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Rural Industrialization and Agro
Processing in Viet Nam

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1 Introduction

This report examines the characteristics of the agro processing sector in Viet Nam and analyses the potential constraints to future development of the sector and the potential development benefits that may accrue to the economy as a whole as a result of the development of the sector.

The report examines the characteristics of both private firms and state owned enterprises involved in agro processing in Viet Nam. The data for analysis of the private sector firms is taken from an extensive survey of firms in the sector undertaken in 2000, while the data on state owned enterprises is based on figures for the agro processing sector in 1998 collected by the Department of Agroprocessing, Ministry of Agriculture and Rural Development.

The specific objectives of this report are to

- a) analyze the characteristics of private agro processing industries in Viet Nam
- b) compare the characteristics of private firms to state owned enterprises in the sector
- c) identify constraints to further development of the sector
- d) recommend strategies to overcome these constraints

The analysis focuses on the operating processes and environment of the agroprocessing sector and its enterprises, including marketing and technological aspects, linkages with the agricultural production sector, and other factors. The main sources used are recent studies and reports by both Vietnamese and foreign agencies and observers and an extensive survey of private-sector enterprises in several rural industry and agro processing subsectors.

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² This paper draws upon and expands the analysis undertaken by Keddie and Binh (2000)

The survey of private sector rural industry and agro processing enterprises was conducted in April-May 2000 in 11 provinces as part of TA 3223-VIE. Four of these provinces were in the North, four were in the Central region and three were in the South. The survey included 410 private-sector enterprises in nine rural industry and agroprocessing subsectors. Seven of these subsectors were in agroprocessing and two were in agro services/inputs. The subsectors examined were:

- Fruit/Vegetable Processing
- Fishery Products Processing
- Noodles
- Bean Products
- Tea
- Rubber
- Wood and Wood Products Processing
- Grass Carpets
- Seeds
- Machinery and Mechanical Services related to Agroprocessing

The data from the survey supplements the data available from a number of previous studies of specific agroprocessing subsectors such as rice (IFPRI,1996), livestock feed products (Oanh, 2000), starch (IFPRI et al, 1998) and forest products (Ogle et al, 1999). The survey therefore focused on subsectors other than these. In addition, the survey focused on private sector companies, because MARD and other government agencies have access to much data on the activities of state owned enterprises in agroprocessing. The survey also largely excluded micro-enterprises from the sample of firms, concentrating instead on small, medium, and large enterprises, on the assumption that these have on average more growth-potential than the vast majority of tiny micro-enterprises. The locations of the enterprises were largely in rural communes but included many in or near small and medium-sized towns.

Table 1 shows the size characteristics of the enterprises surveyed. The 410 surveyed firms included 253 small enterprises (defined as those firms having 10 or less equivalent full-time employees), 115 medium enterprises (defined as having between 11 and 50

equivalent employees) and 42 large scale enterprises (those with more than 50 equivalent full-time employees). The large scale firms sampled included four foreign owned enterprises.

The data on state owned enterprises covers enterprises in 14 subsectors. These are:

- Tea
- Coffee
- Sugar
- Salt
- Seeds
- Silk
- Food Processing Companies
- Irrigation
- Livestock
- Forestry
- Fruit/Vegetables
- Fisheries
- Animal Feed

For each subsector the data covered enterprises managed by the central government as well as enterprises managed by local governments. Information provided included labor force size, capital, commercial credit, state budget credit, turnover, profits/losses and taxes paid.

Section 2 of the report gives a brief background to the rural industry sector in Viet Nam and outlines some of the potential benefits of development of this sector. Sections 3 to 9 of the report outline the analysis of data from the survey of private agro processing firms and the data from Department of Agroprocessing, Ministry of Agriculture and Rural Development on state owned enterprises in the sector. Section 3 concentrates on issues related to land, Section 4 examines labor use by firms, Section 5 looks at capital inputs and credit use by firms, Section 6 concentrates on the use of technology by the firms, Section 7 analyses the sources and types of raw materials used by the firms, Section 8 looks at marketing related issues and Section 9 examines the levels of revenues and profits made by the firms.

Section 10 outlines the regulatory and policy environment under which the sector operates and Section 11 concludes the paper by outlining some constraints to future development and possible policy remedies.

2 Background

The agro processing sector accounts for almost two thirds of rural industries. According to McKenzie (1998), the industry sector consists of around 4500 state owned enterprises, 24000 corporate private enterprises and around 2 million household enterprises. While the private sector consists of a far greater number of firms than the state owned sector, the state owned sector attracts preferential treatment in almost every facet of operations, including access to credit, land, technology and markets.

The current level of development of the agroprocessing sector in Viet Nam is not evenly distributed, either geographically, or between the sub-sectors of the agricultural sector. In general, the development of the agroprocessing sector can be categorized as being at an extremely low level. Currently, agroprocessing only contributes a value-added of around 25 percent of the value of primary agricultural production in Viet Nam (Keddie and Binh, 2000).

Despite the low level of development of agro-processing indicated by these estimates, the sector nevertheless appears to be developing very fast. Food processing currently constitutes the bulk of agro-processing in Viet Nam, and value added in food processing is estimated to have grown by a yearly average of 14% between 1991 and 1997, which is much greater than the growth rates of the economy as a whole or the agricultural sector (Goletti, 1999). According to Dien (2000), the share of rural industry in the rural economy has increased from 14 percent in 1996 to around 25 percent in 2000, while the share of rural services in the rural economy has increased from 15 percent in 1996 to around 25 percent in 2000.

Development of the rural industry and agroprocessing sector has the potential to play a vital role in the future development of the rural economy of Viet Nam and also in the socio economic development of the nation as a whole. This development can occur through the action of a number of factors.

First, government policy towards the rural sector is concentrated on improving the productivity levels of agricultural production. Any increases in productivity in the

agricultural production sector could lead to increased levels of labor surplus in rural areas. The development of rural industries producing labor intensive products is a vital component in absorbing rural labor surplus. The development of industries in rural areas in China for example, has helped reduce the flow of economic migrants from rural areas to already overcrowded cities. On the other hand, countries such as Thailand have seen increases in agricultural productivity combined with a concentration of industrial development in urban regions result in massive migrations of agricultural labor to work in urban areas.

Second, the relatively rapid growth in urban incomes in Viet Nam has meant that levels of rural income have fallen well behind those of urban dwellers. Unlike the development pattern of China after the reforms of 1978, the bulk of the benefits of doi moi have accrued to the urban sector in Viet Nam. The development of rural industries has the potential of increasing rural income levels relative to urban incomes by increasing the percentage of rural household income gained from off-farm activities. The share of off-farm income in total rural household income in Viet is relatively low compared to countries such as China (35 percent) and South Korea (50 percent) where rural industries are relatively more developed (The World Bank, 2000).

Third, the development of agro processing industries in rural areas can have a positive effect on adding value to products of the agricultural sector and in increasing and diversifying demand for agricultural products. According to Agrawal and Nga (1998) the average value added per worker in agriculture in 1997 was D0.6 million, compared to D3.5 million per worker in the industrial sector.

Fourth, increases in rural income levels, driven by both increased productivity and the effects of rural industrialization, there may be a strong growth of other consumer-demand-driven rural industries, predominantly in the form of rural small industrial enterprises. The development of these small industries, and of rural non farm activities in other broad sectors such as trade and services, can be an important element in generating employment and increasing the standard of living in rural areas.

Fifth, increases in rural incomes and rural production surpluses can lead to increased levels of available capital in the form of rural household savings. These savings can be mobilized as investment in small to medium scale agro processing enterprises.

Finally, agro-processing can be an engine of general industrial and export development in developing countries such as Viet Nam. It can also lead to the development of export markets, which can then lead to the progressive diversification of industry and exports into other sectors such as textiles, engineering and electronics. According to The World Bank (2000), labor intensive goods (such as those produced by agro processing firms) only accounted for around 34 percent of total exports from Viet Nam, whilst agriculture intensive goods (with minimal processing/value adding) accounted for around 40 percent of exports.

The highly successful development of rural industrialization in China between 1978 and 2000 is often portrayed as a model for the development of the sector in Viet Nam. However, there are a number of significant differences between the Chinese and Vietnamese situations that mean that the development of rural industry in Viet Nam in the future will possibly take a divergent path from that of China. First, the Chinese township and village enterprise sector benefited from a sizeable increase in the incomes in the rural sector after the reforms of 1978. This surplus was largely invested in the development of the rural industry sector. Even prior to the reforms of 1978, the domestic investment rate in China was around 30 percent of GDP, compared to the pre-reform figure of around 10 percent for Viet Nam. The available agricultural surplus in Viet Nam is relatively lower than was the case in China. Second, at the time of development of township and village enterprises in China, there were very few labor intensive goods being produced either in neighboring countries, or in urban industry. The rural industries in Viet Nam face competition both from products imported from China and Thailand and also produced by urban industries in Viet Nam. Third, the majority of Chinese rural industries are involved in non-agricultural activities with around 85 percent of output value coming from industrial activities. (Chen et al, 1997) Fourth, while the early development of the rural industry sector (1978-1985) was dominated by township (commune) owned enterprises, private enterprise development was encouraged. During the second phase of rural industrialization (1985-1995), the majority of rural enterprises were privatized and the bulk of new enterprises were owned by the private sector. This can be compared to the case of Viet Nam, where largely inefficient state owned enterprises are supported and subsidized at the expense of the private sector.

While these factors mean that the development of rural industrialization in Viet Nam may face greater difficulties than those faced in China at the same developmental stage, there are some factors that may result in an easier path of development for rural industries in Viet Nam. First, the relatively small size of Viet Nam means that development of transportation infrastructure is relatively easier than in China. This means that there may be greater incentives for agro processing firms to develop in rural areas, rather than in urban areas. Second, the governments increasing openness to investments in industry from overseas sources means that there is could be a potentially strong source of investment funds for the development of the sector.

The importance of the rural industry and agroprocessing sector has been recognized by the Ministry of Agriculture and Rural Development (MARD). MARD has identified the development of the agroprocessing sector as an essential component of the development of the agricultural sector as a whole and has given priority to the expansion and strengthening of processing activities within the sectoral development framework. A recent TA undertaken by the Asian Development Bank also identified the mutually-supporting parallel expansion of agriculture and agro processing as the key to an 'agro-based' general economic development strategy for the central region of Viet Nam.

3 Land

Around 380 of the surveyed firms owned the land on which they operated. The average size of owned land was around 873 m² , with the average size of owned land increasing as the size of the firm increased (Table 2). Large firms own an average of almost 2330 m², compared with an average of around 413.5 m² for small firms. Around half of the firms own land areas of 300 m² or less.

In addition to land which the firms own, 86 of the firms also rent land on which to carry out their operations. The average area of land rented by these firms was 3239 m². The average area rented increased as the size of the firm increased, with large firms renting an average area more than five times greater than that rented by small firms. In addition, large firms were far more likely to rent land than either small or medium firms. While

only around 7 percent of small firms rented land, half of the large firms surveyed indicated that they had rented land (Table 3).

