Economic and Social Commission for Asia and the Pacific

CAPSA WORKING PAPER No. 86

Enhancing Sustainable Development of Diverse Agriculture in Viet Nam

Dao The Anh
Le Duc Thinh
Vu Trong Binh

United Nations
ESCAP

UNESCAP-CAPSA

The Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific (CAPSA) is a subsidiary body of UNESCAP. It was established as the Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre) in 1981 and was renamed CAPSA in 2004.

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1. Co-ordination of socio-economic and policy research on secondary crops.
2. Networking and partnership with other international organizations and key stakeholders.
3. Research and analysis of trends and opportunities with regard to improving the economic status of rural populations.
4. Production, packaging and dissemination of information and successful practices on poverty reduction.
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Enhancing Sustainable Development of Diverse Agriculture in Viet Nam

"UNESCAP-CAPSA: Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific"

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Centre for Alleviation of Poverty
through Secondary Crops' Development
in Asia and the Pacific

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List of Abbreviations

ADB	Asian Development Bank
AGRIDIV	Identification of Pulling Factors for Enhancing Sustainable Development of Diverse Agriculture in Selected Asian Countries
ASEAN	Association of South East Asian Nations
ASD	Agrarian Systems Department (under VASI)
CAPSA	Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific (under UNESCAP)
CEPT	Common Effective Preferential Tariff
CGPRT Centre	The Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific
CIAT	The International Center for Tropical Agriculture
CIE	Center for International Economics
CIP	International Potato Center
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
DAFE	Department of Agriculture and Forestry Extension
DFID	Department for International Development of Great Britain
GDP	Gross Domestic Product
GSO	General Statistics Office of Vietnam
FAO	Food and Agriculture Organization of the United Nations
HDI	Human Development Index
HCFP	Health Care Fund for the Poor
HEPR	Hunger Eradication and Poverty Reduction
ICARD	Information Center for Agriculture and Rural Development
IFPRI	International Food Policy Research Institute
IOS	Institute of Sociology of Vietnam
NAEC	National Agricultural Extension Center
NCSSH	National Center for Social Sciences and Humanities
NIN	National Institute of Nutrition
NGO	Non-Governmental Organization
MALICA	Markets and Agricultural Linkages for Cities in Asia
MARD	Ministry of Agriculture and Rural Development of Viet Nam
MOLISA	Ministry of Labour, War Invalids and Social Affairs
MOSTE	Ministry of Science, Technology and Environment
MTEF	Medium-Term Expenditure Framework
PCF	People's Credit Fund
PIP	Public Investment Programme
PTF	Poverty Task Force
RIFAV	Research Institute on Fruits and Vegetables
RRD	Red River Delta
SOE	State-Owned Enterprises
VASI	Vietnam Agricultural Science Institute
VBARD	Vietnam Bank for Agriculture and Rural Development
VBP	Vietnam Bank for the Poor
VBSP	Vietnam Bank for Social Policies
VCP	Vietnam Communist Party

VLSS	Vietnam Living Standard Survey
VHLSS	Vietnam Household Living Standard Survey
VINACAFE	Vietnam Coffee Association
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WB	World Bank
WTO	World Trade Organization

Exchange rate

US$ 1 = VND 15,600 (2004)

Foreword

Most Asian countries succeeded in multiplying major cereal production through the '*Green Revolution*'. This was made possible by the introduction of high yielding varieties and policy support which promoted the construction of irrigation facilities and the use of modern inputs such as chemical fertilizers and pesticides. Recently however, the growth in productivity of major cereals has reached a plateau. Agricultural diversification has a number of positive effects, among others, food security, risk mitigation, labour absorption and conservation of biodiversity. It is crucial to be aware of the driving forces and constraints to agricultural diversification to formulate policy options which realize the coexistence of sustainable agricultural development and poverty reduction in rural areas.

Responding to this vital need, UNESCAP-CAPSA conducted a three-year research project, "Identification of Pulling Factors for Enhancing the Sustainable Development of Diverse Agriculture in Selected Asian Countries (AGRIDIV)", from April 2003, in collaboration with eight participating countries, namely Bangladesh, India, Indonesia, Lao People's Democratic Republic, Myanmar, Sri Lanka, Thailand and Viet Nam.

It is my pleasure to publish "**Enhancing Sustainable Development of Diverse Agriculture in Viet Nam**" as a result of the first phase of the Viet Nam country study of the project. This volume presents a descriptive and quantitative analysis of the current secondary crop agriculture and development constraints and options. This study focuses on policy recommendations, as well as areas of/for further study.

