vegetables in the initial stages of the project) and other information dissemination methods (in association with the Information Systems and Outreach Expert).

(iv) Assist the sector agribusinesses to fully utilise market and trade logistics data in their business plans. Assisting and advising the star anise agribusinesses should be a high priority over the first two years of the project;

(v) In association with the DoIT and the provincial statistics office strengthen the gathering of data on horticulture sector economic performance including the export of horticultural products;

(viii) Develop a series of market and trade training modules for use by the sector members from farmers to processor and marketers, as well as departmental and also extension staff. Assist in training program delivery;

(vi) Institute the HortLangSon Market and Trade Logistics service function for the horticultural sector, including mentoring of HortLangSon staff (once appointed).

Quality Assurance and Compliance Systems

185. Main Tasks:

(i) Assess the status of quality assurance and compliance systems in the horticultural sector. The initial focus will be upon star anise and safe vegetables. These assessments may be undertaken in conjunction with the Post - Harvest Systems and Value Chain Expert;

(ii) Based upon the quality assurance and compliance systems assessment prepare a plan for the HortLangSon role in quality assurance and compliance systems assessment development in the horticultural sector;

(iii) Initiate the HortLangSon quality assurance and compliance systems program for the sector. The initial emphasis will be upon star anise with a particular focus upon export markets. Vegetables will also be an early priority. As the various Commodity Groups are formed provide regular quality assurance and compliance systems information the members (in association with the Information Systems and Outreach Expert);

(iv) Assist and advise horticultural sector agribusinesses to implement enhanced quality assurance and compliance systems;

(v) Institute the HortLangSon quality assurance and compliance systems core service function for the horticultural sector, including mentoring of HortLangSon staff (once appointed);

(vi) Develop a series of quality assurance and compliance training modules for use by the sector members from farmers to processor and marketers, as well as departmental and also extension staff. Assist in training program delivery;

(vii) Ensure that there is a close working relationship established with the provincial and national departments responsible for state management quality assurance and compliance systems functions, this includes Department of Science and Technology (DoST) and Department of Agriculture and Rural Development (DARD).

Financing and Grant Management Expert

186. Main Tasks:

(i) Develop an information program (in association with the Information Systems and Outreach Expert) to make horticultural sector members of the Project's grant funding program. Star anise and safe vegetable sector members will be initially the targets of the information program;

(ii) Prepare the grant funding application formats based upon the information in the Management Implementation Manual;

(iii) Develop the criteria for the assessment and approval of the grant applications. Provide training and guidance to the various groups that will be responsible for assessing and approving the grant applications;

(iv) Assist and advise the value chain agribusinesses in the preparation of business plans – the business plans are the basis to support their grant application (this task will be coordinated with other team members);

(v) Assist with the Agricultural Producer Groups and Market Linkage Expert with the development of the Block Grant program;

(vi) Assist the Markets and Trade Logistics Expert with the marketing grant program.

(vii) Manage the preparation for, and implementation of, the innovations grant program. Preparation will include sector consultation to determine the how the innovation grants can be most effectively applied. The initial focus will be upon star anise and the potential for innovations to support star anise product development and processing;

(viii) Monitor the agribusinesses and farmer producer groups that have received grants and, if necessary, propose how the grant mechanism including investment amount and conditions for use of funds may be improved.

Information Systems and Outreach Expert

187. Main Tasks:

(i) Initiate the development of the HortLangSon information and horticultural sector outreach program;

(ii) Assist the Team Leader with the initial sector stakeholders meetings linked to the establishment of HortLangSon and the appointment of the Interim Board;

(iii) In association with the Markets and Trade Logistics Expert, the Quality Assurance and Compliance Systems Expert and the Post -Harvest Systems and Value Chain Expert develop the HortLangSon information systems to provide sector members with regular and reliable market, trade and quality assurance information;

(iv) Assist the Team Leader with the formation of the Commodity groups and initiate a program for regular engagement with the various Commodity Groups (once they are formed) and provide information based upon their demands and needs;

(v) Investigate the most effective and efficient method(s) to disseminate information to the horticulture sector. Implement a regular outreach program based upon the findings. The HortLangSon (and Project) outreach program must ensure that both women and male horticultural sector members are provided with

information, and that the outreach activities ensure that low literacy and non-kinh speakers are able to access the information provided by HortLangSon;

(vi) Assist the team leader to guide the implementation of capacity development program for HortLangSon staff (once appointed), commodity groups and agribusiness sector members, farmer producer groups members and departmental staff;

(vii) Institute the HortLangSon Information Systems and Outreach core service function for the horticultural sector and mentor HortLangSon staff (once appointed) to take over the Information Systems and Outreach role.

Agricultural Producer Groups and Market Linkages Expert

188. Main Tasks:

(i) Lead the process to form the various Commodity Groups and assist them to become functional groups representing their producers (in association with the Team Leader and Information Systems and Outreach Expert). The first Commodity Group will be for star anise and based upon the Star Anise Association. The second group will be the safe vegetables Commodity Group.

(ii) Lead the program to establish the farmer producer groups and assist them to become operational groups. The star anise groups will be the first producer groups to be assisted. The safe vegetable groups will also be assisted as part of the project's support for the first two representative value chains. Ensure that the formation of the groups complies with the project regulations, including the gender requirements;

(iii) Assist the producer groups to become formally registered entities, and to prepare a business plan for their production and marketing activities. The business plan will include the utilisation of the Block Grant funds. Note: the producer group must have an approved business plan to be eligible for project financial support;

(iv) Assist the farmer producer groups to establish market linkages with retailers, processors or other value chain actors. Note: the producer group must have a formal market relationship to be eligible for project block grant support;

(v) Assist the farmer producer groups to implement their business plans and use of the block grant funds;

(vi) Develop a program of technical support for the farmer producer groups aimed at producing high quality safe fruit and vegetables. Oversee the extension services to assist the farmer including the capacity development of district and commune extension services (in coordination with the Information Systems and Outreach Expert);

(vii) Oversee the monitoring of farmer producer group performance and provide assistance as required. Project support must focus on market relationships, business plan implementation, group operational effectiveness, as well as crop production;

(viii) Mentor HortLangSon staff (once appointed) to take over the Agricultural Producer Groups and Market Linkage role.