The most common source of land rental was from local authorities. This accounted for half of all reported land rentals. The importance of the local authority as a source of rental land increases as firm size increases (Table 4). Over 62 percent of large firm land rentals were from local authorities, whilst for small firms the figure was closer to 39 percent. In contrast, the smaller firms are more heavily reliant on family members as sources of rental land.

It appears that small firms, with correspondingly small land requirements can have many of their land needs satisfied either from their own resources, or by renting land from family members. However, once the size of the firm increases, the land space requirement outstrips the availability of land from the owner and their family. A higher proportion of these large firms need to rent land. When these firms rent land it is generally through local authorities and the land area is substantially greater than that utilized by small firms.

Given the characteristics of land use and rental patterns, it is hardly surprising that the proportion of firms reporting problems with land issues increases as the size of the firm increases. Although the overall proportion of firms reporting problems with land is around 17 percent, the proportion of large firms reporting problems (at almost 29 percent) is more than double that of small firms (Table 5). The most common land problem for all firm sizes was reported to be the difficulty of finding a technically suitable site. This is especially important for large firms, who require large land areas in order to conduct their operations (Table 6). The highly fragmented nature of agricultural and peri-urban land in Viet Nam (especially in the North) and the small size of land plots means that in order for firms to accumulate land plots of significant size, they must deal with a large number of land owners. Achieving the consent of these land owners may require considerable transaction costs on the part of the firm.

A number of studies of agro processing in Viet Nam have highlighted land issues as potential constraints to further development of the sector. The World Bank (1998) highlights the difficulties faced by rural enterprises in achieving re-zoning of agricultural land to industrial usage. This uncertainty of land-use rights can lead to the inability of

private sector firms to access credit for business expansion. UNIDO (1998) outlines four areas where land tenure issues need to be improved in order to encourage the development of small and medium enterprises in rural areas. These are (i) streamlining of registration procedures, (ii) clarification of land title issue, (iii) reduce registration fees and taxes and (iv) improved dispute resolution procedures. Taxes such as agricultural land use tax, land transfer tax and natural resource taxes have also been identified as constraints to agro industrialization in a number of studies. Rezoning and regulatory issues relating to land use were only cited as problem areas by around 19 percent of the firms reporting any problems. Not surprisingly, the proportion of medium and large firms reporting zoning and regulatory difficulties was greater than the proportion of small firms.

In addition to utilizing land, surveyed firms also owned and rented buildings. Buildings were owned by 374 of the surveyed firms. The proportion of firms owning buildings decreases as firm size increases. Almost 95 percent of small size agro processing firms operate from premises owned by the firm. In contrast, more than 45 percent of large size firms rented premises from which to operate and almost 30 percent of large firms did not own any of the buildings from which they operated. In common with the figures for land ownership and rental, the average area of buildings both owned and rented by the firms increases as the size of the firm increases (Table 7).

4 Labor

The surveyed agro processing firms had an average total workforce of 28.7 equivalent full time employees. (Table 8) The majority of labor for the firms comes from full time workers, who provide an average of 22.3 persons per firm, while part time workers account for an average of 6.4 persons per firm (full-time equivalent). The reliance on full time labor as opposed to part time labor was consistent across all agro processing sub sectors.

These employment levels can be compared with the average employment levels of state owned agro processing firms as shown in Table 9. Although the subsectoral categorization of the state owned enterprises is different from that of the private firms, it is obvious from the figures that the labor force employed by state owned enterprises is

generally substantially larger than that of the private firms surveyed. With the exception of state owned enterprises in the salt, livestock and animal feed sub-sectors, the average level of employment of central government enterprises was substantially greater than the average employment levels of locally owned enterprises.

The average firm size of surveyed private firms (as measured by equivalent full time employees) increased between 1996 and 1999. (See Table 10) The average number of employees was 14.4 in 1996 and had almost doubled to 28.4 by 1999. Average growth levels of employment numbers increase as firm size increases. Table 11 shows an index of the average employment levels between 1996 and 1999 for small, medium and large firm sizes. With 1996 represented as the base level of 100, the index of employment levels for large firms is almost 228 by 1999, compared with a level of around 150 and 170 for small and medium firms.

All agro processing sub sectors have experienced growth in average employee numbers over this period. The most rapid employment growth has been in the fisheries, wood products and tea sub sectors, while employment growth in the seeds sector has been less pronounced.

The proportion of females in the workforce of the surveyed firms has remained relatively constant between 1996 and 1999 at around 31-32 percent. The female proportion in the workforce has also remained relatively constant in almost all of the agro processing sub sectors, except the tea industry, where the female labor proportion has declined from 57.9 percent to 47.6 percent. The most female dominated sectors in 1999 were seeds, fruit and vegetables and noodles. For example, in the case of the chili seeds subsector, female employees are preferred because they are perceived to have better eyesight for the detailed work involved in the subsector. The machinery subsector is the most male dominated of the agro processing subsectors, with an average of only 4.2 percent of employees being female (Table 12).

Many studies of the rural industrialization process have cited the potential for rural enterprises to concentrate on labor intensive industries. In many other countries in the region, industrialization has taken the form of the development of small-medium scale labor intensive industries in rural areas. This is particularly the case in China, where rural enterprises (both private and township owned) play a dominant role in both rural

employment generation and rural sector output. Labor intensive production by rural enterprises is seen as a vehicle for absorbing surplus labor in rural areas, bringing competition to the domestic market and generating rural savings (The World Bank, 2000). Small scale private rural enterprises are seen as adopting relatively labor intensive production activities compared to the capital intensive activities undertaken by large scale state owned enterprises.

This would suggest that as firm size decreases, the labor intensity level increases and therefore the average amount of turnover or revenue per employee should decrease. This was shown in a study by O'Connor (1998), who reported that the average level of income per worker in non-state enterprises in Viet Nam is around five times smaller than the average level of income per worker in state enterprises.

As Table 13 shows, this is certainly the case for state owned enterprises, where the average turnover per employee for locally owned enterprises is less than one third of that of centrally owned enterprises. Table 14 shows the average levels of revenue per employee for surveyed agro processing firms. The average revenue per employee for the surveyed private enterprises in 1999 was around D59 million. This is less than that of both centrally and locally operated state owned enterprises in the agro processing sector. This would tend to confirm the theory that the production activities of private agro processing firms are more labor intensive than those of central and local state owned enterprises.

However, as shown in Table 15, within the sample of private firms the level of labor intensity appears to be higher for large firms, with the average level of sales revenue per firm decreasing as the firm size increases. This may be a function of the concentration of large firms within the sample in industry sub-sectors with relatively high levels of labor intensity. As was shown in Table 14, labor intensity levels are highest in the seeds and fishery products sectors and lowest in the rubber and wood products sectors.

In order to estimate labor intensity levels in the private and state owned agro processing sector, the following equation was estimated for the sample of private firms, all SOEs and central and local SOEs separately.

$$(1) \log(\text{revenue}) = \alpha + \beta \log(\text{laborforce})$$

A positive β that was greater than 1 would indicate that as the firm size increased, the level of labor intensity also increases. A positive β less than 1 would indicate that as the firm size increased the labor intensity would decrease. Table 16 shows that for the private firms surveyed, the estimation confirms that the labor intensity is higher for larger firms, while for the state owned enterprises, increases in enterprise size, both at the local and central level tend to lead to decreases in labor intensity.

The sources of labor skills for around 30 percent of the firms was family tradition; and in over 48 percent, work on the job in the enterprise itself or in other enterprises (see Table 17). Formal sources such as schools and training institutes were a significant source of skills in only a few enterprises. Despite this informal sourcing of labor skills, relatively few enterprises felt serious production-related skill deficiencies, only 11 of them in all. Consistent with this, only around 22 percent of firms have planned any training programs for their staff, with the principal reason being given was that these programs were not needed.

5 Capital

Table 18 shows that owners' own equity was the most important source of start up finance for the agro processing firms. Equity from owners provided an average of more than 85 percent of start up finance funding. Loans from family and friends and from banks, contributed an average of 8 percent and 5 percent respectively of start up funds. Table 19 shows that the average funding sources for business expansion used by the firm were very similar to those used for business start up. In more than 90 percent of cases, the most important source of finance for expansion was reinvested owners profits. The only other significant sources of expansion finance were short term loans from banks or long term loans from family and friends.

According to many enterprises in the agricultural sector, the largest problem that they face with regard to business expansion is a shortage of available funds. In addition of shortage of funds for capital investment, operating capital relating to export is also in short supply. As discussed in the previous section, many firms cannot obtain commercial credit and hence depend on families, relatives and friends for fund raising.

The major difficulties faced by small and medium enterprises in borrowing capital are:

- Limited amount of capital borrowing: The amounts of loans given to SMEs are below 50% of total investment stated in the project proposal.
- Short term loan: SMEs are mainly accessed to short term loans (3 – 6 months)
- Complicated and time-consuming borrowing procedures
- Cumbersome and complicated mortgage and collateral requirements: The number of enterprises can meet these requirements is very limited. (Supporting SMEs in capital borrowing, Hanoi Time, November, 11, 1998)

Less than 44 percent of the surveyed firms had received business loans. Not surprisingly, access to credit was more available for medium and large firms compared to small firms. Table 20 shows that almost 60 percent of large firms had obtained credit at some stage, while less than 40 percent of small firms had received loans.

State owned enterprises at the central and local level obtain credit from both commercial sources and from government sources. The availability of credit from both sources to state owned rural industrial enterprises is greater than the level of availability of credit to the surveyed private agro processing industries. Table 21 shows that more than 70 percent of the central state owned enterprises had received loans from commercial sources, more than 63.5 percent had received loans from state sources and over 60 percent of central enterprises had received credit from both sources.

Table 22 shows that the average size of loan received by the surveyed agro processing firms was D133 million. The average loan size taken increases as the size of the firm increases. Table 23 shows that the average loan size for large firms is over 30 times the average size of loan received by small firms, even though the size as measured by labor on average goes up from 7 to 170, as in Table 1. The average level of loan received by state owned enterprises also increases as the size of the firm increases. Table 24 shows that the average level of credit received from commercial sources and from state sources by central managed enterprises is greater than the average level of credit received by locally managed enterprises. It can be seen from Table 25 that the average credit amounts for state owned enterprises in all agro processing subsectors are greater than the average credit amount for surveyed private firms.

The average interest rate charged on loans received was 1.1% per month. The average term of the largest loans was 15 months (see Table 26), but in 76% of the cases, the term

of these loans was less than 12 months. Thus, the main problem with the loans received was their small average size and their short term (in most of the cases), rather than high interest rates.

VBARD was identified as the predominant source of loans for agro processing firms in the survey. VBARD accounted for over 67 percent of the major loans taken out by firms, while other banks accounted for 14 percent of the firms major loans (see Table 27). Other sources such as non-governmental organizations (NGOs) accounted for the remaining 19 percent of the sources of the major loans taken out by firms. The relatively rarity of loans from these sources may be due to the relatively large loan requirements of the agro processing firms. VBARD was the most important loan source for all size of enterprise, but the importance of VBARD as a loan source for large firms was relatively smaller than for small firms. Conversely, the importance of other state banks and other credit programs increases as firm size increases (Table 28).