I thank Dr. Dao The Anh for his efforts. Continuous support from the Vietnam Agricultural Science Institute (VASI), is highly appreciated. Prof. Hitoshi Yonekura, Graduate School of Agricultural Science, Tohoku University, Mr. Tomohide Sugino and Dr. Parulian Hutagaol provided useful guidance at every stage of the study as Regional Advisor, Project Leader and Associate Project Leader respectively. I extend thanks to Mr. Matthew Burrows for his English editing.

Finally I would like to express my sincere appreciation to the Japanese Government for its financial support of the project.

November, 2005

J.W. Taco Bottema
Director
UNESCAP-CAPSA

Acknowledgements

The report was written by Dr. Dao The Anh (country report writer, Head of ASD-VASI), Mr. Le Duc Thinh and Dr.Vu Trong Binh (Researchers of ASD-VASI), with substantive inputs from Dr. Le Van Bam (Deputy Director of Science and Technology Department under MARD).

Overall guidance was provided by Tomohide Sugino (UNESCAP-CAPSA) and Parulian Hutagaol (UNESCAP-CAPSA). Assistance in the preparation of the report was from Mr. Dao Duc Huan and Mr. Dang Kim Khoi (ASD-VASI). I would like to thank all these active contributors.

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Executive Summary

Since de-collectivization in 1988, peasant household surveys of North Viet Nam have shown that different types of households exist according to their relation with the market. A high percentage of households, especially the poor, are still at the stage of subsistence farming, they don not produce for the market. Another category of peasants sells some products at the market, not for commercial purposes but for the exchange of other products for consumption that they cannot produce themselves. This is still subsistence farming. The percentage of these households is still high, especially in North Viet Nam. For these types of households constraints are not only the lack of market access but also the lack of services helping them to change from subsistence to commercial production. A study of the relationships between households and the market showed that the strategy of poor households is diversification while that of the rich is specialization. Specialized households have good co-ordination with marketing channels conducted by private actors, while the diversified households have an unstable connection with the market. The major constraint is the high transaction cost due to the small-scale of the farms, therefore the farm gate price is low.

Besides CGPRT crop diversification, agricultural diversification in general is the main issue of poverty reduction. Different policy analyses show that, in the context of agricultural diversification, the government should support only the main products to ensure food security and create a favourable socio-economic environment in order to stimulate the farmer dynamic. In the context of WTO, with the reduction of production costs in different commodity chains, agricultural policy should focus on better services for production and commercialization, and establish institutions for farmer co-operation. The agricultural policy recommendation framework has to follow the priorities of pro-poor diversification policy and institutional development. The state extension service, the most important institution for the realization of these policy initiatives, needs to be enhanced.

Policy recommendations for agricultural commodity diversification, promotion and poverty reduction

1. Rice intensification is still a major strategy in Viet Nam because the priority is food security. Agricultural diversification through hybrid rice use receives only modest promotion due to the low quality of the product, an important state programme focuses on the introduction of hybrid rice. The prospect of hybrid rice depends on the quality of this rice because of the increasing demand for high quality rice. The capacity of hybrid rice seed production of Viet Nam will also be a determinant factor in the future.
2. A strategy for the development of whole commodity chains is necessary. With this approach, the technical aspect is one side. Social and economic problems, on the other hand, concerning product production and trading are crucial. A global value chain approach with emphasize on the emergence of market institutions is necessary for each agricultural commodity chain.
3. The reduction of production costs by developing input services to increase competitiveness will be crucial for the diversification of some crops. The case of soybean shows that the high cost of production makes domestic soybean cultivation unviable as imported produce is cheap.
4. Agro-processing is a key sector for intra-branch diversification of the raw material commodity chain. This sector will create employment in rural areas in the context that

labour absorption in industry is still low. The introduction of varieties adapted for processing and for the export market is important to increase the efficiency of agro-processing. The case of potato shows the lack of varieties adapted for processing. There is also high demand for the improvement of equipment and institutions for better quality management in the agro-processing chain in line with the high standards of the markets.