Almost all loans sourced by agro processing firms needed to be backed by securities to the lenders. Fixed collateral security was required for over 90 percent of the major loans sourced by the agro processing firms. This was the case for all firm sizes and sub-sectors.

6 Technology

The agro processing firms surveyed rely heavily on Asia and in particular, Viet Nam as a source of equipment. More than 88 percent of the surveyed firms cited Viet Nam as one of the most important sources of equipment, while more than 30 percent also cited other Asian countries as an important equipment source. Only 29 of the firms sourced any equipment from Russia and Eastern Europe, and only 41 firms purchased any equipment from Western countries or Japan. This pattern prevails across all nine subsectors surveyed.

While over 84 percent of large firms sourced at least some equipment from Viet Nam, around 27 percent of the large firms indicated that they sourced at least some equipment from advanced nations. Not surprisingly, this is far greater than the proportion of small firms sourcing equipment from advanced countries. The dominance of Viet Nam as a source of agro processing equipment is not surprising, given the existence of a number of

non-tariff barriers to imports of new and second hand processing equipment from overseas.

While the tariff rates for imports of new agricultural machinery is relatively low at a weighted average of around 8.1 percent, in practice imports of many of these types of machinery are banned, or are subject to onerous import controls and licensing procedures. According to the agencies controlling imports, the purposes of these controls are (1) protecting public health, occupational health and safety, (2) protection, (3) quarantine and (4) technical standards. It is also likely that these controls could be used to preserve the privileged of the state owned industries under the regulating ministry.

In addition to the controls on imports of new agroprocessing machinery, the imports of second hand agro processing machinery are also subject to strict controls that restrict the level of their penetration into the Vietnamese marketplace. Protection from second-hand machinery imports was increased in 1998 through a regulation that required such equipment to be “80 percent of its original quality” (2019/QD-BKHCNMT and 491/TB-TDC, 29 April, 1998). The fuel consumption of the used machinery was also to be no more than 10 percent greater than the new equivalent. The enforcement of this regulation requires costly inspections upon importation and after assembly in Vietnam. According to McCarty (1999) this regulation has resulted in the almost complete cessation of second-hand machinery imports into Viet Nam. This has the potential to deny Vietnamese firms access to a reasonably priced source of advanced technology.

The average age of the production equipment varies, but on average is not very high. Only 16 percent of responding firms indicated that their equipment had an average age of over 10 years. In 38 percent of cases, the average age was between 5 and 10 years, in 35 percent of cases it was between 2 and 5 years, and in the remaining 11 percent of cases it was less than 2 years. There was not a great deal of subsectoral variation in this age pattern. Only the noodles subsector varied sharply from the norm, with nearly 40 percent of enterprises in this sub sector having equipment with an average age of over 10 years (see Table 29). However, as shown in Table 30, noodle making is the sub sector with the oldest average age of firm commencement.

When deciding about where to source new manufacturing equipment, the firms are heavily influenced by the activities of other agroprocessing firms. Almost 45 percent of

firms indicated that they made purchasing decisions based on observation of the equipment used by other firms in the sector, while a further 18 percent made purchasing decisions based on advice that they received from other agroprocessing firms. (Table 31) Only around 19 percent of the firms reported that they experienced any serious production problems. Of these problems, the most frequently-mentioned were that the firm was technically unable to produce high-quality products (48 percent) and that the condition of the firms equipment was poor (37 percent). There were almost no responses citing inadequate information or advice on equipment or other aspects of production. The noodles subsector reported an especially high incidence of production problems related to poor state of equipment and technical inability to produce products. As was shown in Table 29, the noodles subsector has the oldest equipment on average. It appears likely that equipment/technology-related problems may primarily affect firms with equipment of an average age of more than 10 years.

The use of on-site infrastructure amongst the surveyed firms is fairly well developed. Electricity is used by more than 96 percent of firms, water is used by 93 percent of firms, nearly three-quarters of the firms have a telephone, about 62 percent have waste-disposal facilities and about 69 percent directly use some form of transportation equipment.

The main sources of these infrastructure services are:

- Electricity – Mainly supplied by state owned enterprises
- Telephone services – State owned enterprises
- Water supplies – obtained from the firms themselves
- Waste disposal services – undertaken by the firms themselves
- Transportation equipment – other private companies and transport equipment owned by the firm themselves.

7 Raw Material Supplies

Agro processing firms generally have strong linkages with the agricultural primary production sector. These linkages are predominately based on supplies of agricultural raw materials from either smallholder farms or commercial scale farms operated by the private, government or joint venture sector. Very few agro processing sub sectors

experience serious problems of agricultural material supply, except for the following three cases:

First, the sugar industry has major problems of cane supply, for reasons related to a policy contrary to market principles.

Second, many firms which are attempting to compete in high-quality markets for processed agricultural products, often find it difficult to source adequate quantities of high quality raw produce from farmers at competitive prices. A case in point is fresh vegetable processing for the Japanese market undertaken in the Da Lat area of Lam Dong province.

Third, the forest products processing subsector often experiences raw material supply problems, due to both the lack of suitable wood supplies in Viet Nam and poor transport infrastructure in many rural areas.

The surveyed agro processing firms purchase raw materials primarily from farmers (37 percent) and domestic traders (42 percent) (see Table 32). Other sources, including other production enterprises only make up a small minority of raw material sources for the firms. The firms generally do not limit their raw material sourcing to a single supplier, with more than 83 percent of firms indicating that they purchase raw materials from more than two sources.

The price of raw materials used by the agro processing firms is set by the market, as opposed to by the supplier for 85 percent of the firms. Very few agro processing firms utilize long term supply contracts for agricultural raw materials, 91 percent of the firms surveyed indicated that they utilize separate terms for each raw material purchase that they undertake.

More than 63 percent of agro processing firms surveyed obtain their raw material inputs from sources within 30 kilometers of the firm's premises. A further 27 percent obtain their supplies from sources within 100 kilometers of the firm. (See Table 33) As the size of the firm increases, the average distance to the raw material supplier increases (Table 34). Almost 60 percent of large firms source their raw materials from suppliers located between 30 and 100 kilometers from the firm. In contrast, only around 18 percent of small firms source their raw materials from suppliers this distance from the firm.

The surveyed agro processing firms do not have many strong technical or commercial links with their suppliers beyond the simple supplier/purchaser relationship. Only 7 percent of firms have offered any kind of technical or other input assistance (including credit, preferred cultivars, technical advice) to their suppliers. This is mostly the case for small and medium firms. However, almost 30 percent of large firms surveyed give some form of assistance to their suppliers, mostly in the form of preferred cultivars, seeds or other inputs (Table 35).

Most small and medium agro processing firms appear to utilize a variety of suppliers in order to obtain better prices and quality of raw material inputs, but in general, they do not appear to make systematic efforts to improve the raw material supply situation itself.

The most commonly identified problem related to raw material supply is the fact that the firms perceive the prices of raw materials to be extremely variable. This suggests that the agro processing firms have little or no control over the prices that they pay for raw material inputs. This is the case for small, medium and large firms (See Table 36). Less than 25 percent of firms suggested that any action should be taken to ensure stability and consistency of raw material supply. The majority of the suggestions made for increasing raw material supply consistency and stability were for action to be taken by other entities, not by the firm themselves.

310 of the firms surveyed purchased raw materials other than agricultural products as inputs for their production processes. More than 88 percent of these purchases were made through traders, rather than directly with the producing firms. (See Table 37). Only 15 of the firms purchasing other raw material inputs reported any problems, including late delivery and high prices. (Table 38)

8 Marketing of Products

Many of the companies involved in the agro processing sector do not have advanced marketing systems, nor do they have much knowledge of the scope of their markets or even the type of competitive environment that they are operating under. In many enterprises in the sector, marketing can be categorized as being passive, with the firms selling mostly to local customers or to private traders who come to the enterprises to buy

and then on-sell the products to more distant markets of which the enterprises themselves know very little. This is especially the case for the smaller firms in the sample.

Around 59 percent of firms indicated that they felt that they were deficient in some business skills. The proportion of firms with deficient skills varied between almost 64 percent for small firms and around 43 percent for large firms (Table 39).

Of the 168 firms that acknowledged serious deficiencies in various skills, more than 36 percent claimed to be deficient in marketing/promotion skills and another 7 percent were deficient in product-pricing skills. Another 13 percent of the firms who acknowledged skill deficiencies claimed to be deficient in business planning, a skill also closely related to marketing. Large firms were less likely to be deficient in marketing/promotion skills than small or medium firms, but were more likely to be deficient in business planning skills (see Table 40)

More than half of the surveyed firms reported that they had experienced marketing problems. (See Table 41) As the size of firm increases, the incidence of marketing problems increases. This is not surprising, as larger firms are more involved in advertising and marketing activities in order to sell their products and increase their business activities.

The most common marketing problem reported was that the firm had inadequate information about the markets which they operate in. This was the major marketing problem identified by more than 60 percent of the responding firms. A further almost 9 percent of firms experiencing marketing problems reported that these were due to being unable to choose the right products to sell in the market. This response also indicates that the firm suffers from a lack of information about the markets in which they operate. Inadequate information about markets was the major marketing problem experienced by small, medium and large firms. However, a smaller proportion of large firms reported lack of marketing information than did small firms. Large firms suffered more from marketing problems related to the design and quality of products than did small firms (Table 42).

There were almost no complaints about preferential access to markets by other enterprises. This is probably because agro processing enterprises see themselves as principally in local competition with other enterprises much like themselves.

Of the firms identifying the enterprise-type of their main competitors, almost 87 percent identified enterprises that were of similar size to their own, operating in the same province as their major competitors. The firms believed that their main competitors were from the private sector, with more than 93 percent of the firms identifying this as their major competitor type. The firms identification of competitors was consistent between small, medium and large firms. (Table 43) Only 17 percent of firms responding to the question said that their main competitors had any policy-related competitive advantages such as preferred access to markets or inputs. The most frequently-cited types of policy-related competitors, advantages were preferred access to imported input prices, land, and credit (see Table 44).

Around 43 percent of firms have made upgrades or diversification of their product lines since 1997. Of these, around 72 percent had made major changes to product lines, packaging or design. Of such innovations, 57 percent referred to the introduction of new products, and 43 percent to major upgrading or redesign of existing products and packaging. (See Table 45)

Only 13 percent of the firms said that they had received any kind of marketing advice or assistance since 1997. The majority of this assistance focused on market information and contacts. 37 percent of the assistances rendered referred to introductions to foreign and Vietnamese buyers, 39 percent to information about markets, and a further 13 percent to access to trades fairs and exhibitions. There was almost no assistance reported on product or packaging design, and none at all with respect to quality assurance (see Table 46).

There does not appear to be any evidence of lack of concentration by the enterprises on one line of business. Of the total of 410 agro processing firms, only around 15 percent of the owners also had other businesses; and even among those, the agro processing firms themselves provided the majority (an average of 72 percent) of the owners' total business incomes. Thus, the owners are not, in general, spreading their resources and efforts over a number of different enterprise types.

The range of customers is typically quite limited. Among the enterprises' *most* important customer-types, around 31 percent of firms sell to final consumers, 22.5 percent sell to local retailers, and a further 16.95 percent sell to other domestic private traders. The sales patterns are markedly different for small, medium and large enterprises. Small enterprises

predominately sell to final consumers and local retailers. Medium firms sell to local retailers and state owned enterprises, while large firms sell mostly to exporters and state owned enterprises (see Table 47).

The firms generally exhibited little knowledge of the locations or the trading conditions of their non-retail customers. Of 296 firms which had products that were sold to indirect customers, only 31 percent even roughly knew the prices at which their products were on-sold to the indirect customers, and only around 19 percent knew these prices fairly precisely, that is, within a narrow 10% price-range (see Table 48).

The firms knowledge of their indirect customers was even slighter. Only around 25 percent of firms with indirect customers knew even roughly how far away their indirect customers were located, as opposed to almost 100 percent of firms who knew the location of their direct customers. Less than 23 percent of firms with indirect customers knew even roughly the indirect customers most important requirements, as opposed to 100 percent of firms knowing the requirements of their direct customers.

It is evident from these results that agro processing firms market information usually does not extend much beyond knowledge of the characteristics of its own direct retail or non-retail customers. The typical enterprise's knowledge of who those direct customers in turn sell to, and at what prices, is imperfect; whilst its knowledge of the selling prices, or even the locations, of its indirect customers is very limited indeed. These characteristics add up to a picture of firms which rely on other parties to on-sell their products into markets about which the firms themselves know very little. This pattern limits the profit opportunities of the enterprises and their capacity to adapt constructively to market requirements.

9 Revenues and Profits

The average revenue level for the firms surveyed was D1240 million in 1999. This average revenue amount has remained relatively constant in the period between 1996 and 1999. Average revenues increased in all sub sectors with the exception of the tea, rubber and wood products subsectors. The subsector with the highest average revenues in 1999 was the wood products subsector, with an average revenue of D1964.0 million while the noodles subsector had the lowest average revenue at D163.1 million. (Table 49) Not

surprisingly, levels of average revenue increase as the firm size increases. Table 50 shows that the average revenue of large firms in the sample is over ten times greater than that of small firms.

This can be compared to the average revenue levels for central and local state owned enterprises involved in agro processing. These are shown in Table 51. Whilst the categories of enterprise specified for state owned enterprises is different to that for the private companies that were included in the survey of agro processing firms, it is obvious that the average revenues for state owned agro processing enterprises are substantially greater than those of the surveyed private firms. As Table 52 shows, the average level of turnover for central enterprises is greater than the average level of turnover for local enterprises. The average level of turnover for locally operated state owned enterprises is around twice the average turnover of large size surveyed agro processing firms. This is the case in all subsectors except for coffee and salt production.

More than 99.5% of the surveyed agro processing firms stated that they are currently making profits. This high level of profitability is a possible engine of future growth of the private agro processing sector, as 90 percent of the firms were planning to use a major portion of their profits for expanding the agro processing firm and 1 percent were planning to invest on other agro processing activities. (Table 53)

In comparison, a smaller proportion of state owned enterprises reported that they were profitable. Around 77 percent of central government operated state owned agro processing enterprises reported profits in 1998, while around 75 percent of locally managed state owned enterprises were profitable in the same period. While the average turnover level of centrally managed state owned enterprises was more than three times greater than that of locally managed enterprises, the average profit levels of centrally managed enterprises (D338.59 million) is less than 1.5 times that of locally managed enterprises (D216.24 million). This suggests that there are diminishing returns to scale evident in the state owned enterprise sector. In order to test the characteristics of returns to scale, the following equations were estimated for all enterprises and also for central and local enterprises separately.

$$(2) \log(\text{profits}) = \alpha + \beta \log(\text{turnover})$$

$$(3) \log(\text{profits}) = \alpha + \beta \log(\text{laborforce})$$

The results of the estimations are shown in Table 54. The estimations show that there are diminishing returns to scale for the entire group of enterprises and for central and local enterprises separately, when scale is defined in terms of turnover and also when scale is defined in terms of labor force numbers.

Table 55 shows the estimated relative profitability levels of the private agro processing firms between 1996 and 1997. The information presented in the table uses the profitability level of the firm in 1996 as the base level of 100, against which the profitability levels of subsequent years are compared.

Table 56 shows the means of the estimates provided, by year and by subsector. There is an overall upward trend in profitability, which is consistent with the finding that almost all the firms state that they are currently profitable.

The newer and/or export-oriented subsectors, such as fruits/vegetables, tea, agricultural machinery and seeds, have high growth in average profitability. More traditional subsectors, such as noodles, bean products, and rubber, have experienced relatively lower growth in profitability.

As was shown in Table 55, the growth in profitability of large firms has consistently outstripped that of small and medium sized firms. This suggests that, contrary to the situation evident for state owned enterprises, larger private firms are better placed to take advantage of market developments and increase their enterprises consistently in terms of turnover, employee numbers and profitability.

10 Regulations and Policy Environment

The government has pursued four major policy strategies in order to encourage growth of the agro processing sector. These policies are:

- a) liberalizing trade of processed agricultural products and of the raw agricultural products to be processed, thus introducing more competition into the agro processing and-the related trade sectors, particularly from private sector investment.;
- b) encouraging the establishment or expansion of 'production zones', generally based primarily on smallholder production systems, to produce raw agricultural products, and the establishment in parallel of medium/large-scale agro-processing plants to

process and market the final output. Usually these plants are state owned enterprises (SOEs), more rarely they are foreign invested or joint venture enterprises. Examples include the sugar, cassava starch, tea, groundnuts and rubber industries;

- c) encouraging the provision of credit to agro processing enterprises. This is mostly in the form of credit provided at preferential rates to state owned agro processing companies, often financed through the State Budget and/or by overseas development funds. State owned enterprises in the sugar, tea, rubber, groundnuts, and marine products subsectors are amongst those which have received significant preferential credit.
- d) increased emphasis on encouraging the growth of private-sector enterprises, through liberalization of licensing regulations and trying to ensure these enterprises are given the same opportunities as state owned enterprises with regard to obtaining licenses, approvals, and access to credit.

The institutions that are currently the most active in directly promoting development of the agroprocessing sector are MARD and the provincial DARDs which are responsible for sectoral and subsectoral strategy and the provincial departments of Planning and Investment, provincial People's Committees and VBARD which are primarily concerned with credit provision, whether at preferential or market rates.

The activities of MARD and the provincial DARDs are concentrated on increasing the production levels of raw agricultural products, and working with small scale and commercial farmers to achieve these increases in primary production. Few officials have a keen interest in or knowledge of processed product-markets and few projects or programs are planned starting with in-depth market appraisals working backward to market-oriented product choices and then to organization of agricultural product supply. The agro-processing divisions of MARD and the provincial DARDs have small numbers of staff and only have limited funding. There are some institutes associated with MARD that are working in the fields of post harvest technology and small-scale agro-processing technologies. However, the field component of technology dissemination and development is largely absent. The provincial DARDS do not have the trained local staff or the support resources to train farmers and others in improved agro processing technologies, disseminate the technological improvements produced by the technical

institutions, or provide good market/field feedback to guide the institutions' further development work. The development and adoption of agro processing technologies used by private-sector enterprises, large or small, is influenced or assisted by MARD and the DARDs in only a small minority of cases.

While VBARD is active in widespread lending to many agricultural sector primary producers, it is much less active in the provision of loans to the agro processing sector. The bank does not devote a great deal of its resources to credit for the agro processing sector with the exception of 'policy-directed' preferential credit extended to selected state owned agro-processing enterprises. However, these loans are most frequently made to enterprises which are under performing and relying on credit to continue operations. The contribution of such loans to the development of the agro processing sector as a whole is doubtful. Although no hard statistics are available, it appears that no more than 5-6% of VBARD's total lending goes to private non-smallholder rural enterprises, and even this figure may include loans to non agro processing enterprises such as larger commercial farms, produce traders and building contractors. VBARD feels that it is safer to make many small and/or short-term loans to farmers and traders, than to make larger loans for longer terms to private agro processing enterprises. These enterprises often lack collateral security and are widely perceived to be in a risky sector.

Thus in practice, direct government strategy towards the agro processing sector is limited to two types of intervention: (i) trade liberalisation, and (ii) programs to boost production of selected agricultural outputs in selected areas, linked to investments in large-scale state owned agro processors, with little attention given to the availability of output markets for the processed products. The experience of the largest of these programs, in the sugar sector, is well-known. It has resulted in proliferation of mostly state owned sugar-mills, many of them in areas without comparative advantage in sugarcane production. Most of the mills are under utilized, and many are losing money. The pressure of competition, including that from illegally imported sugar, has forced the mills to offer drastically lower prices for cane to the farmers which in turn has led to the farmers to divert land away from sugarcane into other crops, and to shortfalls in cane supply to the mills.

The low level of positive policy interventions, coupled with under-funding of rural productive infrastructure, training and extension services in agro-processing technologies

has led to the continued under development of Viet Nam's agro processing sector. The policy changes needed to increase the development of the agro processing sector will not be easy to achieve. These policy changes should be developed based on a careful examination of the current environment under which the agro processing sector operates. In addition to developing policies to encourage development of the agro processing sector, policy reform should also aim to reform currently implemented laws, regulations and procedures that have an adverse affect on the operations of firms in the sector.

Around 40 percent of surveyed agro processing firms experienced problems arising from laws, regulations and official administrative procedures. (See Table 57) The most frequently mentioned problems were tax law and administration and laws about acceptable loan collateral.

Numerous other fields of regulation (health, business licensing, environmental, land access, etc.) accounted for the remaining responses, but none were so prominent as tax and loan collateral regulations, which together accounted for almost three-quarters of the most important sources of regulatory problems (Tables 58, 59).

Faced with regulatory, infrastructure or other business problems, agro processing industries are generally on their own. Very few firms mentioned any source of assistance with such problems, the most frequently mentioned source being local officials, followed by private professionals and other private people. VCCI and other industry/trade associations received no mentions of at all. The firms reported extremely low involvement with VCCI and other industry/trade associations. Only 7.5 percent of firms were members of any trade-group or association, and only five of the firms surveyed were members of the VCCI (Table 60). None of the firms planned to join any association soon, the principal reasons being either that they see no need or benefit of joining, or that they are not aware of any appropriate associations to join.

11 Conclusions

This section will outline some of the major constraints to future growth of the agro processing subsector identified in this study and propose some possible policy options to overcome these constraints.

11.1 Land

The primary constraint identified by the surveyed firms relating to land is that the firms have difficulty in obtaining a technically suitable site from which to undertake their operations. This is more pronounced for large firms, which require greater amounts of land and generally have to deal with local authorities when renting land. One of the key reasons behind this difficulty is the fragmented nature of land allocation in rural areas. In order for firms to obtain land use rights they will normally have to deal with a large number of landowners to whom agricultural land has been distributed. This means that the firm will incur large transaction costs when attempting to rent or gain some form of title over land in rural areas. Re-zoning of land to industrial usage was also mentioned by a number of firms as a problem that they faced when attempting to source land on which to carry out their activities. The difficulties in obtaining suitable land could lead to many industries relocating away from rural areas toward urban areas with relatively easier land use provisions.