5. Cassava and maize grown on sloping land needs to be more intensive, implying that the relevant cropping systems will be important aspects for the sustainability of the production system.
6. The diversification strategy should promote alternative growing seasons in order to respond to the diverse demand. An example of this is the diversification of the peanut sector to become a winter-autumn crop too.
7. Soil evaluation in the agro-ecological zones of Viet Nam is proposed for planning crop diversification at the national level and serve as advisory for the local level through the extension system.
8. For some crops, such as potato, the potential in terms of both the area cultivated as well as the productivity per hectare could be greatly improved if more investment was available for improved seed quality and the application of advanced agronomic practices. A set of good practices should be built using a participative method to ensure adaptability and a high level of adoption.
9. The strategy for animal husbandry needs to change to help local people conserve local varieties because the demand for local products in the market shows an increasing trend as the case of maize in Son La province.
10. A more specific strategy is required for remote areas due to the higher percentage of poor people and the large extent of CGPRT crops. The policies could include improvements in local infrastructure, redistribution of land currently held by state farms, legal recognition of communal agricultural practices, and the development of social services in local languages. Policy should also incorporate measures to improve the representation of ethnic minorities in local decision-making and build good governance in the most remote areas. This integrated package would ensure better farmer participation in the market.
11. Public budget transfers already favour poorer provinces but the rules and norms on which these transfers are based are still ad hoc. Analyses like those in this report could be used to design more equitable allocation mechanisms, especially in the social sectors. This process needs to include capacity building for local staff in terms of better management practices
12. The poverty programme in general is not related directly to agricultural production nor secondary crop promotion. Normally these programmes are managed by services other than the agricultural service. A lack of co-ordination between services at the provincial level is very common. In addition, agricultural programmes are not pro poor because they lack proper understanding of the poor in their design. Therefore, pro-poor initiatives co-ordinating two kinds of programme will benefit the poor.

Policy recommendations for rural and market institution development

1. It is unnecessary for the government to plan production zones, however, the government should assist state companies to develop the supply of raw materials. Pro-poor policies should be established through understanding the situation in each region. In general, state enterprises dealing with agri-food processing do not have the capacity to develop the supply system, restricting the access of the poor.

2. The government needs to develop service institutions accessible to the poor. A lot of research on the commodity chains of different agricultural products (value chains) has been completed and it was found that the lack of farmer and market institutions have constrained development.
3. Small-scale farmers and the poor in particular need collective action and adaptive market institutions to establish good linkages with the market.
4. The development of legislation plays an important role in contract farming promotion. In the context of smallholders, however, contract farming should be developed closely with farmer organizations. The industrial sector should approach the development of a raw material network through contracts with farmer organizations. This could resolve the problems associated with a deficient raw material processing network.
5. Different diversification needs to be promoted by policies and by research: vertical diversification is the improvement of product quality through processing and marketing development; horizontal diversification is increasing the range of products available. Intra-branch diversification through the conservation of traditional varieties is also required.
6. Developing measures for agricultural quality management. The establishment of product traceability through the Protected Designation of Origin (PDO) or Geographical Indication (GI) is a means of improving the quality. Some experience shows that the poor can participate and receive greater added value from a specific product. This is one way to develop fair trade to help poor farmers.
7. The development of local institutions in terms of environmental management is crucial for the sustainable development of processing and intensive agricultural villages.
8. It is necessary to enhance the trade management capacity on agricultural production for both state and commodity chain stakeholders. The international trade rules, which are under negotiation, include various aspects, which require capacity building and human resource development in the relevant area. They are not only tax reductions, and the removal of non-tariff barriers but also reforms on trade policies, establishing new forms of legal documents, reforms of procedures in customs, animal and plant inspection, establishment of standards and regulations of food hygiene, intellectual property and protected origin principles. Concerning agriculture, plant protection and food hygiene are the two most sensitive aspects in the negotiation of trade liberalization and these areas are priority to the capacity building effort.

Policy recommendations for the development of the state extension service and other services

Institutional recommendations for the state extension system

1. The role of provincial government will be more important in the near future: co-ordination of the strategic extension programme and other local extension programmes must be market oriented. In this context, even for the government's strategic programme, there is a need to improve the close linkages between performance and financial allocation by changing the existing activity monitoring and financial management.
2. The professionalism of extension services at different levels needs to be improved. In the decentralization and socialization extension systems new partnerships between various actors and the National Agricultural Extension Center (NAEC) need to be consolidated. These contractual partnerships will assist the realization of government programmes to achieve national goals such as food security, social equity, sustainable development, and global competitiveness. These contracts need to adapt to the socio-

economic context of different regions according to the contribution of the regional goal within the national goal.

3. Horizontal co-ordination between organizations inside and outside of the state extension system through the advisory council for extension at a provincial level lead by a People's Committee is also required. This co-ordination is important to guarantee the success of financial incentives in different extension flows and not only within the state extension system.
4. The state extension system has to play the role of promoting collective action and farmer organization in order to enhance the capacity to receive agricultural extension activities effectively. This organization of farmers is an important condition of applying the technology in practice. The farmer organizations can manage the support from the state and sign contracts with the extension service. They can mobilize the extension fees from farmers.
5. Research institutes should build a technical service sub-organization and undertake contractual work with local extension services to transfer the results of their research. This service could also provide a technical and advisory service to farmer organizations.