One possible solution is for provincial governments or commune peoples committees to develop a system of rural industrial zones. While urban areas, particularly in the south have set up industrial zones, these have catered to the needs of large scale industrial companies (both private and state owned) and foreign or joint venture companies. There is potential, particularly at the commune level for the people's committee to allocate previously undistributed common lands for use as industrial parks, to encourage the development of rural industries in their area.

11.2 Labor

The continuing support of central and local governments for state owned enterprises in the rural industry sector at the expense of private industry has meant that the potential for increasing the production of labor intensive goods and absorbing agricultural sector labor surplus has been diminished. The lack of promotion of private industry has also hampered the growth potential of private industry, which as discussed above not only may lead to increased economies of scale, but also to increased labor intensity from larger private firms. As discussed in relation to other constraints in this section, the focus of government support at all levels needs to be taken away from supporting inefficient

state enterprises and focused more on the facilitation of private agro enterprise development.

11.3 Capital

Limited access to credit is possibly the single greatest constraint facing private agro processing firms in Viet Nam. Credit provision is heavily slanted towards the state owned enterprise sector in agro processing. For example, according to ADB (2000), only around 15 percent of outstanding medium and long term lending to the corporate sector by VBARD was to non state owned companies. While over 70 percent of centrally controlled state owned enterprises examined had access to commercial credit and more than 63 percent had access to state credit, only around 44 percent of the private agro processing industries surveyed had ever received credit from any source, and the majority of these firms were classified as large private firms. Small and medium firms were forced to rely on finance from the owner or family members in order to commence business or expand their operations.

Access for private rural industries, especially small and medium scale industries, to credit should be improved. Clear policies should be enacted to give a level playing field between private enterprises and state owned enterprises when accessing credit. Specific measures to improve credit access could include:

- Establishing an improved system of recognition of non-land assets for use as collateral against loans. This could include the recognition of elements such as reputation, experience, intellectual property rights, management system, or inventory as collateral.
- Simplifying the collateral requirements for loans
- Allowing private firms access to longer term credit

11.4 Technology

Surveyed firms predominately obtained processing equipment from within Viet Nam. The low level of equipment sourced from outside Viet Nam is a result of regulatory restrictions on the import of both new machinery and also the import of second hand machinery. While the tariff rates on such imports are not high, there are significant non-

tariff barriers, including prohibition of imports in some cases. These restrictions not only increase the cost of equipment used by firms, but also restrict the access of firms to improved technology, which in the case of second hand machinery could be obtained at relatively low cost. Industry development strategies should include measures to reduce the incidence of import restrictions on both new and second hand equipment.

11.5 Regulation

More than 40 percent of the surveyed private firms indicated that they had encountered problems with laws or regulations relating to carrying out their business. Even more significant was that the proportion of firms reporting regulatory problems increased as the size of the firm increased. This implies that regulatory activities and laws provide an impediment to the growth of private sector firms in the agro processing sector. The most significant problems reported were with taxation and administration regulations. Specific possible improvements to these regulations include simplifications to both the corporate taxation and value added taxation systems by introducing single rates, and eliminating the practice of giving preferential treatment to state owned enterprises or selected foreign enterprises.

One prime example of preferential treatment of selected enterprises relative to the majority of private agro processing companies is the recent licensing of the German agro processor Metro Cash and Carry to operate an agro processing and trading enterprise in Viet Nam. The wholly foreign owned company will purchase low value agricultural products in Viet Nam and after processing, will export the majority of the products. The company will be subject to a corporate tax rate of only 15 percent for the first 12 years of operation and the regular 25 percent rate for the following 35 years. In addition the company will be exempt from corporate tax for the first two years after it makes a profit and a 50 percent reduction for the following three years. In addition the tax on remittance of profits abroad will be set at only 3 percent and the company will be exempt from restrictions on machinery imports.

Bibliography

ADB (2000), "Viet Nam 2010: Entering the 21st Century", Asian Development Bank, Manila.

Agrawal, N. and Nguyen, N. (1998), "Benefits of Growth for Workers in Vietnam." Presentation to the joint Vietnam Ministry of Agriculture and Rural Development and World Bank Workshop on Vietnam Rural Development Strategy, Vision to Action: Rural Development Trends and Priority Issues, Hanoi, April 22, 1998.

Chen, C.L., Findlay, C., Watson, A. and Zhang, X.H. (1997), "Rural Enterprise Growth in a Partially Reformed Chinese Economy", Chapter 1 in Rural Enterprises in China, Findlay, C., Watson, A. and Wu, H.X. (eds.), St Martin's Press.

Dien, N. (2000), "Agricultural and Rural Industrialization in the 1996-2000 period", World Economic Issues, No.2.

Goletti, F. (1999) "Agricultural diversification and agrofood based rural industrialization as a strategy for poverty reduction and income growth in rural areas of Viet Nam, Cambodia, Laos, and Myanmar", paper presented at the Regional Symposium on Food Policy in Viet Nam, Cambodia, Laos, and Myanmar, The effects of Globalization, Hanoi, March 1-2, 1999.

IFPRI (1996), "Rice Marketing Monitoring and Policy Options Study- Final Report", Washington, D.C.

IFPRI et al. (1998), "Starch Industry Development as a Strategy for Agro-food Based Rural Industrialization", Washington, D.C.

Keddie, J. and Binh, T.Q. (2000), Agroindustry Specialists Report, TA 3223-VIE, June 2000.

McCarty, A. (1999), "Vietnam's Integration with ASEAN: Survey of Non-Tariff Measures Affecting Trade", Report Prepared for UNDP Project ASEAN-VIE 95/015, Ha Noi.

McKenzie, J. (1998), "Presentation on Rural Industrialization" to joint Vietnam Ministry of Agriculture and Rural Development and World Bank Workshop on Vietnam Rural Development Strategy, Vision to Action: Rural Development Trends and Priority Issues. Hanoi, April, 22, 1998.

Oanh, B.T. (2000), "Feed Industry in Viet Nam", IFPRI/MARD, Ha Noi

O'Connor, D. (1998), "Rural Industrial Development in Viet Nam and China: A Study in Contrasts," Paper presented at the International Conference on Communist and Post-Communist Societies. Melbourne, July, 7-10, 1998.

Ogle, A. et al. (1999), "Evaluation of State Forest Enterprises", Draft Working Paper, ADB. Ha Noi.

The World Bank (1998), "Vietnam: Agriculture for Sustainable Rural Development", Draft Report No. 17278 VN. Washington, D.C.

The World Bank (2000), "Viet Nam: Advancing Rural Development From Vision to Action", The World Bank, Washington, D.C..

UNIDO (1998), Rural Industrial Development in Viet Nam, Ha Hoi.

Table 1: Characteristics of Surveyed Firms by Sub Sector and Firm Size

| | Size of Firm | | | | | | Total | |
|------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|-----------------|-----------------------------|
| | Small [1 to 10 employees] | | Medium [11 to 50 employees] | | Large (Over 50 employees) | | Number of Firms | Average Employment per Firm |
| | Number of Firms | Average Employment per Firm | Number of Firms | Average Employment per Firm | Number of Firms | Average Employment per Firm | | |
| Fruit/Vegetables | 10 | 7.30 | 15 | 28.40 | 4 | 182.00 | 29 | 42.31 |
| Fishery-products | 13 | 7.46 | 7 | 14.29 | 1 | 790.00 | 21 | 47.00 |
| Noodles | 56 | 6.45 | 6 | 17.00 | | . | 62 | 7.47 |
| Bean products | 8 | 6.00 | 10 | 23.00 | 1 | 300.00 | 19 | 30.42 |
| Tea | 10 | 8.40 | 20 | 21.95 | 7 | 66.14 | 37 | 26.65 |
| Rubber | 12 | 8.25 | 2 | 12.00 | | . | 14 | 8.79 |
| Wood products | 72 | 7.42 | 40 | 21.50 | 22 | 179.91 | 134 | 39.94 |
| Carpet | 10 | 6.90 | | . | | . | 10 | 6.90 |
| Seed | 13 | 6.23 | 2 | 18.50 | 2 | 271.50 | 17 | 38.88 |
| Machinery | 49 | 7.47 | 13 | 19.77 | 5 | 69.60 | 67 | 14.49 |
| Total | 253 | 7.16 | 115 | 21.52 | 42 | 169.76 | 410 | 27.85 |

Source: TA 3223 Agroindustry survey

Table 2: Land/Buildings Utilized by Firms, by Firm Size (Average)

| | Small | Medium | Large | Total |
|------------------------------------|-------|--------|--------|--------|
| Land Owned (m ²) | 413.5 | 1349.9 | 2384.7 | 873.2 |
| Land Rented (m ²) | 997.4 | 3294.1 | 5086.1 | 3239.6 |
| Buildings Owned (m ²) | 168.3 | 481.2 | 1363.3 | 350.3 |
| Buildings Rented (m ²) | 569.6 | 379.5 | 2493.3 | 1124.4 |

Source: TA 3223 Agroindustry survey

Table 3: Proportion of Firms Renting Land, by Firm Size

| Firm Size | Proportion of Firms Renting Land |
|-----------|----------------------------------|
| Small | 7.09 |
| Medium | 25.22 |
| Large | 50 |
| Total | 16.55 |

Source: TA 3223 Agroindustry survey

Table 4: Land rented from different sources (percent of firms renting from this source)

| Owner | Small | Medium | Large | Total |
|------------------------|-------|--------|-------|-------|
| Local Authority | 38.89 | 46.67 | 62.5 | 50 |
| State Owned Enterprise | 5.56 | 10 | 8.33 | 8.33 |
| Any Private | 11.11 | 23.33 | 8.33 | 15.28 |
| Family | 38.89 | 13.33 | 12.5 | 19.44 |
| Other | 5.56 | 6.67 | 8.33 | 6.95 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 5: Proportion of firms reporting problems with land, by Firm Size

| Firm Size | Proportion of firms reporting problems with land |
|-----------|--|
| Small | 12.65 |
| Medium | 22.12 |
| Large | 28.57 |
| Total | 16.91 |

Source: TA 3223 Agroindustry survey

Table 6: Proportion of Firms reporting land difficulty type

| Type of difficulty | Small | Medium | Large | Total |
|-------------------------------------|-------|--------|-------|-------|
| Finding a Technically Suitable Site | 56.25 | 28 | 61.54 | 47.14 |
| Capital for Purchase | 25 | 44 | 15.38 | 30 |
| Need to rezone for industry | 9.38 | 8 | 7.69 | 8.57 |
| Building regulations | 3.13 | 16 | 15.38 | 10 |
| Other | 6.25 | 4 | 0 | 4.29 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 7: Building Use by Firm Size

| Firm Size | Proportion of Firms Owning Buildings | Proportion of Firms Renting Buildings |
|-----------|--------------------------------------|---------------------------------------|
| Small | 94.88 | 6.3 |
| Medium | 89.57 | 20 |
| Large | 71.43 | 45.24 |
| Total | 91 | 14.11 |

Source: TA 3223 Agroindustry survey

Table 8: Average Number of Employees for surveyed agro processing firms by subsector

| Subsector | Full Time | Part Time | Total |
|-------------------------|-----------|-----------|-------|
| Fruit/Vegetables | 23.7 | 17.5 | 41.2 |
| Fishery Products | 42.6 | 6.3 | 48.9 |
| Noodles | 6.2 | 1.3 | 7.5 |
| Bean Products | 22.9 | 7.5 | 30.4 |
| Tea | 14.4 | 13.2 | 27.6 |
| Rubber | 6.6 | 1.9 | 8.5 |
| Wood/Wood Products | 33.3 | 7.2 | 40.5 |
| Seeds | 32.5 | 6.5 | 39.0 |
| Machines/Mech. Services | 13.6 | 2.1 | 15.8 |
| Other | 22.4 | 4.3 | 26.7 |
| Total | 22.3 | 6.4 | 28.7 |

Source: TA 3223 Agroindustry survey

Table 9: Average Employment Levels of State Owned Enterprises in Various Sub Sectors (1998)

| Subsector | Average Employment Level (Full time equivalent) |
|-----------------|---|
| Tea | 1027.00 |
| Coffee | 1115.44 |
| Sugar | 838.50 |
| Salt | 150.80 |
| Seed | 156.68 |
| Silk | 193.22 |
| Food | 220.18 |
| Food Processing | 716.50 |
| Irrigation | 182.04 |
| Livestock | 231.43 |
| Forestry | 107.53 |
| Fruit/Vegetable | 161.43 |
| Fisheries | 47.67 |
| Animal feed | 80.2 |

Source: Department of Agroprocessing, MARD

Table 10: Number of Full Time Equivalent Employees for surveyed agro processing firms by subsector

| Subsector | 1996 | 1997 | 1998 | 1999 |
|--------------------|------|------|------|------|
| Fruit/Vegetables | 33.9 | 39.3 | 40.9 | 41.2 |
| Fishery Products | 7.2 | 8.9 | 9.5 | 49.1 |
| Noodles | 5.6 | 6.4 | 7.1 | 7.5 |
| Bean Products | 27.2 | 28.6 | 29.4 | 30.4 |
| Tea | 11.3 | 15.3 | 22.4 | 26.6 |
| Rubber | 7.3 | 8.4 | 8.8 | 8.8 |
| Wood/Wood Products | 15.5 | 25.0 | 30.2 | 40.4 |
| Seeds | 35.4 | 38.0 | 38.7 | 38.9 |
| Machinery | 8.3 | 11.3 | 13.4 | 14.5 |
| Other | 15.7 | 20.3 | 21.7 | 26.7 |
| Total | 14.4 | 19.3 | 22.3 | 28.4 |

Source: TA 3223 Agroindustry survey

Table 11: Index of average employment levels by firm size (1996=100)

| Firm Size | 1996 | 1997 | 1998 | 1999 |
|-----------|--------|--------|--------|--------|
| Small | 100.00 | 122.68 | 136.88 | 146.79 |
| Medium | 100.00 | 132.89 | 156.82 | 169.96 |
| Large | 100.00 | 138.41 | 160.70 | 227.87 |

Source: TA 3223 Agroindustry survey

Table 12: Proportion of Females in the Workforce (%) for surveyed agro processing firms by subsector

| Subsector | 1996 | 1997 | 1998 | 1999 |
|--------------------|------|------|------|------|
| Fruit/Vegetables | 54.8 | 57.0 | 56.7 | 56.6 |
| Fishery Products | 44.0 | 39.4 | 39.7 | 42.0 |
| Noodles | 51.3 | 51.7 | 51.2 | 49.5 |
| Bean Products | 44.4 | 42.8 | 45.1 | 42.7 |
| Tea | 57.9 | 54.1 | 49.9 | 47.6 |
| Rubber | 23.2 | 22.9 | 21.7 | 23.4 |
| Wood/Wood Products | 16.3 | 16.1 | 15.9 | 16.1 |
| Seeds | 69.7 | 71.1 | 71.2 | 70.9 |
| Machinery | 4.0 | 4.1 | 4.2 | 4.2 |
| Other | 61.0 | 61.1 | 60.4 | 60.7 |
| Total | 33.4 | 32.5 | 32.2 | 31.5 |

Source: TA 3223 Agroindustry survey

Table 13: Average Turnover per Employee for Central and Local State Owned Enterprises (1998)

| State Owned Enterprise Level | Turnover per Employee (D million) |
|------------------------------|-----------------------------------|
| Central | 310.419 |
| Local | 81.31 |

Source: Department of Agroprocessing, MARD

Table 14: Average Sales Revenue per Employee for surveyed firms (D million)

| | 1996 | 1997 | 1998 | 1999 |
|------------------|-------|-------|-------|-------|
| Fruit/Vegetables | 40.1 | 40.3 | 43.5 | 51.7 |
| Fishery Products | 15.3 | 14.5 | 13.7 | 13.7 |
| Noodles | 20.9 | 20.5 | 20.4 | 20.5 |
| Bean Products | 25.3 | 26.4 | 26.6 | 31.1 |
| Tea | 68.6 | 69.0 | 64.1 | 60.3 |
| Rubber | 197.7 | 171.8 | 163.0 | 165.6 |
| Wood Products | 129.4 | 141.1 | 102.0 | 96.6 |
| Seeds | 8.0 | 9.5 | 7.7 | 8.2 |
| Machinery | 36.9 | 32.2 | 41.9 | 41.5 |
| Other | 42.6 | 33.0 | 28.3 | 29.0 |
| Total | 67.2 | 70.8 | 59.6 | 59.1 |

Source: TA 3223 Agroindustry survey

Table 15: Average Sales Revenue per Employee for surveyed firms (D million)

| Size | 1996 | 1997 | 1998 | 1999 |
|--------|-------|------|------|------|
| Small | 68.2 | 78.6 | 68.8 | 67.5 |
| Medium | 48.6 | 45.6 | 47.5 | 48.1 |
| Large | 110.2 | 87.1 | 36.8 | 39.2 |
| Total | 67.2 | 70.8 | 59.6 | 59.1 |

Source: TA 3223 Agroindustry Survey

Table 16: Estimation of Labor Intensity Equation

| | α | β |
|---------------|----------|---------|
| Private Firms | 2.47 | 1.17 |
| All SOE | 2.13 | 0.77 |
| Central SOE | 3.18 | 0.41 |
| Local SOE | 1.84 | 0.83 |

Source: Department of Agroprocessing, MARD

Table 17: Sources of Primary Job Skills

| Source of skills | Proportion of managers gaining skills through source (%) |
|--|--|
| On-the-job in this enterprise: | 48.4 |
| In former jobs with SOEs: | 7.3 |
| In former jobs with non-state enterprises: | 5.9 |
| Public training institutes/schools: | 2.9 |
| Private training institutes/schools | 3.2 |
| Universities: | 1.2 |
| Father/mother/uncles, etc. | 30.1 |
| Other | 1.0 |
| Total | 100.0 |

Source: TA 3223 Agroindustry survey

Table 18: Average percentage sourcing of start-up finance

| Finance Source | Equity | Short Term | Long Term | Total |
|--|-------------|------------|------------|--------------|
| Immediate Owner | 85.1 | 0.0 | 0.0 | 85.1 |
| Immediate Owner-Profits from other enterprises | 0.0 | 0.1 | 0.0 | 0.1 |
| Other family/friends | 1.2 | 4.9 | 2.6 | 8.7 |
| Equipment supplier | 0.1 | 0.0 | 0.0 | 0.2 |
| Other trade suppliers/customers | 0.0 | 0.1 | 0.2 | 0.3 |
| Bank | 0.0 | 2.8 | 1.7 | 4.5 |
| NGO | 0.5 | 0.0 | 0.1 | 0.6 |
| Local savings group | 0.0 | 0.2 | 0.1 | 0.2 |
| Other | 0.2 | 0.0 | 0.0 | 0.2 |
| Total | 87.1 | 8.1 | 4.7 | 100.0 |

Source: TA 3223 Agroindustry survey

Table 19: Most important source of finances for expansion

| Finance Source | Proportion of Firms Utilizing this Finance Source |
|--|---|
| reinvested profits: | 90.49 |
| short term loans (< 1 year) from family/friends: | 1.22 |
| short term loans (< 1 year) from bank: | 3.66 |
| short term loans (< 1 year) from NGO: | 0.24 |
| longer term loans (> 1 year) from family/friends | 2.20 |
| longer term loans (> 1 year) from bank: | 0.73 |
| longer term loans (> 1 year) from NGO: | 0.49 |
| longer term loans (> 1 year) from savings group | 0.24 |
| Foreign partner loans (importer) | 0.24 |
| Total | 100.00 |

Source: TA 3223 Agroindustry survey

Table 20: Proportion of Firms Receiving Loans

| Size | Proportion of Firms Receiving Loans |
|--------------|-------------------------------------|
| Small | 39.13 |
| Medium | 48.7 |
| Large | 59.09 |
| Total | 43.93 |

Source: TA 3223 Agroindustry survey

Table 21: Proportion of State Owned Enterprises receiving various forms of credit, 1998 (%)

| Level | Commercial Credit | State Credit | Any Credit | Both Types |
|---------|-------------------|--------------|------------|------------|
| Central | 70.27% | 63.5% | 73.2% | 60.54% |
| Local | 33.6% | 32.97% | 50.5% | 16.05% |

Source: Department of Agroprocessing, MARD

Table 22: Loan Characteristics by Loan Size Category for surveyed private firms

| Loan size | Number of firms receiving loan of this size | Average Loan Size (D million) |
|-----------------------|---|-------------------------------|
| Less than D25 million | 103 | 10 |
| D25 to D75 million | 35 | 43 |
| D76 to D150 million | 17 | 109 |
| D151 to D250 million | 9 | 210 |
| Over D250 million | 15 | 1180 |
| Total | 179 | 133 |

Source: TA 3223 Agroindustry survey

Table 23: Average Loan Size for surveyed private firms, by firm size

| Size | Average Loan Size (D million) |
|--------|-------------------------------|
| Small | 19.40 |
| Medium | 154.73 |
| Large | 683.77 |

Source: TA 3223 Agroindustry survey

Table 24: Average Levels of Credit Received by State Owned Enterprises in 1998 (D million)

| Level | Commercial Credit | Government Credit | Total Credit |
|---------|-------------------|-------------------|--------------|
| Central | 7462 | 2700.2 | 7817.9 |
| Local | 2709.8 | 1424.5 | 2590.12 |

Source: Department of Agroprocessing, MARD

Table 25: Average Credit Used in 1998 by State Owned Enterprises in Various Sub Sectors

| Sub Sector | Total Credit 1998 |
|----------------------|-------------------|
| Tea | 1282.74 |
| Coffee | 4249.63 |
| Sugar | 7504.50 |
| Salt | 1979.80 |
| Seed | 118.60 |
| Silk | 2836.58 |
| Food Company (North) | 2735.12 |
| Food Company (South) | 38436.00 |
| Food Processing | 2181.75 |
| Irrigation | 1000.72 |
| Livestock | 554.27 |
| Forestry | 798.91 |
| Fruit/Vegetable | 719.71 |
| Fisheries | 219.44 |
| Animal feed | 5471 |

Source: Department of Agroprocessing, MARD

Table 26: Number of surveyed private firms by length of loan

| Loan term | Number of Firms taking out loan of this term |
|---------------------|--|
| Less than 12 months | 136 |
| 12 to 24 months | 14 |
| Over 24 months | 29 |
| Total | 179 |

Source: TA 3223 Agroindustry survey

Table 27: Sources of major loans for surveyed private firms

| Loan Source | Proportion of Firms obtaining loan from this source (%) |
|------------------------|---|
| VBARD | 67 |
| Other State-Owned Bank | 13 |
| Private-Sector Bank | 1 |
| People's Credit Fund | 7 |
| NGO | 4 |
| Other | 9 |
| Total | 100 |

Source: TA 3223 Agroindustry survey

Table 28: Loan Source by private Firm Size

| Loan Source | Small | Medium | Large | Total |
|------------------------|-------|--------|-------|-------|
| VBARD | 75.76 | 60.71 | 50 | 67.4 |
| Other State-Owned Bank | 6.06 | 21.43 | 19.23 | 12.71 |
| Private-Sector Bank | 1.01 | 0 | 0 | 0.55 |
| People's Credit Fund | 5.05 | 8.93 | 7.69 | 6.63 |
| NGO | 2.02 | 5.36 | 7.69 | 3.87 |
| Other | 10.1 | 3.57 | 15.38 | 8.84 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 29: Proportions of machines in age groups by sub sector (%)

| Sub Sector | Average age | | | |
|------------------|-------------|-----------|-----------|------------|
| | >10 years | > 5 years | > 2 years | <= 2 years |
| Fruit/Vegetables | 7.1 | 35.7 | 42.9 | 14.3 |
| Fishery-products | 33.3 | 40.0 | 20.0 | 6.7 |
| Noodles | 40.3 | 29.0 | 19.4 | 11.3 |
| Bean products | 15.8 | 31.6 | 31.6 | 21.1 |
| Tea | 5.4 | 35.1 | 40.5 | 18.9 |
| Rubber | 7.1 | 57.1 | 35.7 | 0.0 |
| Wood products | 6.7 | 38.8 | 41.8 | 12.7 |
| Carpet | 11.1 | 44.4 | 33.3 | 11.1 |
| Seed | 7.1 | 50.0 | 35.7 | 7.1 |
| Machinery | 22.4 | 38.8 | 31.3 | 7.5 |
| Total | 16.0 | 37.6 | 34.6 | 11.8 |

Source: TA 3223 Agroindustry survey

Table 30: Proportion of surveyed private firms commencing operations prior to and after 1995

| Subsector | Commenced Prior to 1995 (%) | Commenced After 1995 (%) |
|-------------------------|-----------------------------|--------------------------|
| Fruit/Vegetables | 34.48 | 65.52 |
| Fishery Products | 65.00 | 35.00 |
| Noodles | 69.35 | 30.65 |
| Bean Products | 47.37 | 52.63 |
| Tea | 29.73 | 70.27 |
| Rubber | 42.86 | 57.14 |
| Wood/Wood Products | 44.36 | 55.64 |
| Seeds | 41.18 | 58.82 |
| Machines/Mech. Services | 56.72 | 43.28 |
| Other | 40.00 | 60.00 |
| All Subsectors | 48.91 | 51.09 |

Source: TA 3223 Agroindustry survey

Table 31: Sources of advice about machinery for surveyed agro processing firms

| Advice Source | Proportion of Firms Receiving Advice from this Source (%) |
|-------------------------|---|
| Advice from other firms | 17.99 |
| Observing other firms | 44.47 |
| Equipment Suppliers | 15.17 |
| Customers | 1.29 |
| NGO's | 0.51 |
| Friends | 20.31 |
| Others | 0.26 |
| Total | 100.00 |

Source: TA 3223 Agroindustry survey

Table 32: Sources of raw material inputs for surveyed private firms

| Material source | Proportion of Firms Gaining Raw Materials from this source (%) |
|--------------------------------------|--|
| private small farms < 5 ha | 18.29 |
| farmers' associations/cooperatives: | 15.37 |
| large farming enterprises > 5 ha: | 3.17 |
| traders (domestic goods): | 41.95 |
| other production enterprises: | 10.98 |
| traders (imported goods): | 3.41 |
| direct imports from other countries: | 0.73 |
| Other | 5.85 |
| Total | 100.00 |

Source: TA 3223 Agroindustry survey

Table 33: Proportion of surveyed private Firms Obtaining Raw Materials by Distance Class

| | Distance in km to raw material supply | | | |
|-------------------------|---------------------------------------|----------|------------------------|------------------|
| | < 30 | 30 - 100 | > 100, but in Viet Nam | outside Viet Nam |
| Proportion of Firms (%) | 62.9 | 27.1 | 9.8 | 0.2 |

Source: TA 3223 Agroindustry survey

Table 34: Distance to raw material supplier for surveyed private firms

| Distance | Small | Medium | Large | Total |
|------------------|-------|--------|-------|-------|
| Less than 30 km | 74.02 | 52.17 | 29.55 | 63.2 |
| 30-100km | 18.11 | 33.91 | 59.09 | 26.88 |
| More than 100km | 7.87 | 13.91 | 9.09 | 9.69 |
| Outside Viet Nam | 0 | 0 | 2.27 | 0.24 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 35: Assistance given by surveyed private firms to suppliers

| Assistance | Small | Medium | Large | Total |
|---|-------|--------|-------|-------|
| No provision of inputs or assistance: | 96.67 | 92.86 | 72.5 | 93.11 |
| Preferred cultivars or seeds (specify: cash or credit): | 0 | 1.79 | 7.5 | 1.28 |
| Other preferred inputs (specify: cash or credit) | 1.25 | 4.46 | 7.5 | 2.81 |
| Preferred equipment items (specify: cash or credit): | 0.42 | 0 | 0 | 0.26 |
| Technical advice: cultivation: | 0.42 | 0 | 5 | 0.77 |
| Technical advice: post-harvest handling: | 0 | 0.89 | 2.5 | 0.51 |
| Credit (other than for preferred inputs) to producers: | 1.25 | 0 | 5 | 1.28 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 36: Problems with raw material supplies for surveyed private firms

| Problems | Small | Medium | Large | Total |
|-----------------------------------|-------|--------|-------|-------|
| Wrong varieties or strains: | 9.71 | 8.2 | 5.26 | 8.74 |
| Generally poor quality: | 16.5 | 24.59 | 5.26 | 18.03 |
| Ungraded quality: | 4.85 | 6.56 | 5.26 | 5.46 |
| Insufficient quantity: | 4.85 | 0 | 0 | 2.73 |
| Too short season of availability: | 3.88 | 4.92 | 0 | 3.83 |
| Late/uncertain delivery: | 7.77 | 16.39 | 21.05 | 12.02 |
| Frequently uncompetitive prices: | 3.88 | 3.28 | 5.26 | 3.83 |
| Extremely variable prices: | 48.54 | 36.07 | 47.37 | 44.26 |
| Other | 0 | 0 | 10.53 | 1.09 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 37: Sources of Raw Materials (other than agricultural inputs)for surveyed private firms

| Material Source | Proportion of firms using this material source (%) |
|--------------------|--|
| Traders (Domestic) | 88.39 |
| Other Firms | 6.13 |
| Traders (imports) | 4.19 |
| Direct Imports | 0.97 |
| Other | 0.32 |
| Total | 100.00 |

Source: TA 3223 Agroindustry survey

Table 38: Problems with other input sourcing for surveyed private firms

| Problem Type | Number of Firms Reporting Problem |
|-----------------------|-----------------------------------|
| Insufficient Quantity | 3 |
| Late Delivery | 6 |
| High Prices | 5 |
| Trade Restrictions | 1 |
| Total | 15 |

Source: TA 3223 Agroindustry survey

Table 39: Proportion of surveyed private Firms Experiencing Deficiency

| Firm Size | Proportion of Firms Experiencing Deficiency |
|-----------|---|
| Small | 63.78 |
| Medium | 53.91 |
| Large | 43.18 |
| Total | 58.84 |

Source: TA 3223 Agroindustry survey

Table 40: Deficiencies experienced by surveyed private Firms

| | Small | Medium | Large | Total |
|-------------------------------------|-------|--------|-------|-------|
| Business planning: | 12.09 | 12.96 | 16 | 12.94 |
| Marketing/promotion: | 39.56 | 35.19 | 20 | 35.29 |
| Pricing products: | 8.79 | 7.41 | 0 | 7.06 |
| Production planning/supervision: | 1.1 | 3.7 | 4 | 2.35 |
| Production operations | 1.1 | 7.41 | 8 | 4.12 |
| Quality control: | 19.78 | 14.81 | 32 | 20 |
| Industrial standards, e.g. HAACP | 0 | 0 | 4 | 0.59 |
| Maintenance: | 1.1 | 1.85 | 4 | 1.76 |
| Underlying technical understanding: | 10.99 | 12.96 | 4 | 10.59 |
| Purchasing inputs: | 4.4 | 0 | 4 | 2.94 |
| Accounting & finance | 1.1 | 3.7 | 4 | 2.35 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 41: Proportion of surveyed private Firms Experiencing Marketing Problems

| Size | Proportion of Firms experiencing marketing problems |
|--------|---|
| Small | 53.15 |
| Medium | 60.53 |
| Large | 72.73 |
| Total | 57.28 |

Source: TA 3223 Agroindustry survey

Table 42: Types of Marketing Problems Experienced by surveyed private Firms

| | Small | Medium | Large | Total |
|--------------------------------------|-------|--------|-------|-------|
| Choosing Right Products to Sell | 8.15 | 10 | 9.38 | 8.86 |
| Inadequate Information about Markets | 64.44 | 57.14 | 46.88 | 59.92 |
| Redesign of Products/Services | 5.93 | 5.71 | 12.5 | 6.75 |
| Quality of Products/Services | 8.15 | 21.43 | 18.75 | 13.5 |
| Prices of Products/Services | 2.22 | 1.43 | 0 | 1.69 |
| Lack of Supporting Finance | 10.37 | 4.29 | 12.5 | 8.86 |
| Other | 0.74 | 0 | 0 | 0.42 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 43: Main Competitor Types for surveyed private firms

| | Small | Medium | Large | Total |
|---|-------|--------|-------|-------|
| Similar enterprises to this one, in this province: | 90.95 | 82.88 | 73.17 | 86.72 |
| Similar enterprises to this one, in other provinces: | 1.29 | 4.5 | 12.2 | 3.39 |
| Larger enterprises than this one, in this province: | 4.31 | 5.41 | 4.88 | 4.69 |
| Larger enterprises than this one, in other provinces: | 0.43 | 5.41 | 4.88 | 2.34 |
| Smaller enterprises than this one, in this province: | 2.16 | 0 | 4.88 | 1.82 |
| Importers or enterprises outside Viet Nam: | 100 | 100 | 100 | 100 |
| Other | 0 | 1.8 | 0 | 0.52 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 44: Competitors Advantages Identified by surveyed private Firms

| Advantage Type | Proportion of Firms Identifying Advantage (%) |
|--|---|
| Lower electricity prices | 12.12 |
| Lower (regulated) wages of labour | 15.15 |
| Lower (regulated) imported input prices: | 19.70 |
| Preferred access to land: | 18.18 |
| Preferred access to credit: | 18.18 |
| Preferred access to export markets: | 7.58 |
| Preferred access to government markets: | 1.52 |
| Preferred access to product quality register | 1.52 |
| Preferred access to other inputs or markets | 1.52 |
| Other | 4.55 |
| Total | 100.00 |

Source: TA 3223 Agroindustry survey

Table 45: Important upgrading and diversification undertaken by surveyed private firms

| | Proportion of firms planning upgrade type (%) |
|---|---|
| Introducing new products/services: | 41.0 |
| Major upgrading or re-design of any packaging aspects: | 12.9 |
| Major upgrading or re-design of any non-packaging aspects: | 18.5 |
| Minor/evolutionary upgrading or re-design of packaging aspect | 9.0 |
| Minor/evolutionary upgrading or re-design of non-packaging a | 18.5 |
| Total | 100.0 |

Source: TA 3223 Agroindustry survey

Table 46: Types of market assistance given to surveyed private firms

| Assistance Type | Number of firms receiving assistance |
|---|--------------------------------------|
| Regulatory information about overseas markets: | 5 |
| Information about markets in Viet Nam: | 16 |
| Introductions to foreign buyers: | 12 |
| Introduction to Vietnamese buyers: | 8 |
| Access to exhibition/fairs: | 7 |
| Advice on design of products/services | 3 |
| Advice on packaging design: | |
| Advice on quality assurance of products/services: | |
| Advice on advertising and promotion: | 2 |
| Total | 53 |

Source: TA 3223 Agroindustry survey

Table 47: Main Direct Customer Types for surveyed private firms

| | Small | Medium | Large | Total |
|---|-------|--------|-------|-------|
| Households (final consumers): | 43.7 | 13.04 | 6.82 | 31.23 |
| Local retail stores/traders:(i.e. within 30 km) | 23.23 | 24.35 | 13.64 | 22.52 |
| Other domestic traders: | 17.72 | 18.26 | 9.09 | 16.95 |
| Exporters | 4.33 | 13.91 | 34.09 | 10.17 |
| SOEs: | 3.54 | 20.87 | 15.91 | 9.69 |
| Non-State enterprises: | 3.94 | 7.83 | 6.82 | 5.33 |
| Foreign invested: | 0 | 0.87 | 2.27 | 0.48 |
| Government/ its agencies: | 0.79 | 0.87 | 2.27 | 0.97 |
| Other | 0.79 | 0 | 4.55 | 0.97 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 48: Knowledge of selling prices for most important indirect customer for surveyed private firms

| Knowledge of selling price | Proportion of Firms with Knowledge Type (%) |
|---|---|
| Do not know selling price | 50.7 |
| Know roughly (broad price range) | 30.7 |
| Know fairly precisely (single or close price) | 18.6 |
| Total | 100.0 |

Source: TA 3223 Agroindustry survey

Table 49: Average Sales Revenue of surveyed firms by Sub Sector

| Sub Sector | 1996 | 1997 | 1998 | 1999 |
|------------------|--------|--------|--------|--------|
| Fruit/Vegetables | 708.9 | 820.4 | 952.9 | 1109.5 |
| Fishery Products | 170.8 | 172.3 | 169.8 | 197.8 |
| Noodles | 143.6 | 159.3 | 163.3 | 163.1 |
| Bean Products | 416.1 | 478.2 | 540.9 | 1217.2 |
| Tea | 1613.2 | 1547.5 | 1624.5 | 1561.3 |
| Rubber | 1582.3 | 1450.7 | 1490.5 | 1522.4 |
| Wood Products | 2186.1 | 2488.6 | 1646.4 | 1964.0 |
| Seeds | 435.7 | 497.4 | 503.5 | 514.1 |
| Machinery | 398.5 | 387.8 | 515.1 | 527.2 |
| Other | 3164.4 | 3226.1 | 2959.0 | 3894.7 |
| Total | 1143.4 | 1283.1 | 1055.2 | 1240.1 |

Source: TA 3223 Agroindustry survey

Table 50: Average Revenue by Firm Size for surveyed private firms

| Firm Size | Average Revenue (D million) |
|-----------|-----------------------------|
| Small | 531.8425 |
| Medium | 1040.164 |
| Large | 5850.886 |

Source: TA 3223 Agroindustry survey

Table 51: Average Revenue Levels of State Owned Enterprises in Various Sub Sectors, 1998

| Subsector | Average Revenue Level (D million) |
|----------------------|-----------------------------------|
| Tea | 8832.11 |
| Coffee | 23478.91 |
| Sugar | 152085.67 |
| Salt | 10290.10 |
| Seed | 8367.84 |
| Silk | 4474.89 |
| Food Company (North) | 38103.36 |
| Food Company (South) | 237330.50 |
| Food Processing | 58688.63 |
| Irrigation | 8226.73 |
| Livestock | 3482.16 |
| Forestry | 3670.56 |
| Fruit/Vegetable | 4991.71 |
| Fisheries | 527.89 |
| Animal feed | 18484.4 |

Source: Department of Agroprocessing, MARD

Table 52: Average Turnover of State Owned Enterprises in 1998 (D million)

| Level | Average Turnover (D million) |
|---------|------------------------------|
| Central | 38565.2 |
| Local | 11066 |

Source: Department of Agroprocessing, MARD

Table 53: Proportion of surveyed private firms using profits for various purposes

| Use of Profits | Proportion of Firms Using Profits for this Purpose |
|--|--|
| Expansion of Firm | 90 |
| investment in other agro-processing/agricultural | 1 |
| owners' consumption expenditures: | 7 |
| Other | 2 |
| Total | 100 |

Source: TA 3223 Agroindustry survey

Table 54: Estimation of Returns to Scale Equation

| Independent Variable | α | β |
|---------------------------------|----------|---------|
| Turnover (central and local) | -0.41 | 0.67 |
| Labor force (central and local) | 0.48 | 0.78 |
| Turnover (central) | -0.003 | 0.58 |
| Labor force (central) | 0.57 | 0.80 |
| Turnover (local) | -0.69 | 0.75 |
| Labor force (local) | 0.72 | 0.6 |

Source: Department of Agroprocessing, MARD

Table 55: Average Profitability Indices by surveyed private Firm Size (1996=100)

| Firm Size | 1997 | 1998 | 1999 | 2000 |
|-----------|----------|----------|----------|----------|
| Small | 110.9238 | 119.979 | 127.5929 | 137.881 |
| Medium | 112.7895 | 145.066 | 132.0174 | 148.7044 |
| Large | 113.6923 | 127.6342 | 147.1818 | 174.1163 |

Source: TA 3223 Agroindustry survey

Table 56: Growth rate of profits by Agro Processing Sub Sector for surveyed private firms

| Sub Sector | 1996 | 1997 | 1998 | 1999 | 2000 | Annual Average Profit Growth Rate |
|--------------|-----------|------------|------------|------------|------------|-----------------------------------|
| Fruits/Veg | 100 | 111 | 130 | 157 | 163 | 16% |
| Fishery | 100 | 113 | 156 | 123 | 128 | 7% |
| Noodles | 100 | 115 | 120 | 125 | 128 | 7% |
| Bean | 100 | 103 | 111 | 111 | 119 | 5% |
| Tea | 100 | 124 | 189 | 146 | 167 | 17% |
| Rubber | 100 | 94 | 96 | 95 | 104 | 1% |
| Wood | 100 | 112 | 120 | 131 | 145 | 11% |
| Carpets | 80 | 86 | 106 | 123 | 120 | 12% |
| Seed | 100 | 121 | 121 | 121 | 168 | 17% |
| Machinery | 93 | 111 | 127 | 138 | 160 | 18% |
| Total | 98 | 112 | 128 | 131 | 145 | 12% |

Source: TA 3223 Agroindustry survey

Table 57: Number of surveyed private firms reporting regulatory problems

| Regulatory Problem | Number of Firms |
|---|-----------------|
| Business licenses: | 13 |
| Tax laws: | 50 |
| Tax administration: | 30 |
| Law of contract/sale: | 1 |
| Land access law/regulations: | 3 |
| Land-use-rights pricing: | 3 |
| Building development regulations: | 3 |
| Import/export tariffs/taxes: | 2 |
| Safety and other labour laws/regulations: | 1 |
| Health/sanitary regulations: | 6 |
| Environmental regulations: | 6 |
| Laws about acceptable loan-collateral: | 37 |
| Other | 7 |
| Total | 162 |

Source: TA 3223 Agroindustry survey

Table 58: Proportion of surveyed private Firms Reporting Business Problems by Firm Size

| Size | Proportion of Firms Reporting Business Problems |
|--------------|---|
| Small | 33.2 |
| Medium | 43.48 |
| Large | 68.18 |
| Total | 39.81 |

Source: TA 3223 Agroindustry survey

Table 59: Proportion of surveyed private Firms Reporting Various Business Problems

| Problem Type | Small | Medium | Large | Total |
|---|------------|------------|------------|------------|
| Business licenses: | 7.14 | 12 | 3.33 | 7.93 |
| Tax laws: | 38.1 | 24 | 26.67 | 31.71 |
| Tax administration: | 16.67 | 28 | 6.67 | 18.29 |
| Law of contract/sale: | 1.19 | 0 | 0 | 0.61 |
| Land access law/regulations: | 1.19 | 0 | 6.67 | 1.83 |
| Land-use-rights pricing: | 2.38 | 0 | 3.33 | 1.83 |
| Building development regulations: | 0 | 2 | 6.67 | 1.83 |
| Import/export tariffs/taxes: | 0 | 0 | 6.67 | 1.22 |
| Safety and other labour laws/regulations: | 0 | 2 | 0 | 0.61 |
| Health/sanitary regulations: | 5.95 | 2 | 0 | 3.66 |
| Environmental regulations: | 4.76 | 2 | 3.33 | 3.66 |
| Laws about acceptable loan-collateral: | 21.43 | 20 | 30 | 22.56 |
| Other | 1.19 | 8 | 6.67 | 4.27 |
| Total | 100 | 100 | 100 | 100 |

Source: TA 3223 Agroindustry survey

Table 60: Number of surveyed private Firms Belonging to Various Associations

| Association | Number of Firms Belonging to Association |
|----------------------------|--|
| VCCI | 5 |
| National trade association | 2 |
| Local trade association | 13 |
| Cooperative group | 10 |
| Other | 1 |
| Total | 31 |

Source: TA 3223 Agroindustry survey