Recommendations for the management of extension services

6. The current extension system is not based on performance but only on quantitative aspects. Improving the quality of governance at the different levels of extension system through financial incentives is necessary to increase organizational efficiency in a professional service provider system. Financial management of the extension programme has to be able adapt to the various regions.
7. Capacity building for methodological diversification, organizational knowledge, co-ordination capacity and planning of activities, and assessment capacity needs to be implemented in NAEC to improve the managerial aspect of the programme. The process of project planning and implementation needs to be improved, paying more attention to continuous supervision and consultation in the extension programme. Reducing the rate of direct investment for households who participate in project design is necessary to share the risks between farmers and the extension service when applying innovation in the extension contracts.
8. Apply innovation and capacity building regarding the methodology of extension relying on the demand of other actors in the agricultural extension system to the farmers, combining new technology and socio-economic extension in the activities of the provincial agricultural extension system and lower levels. There is a need to organize training courses for the local authority regarding conducting, implementing, supervising and evaluating a project, providing them with knowledge related to the market economy and civil society.
9. Diversifying the financial resources for equipment of the provincial and district extension offices for better realization of extension by response to actual constraints: lack of funds, lack of appropriate training, lack of staff, lack of knowledge, lack of appropriate tools for extension activities (hand-outs, booklets) and lack of supporting tools, among others.
10. There is a need to classify the farmers by household group and by village extension club leader, and to conduct advisory extension adapted to the diverse groups. Under extension clubs in each village, a collective producer organization can be diversified according to its activities.
11. Government extension services need to conduct specific training programmes for commune and village extension workers, up to the rate 500 farmers per extension

worker. This is particularly urgent to guarantee the success of the decentralization process.

12. A specific research action programme to promote socio-economic and comprehensive extension focusing on: farmer needs diagnosis, rural market assessment, practical and managerial advice, marketing and financial advice, farmer organization and voluntary extension, credit project building and micro-credit management, evaluation of the success and impact of extension programmes, and the adaptability of extension staff is needed for provincial, district and village extension staff.
13. There is a need to apply a monitoring and evaluation system in the realization of government extension programmes and to use these results when allocating financial resources. Research development will be necessary to build the benchmarks and standards for performance assessment of extension systems in the direction of socio-economic extension. A synthesis of NGO's experiences in extension needs to be conducted by the NAEC.
14. Programme design of public extension should adapt to the diverse needs and priorities of the different regions in the country.

1. General Introduction

1.1 Background and justification of agricultural diversification

Economic reform in Viet Nam started in 1986 and three years later, Viet Nam became a net exporter of rice. Since the allocation of land to rural households in 1988, agricultural production in Viet Nam has experienced remarkable success, with a growth rate of 4.2 per cent per year. Between 1991 and 2000, the production of rice increased by 5.6 per cent per year, corn by 10.2 per cent, vegetables by 7 per cent and swine by 5 per cent. This growth satisfied the needs for both food consumption and exportation. However, structural transformations of the rural economy are slow, especially in the larger deltas of the North and South. In each region, the diversification of agriculture is real, although rice still covers 60 per cent of the total area and production continues to progress rapidly. After aiming at self-sufficiency (pre 1993), agricultural farms have now become more and more oriented towards the market, even in mountainous areas. Nevertheless, due to the lack of sufficient infrastructure and of a suitable legal framework, the market economy has developed only gradually. Rural households today operate in an unfavourable economic and social context. In many places, public services are limited or non-existent (credit, extension, commercial information). The new collective private services are having difficulty becoming established. These constraints curb the diversification of agriculture. Already practiced by rural households, non-agricultural activities can be a catalyst of structural change to diversify the economic activities of rural households bearing in mind the limited agricultural land available. By transforming agricultural products and by providing the services to sell them, agricultural activities can be diversified. This, in turn, provides financial resources which can be invested in agriculture. The state has an important role to play, acting as a catalyst for local initiatives by according suitable support. Agricultural development oriented towards the domestic market requires diversification which can bring about structural transformation.

Policy reform with a shift from collective to household-based farming has a strong impact on agricultural production and promoting motivation within farmer households for effective decision-making. The total area planted with industrial crops has also increased dramatically. In 2000, total industrial crop area (annual and perennial) of the whole country expanded to over 2.2 million hectares, twice as high as that in 1990. The area set aside for fruit tree production was also much larger at about 541,000 hectares in 2000, nearly twice as high as that in 1990. Currently, some specialized cropping areas are being established to mobilize the regional advantages.

Maintaining sustainable growth of agricultural and rural income is argued to require commodity intensification and diversification. Intensification would increase the efficiency of production, usually through new technologies. Diversification as mentioned above implies the production of a wider array of commodities, particularly higher value commodities – given other priority policies, such as food security. Intensification could be seen as a prerequisite to diversification.

Diversification is sometimes interpreted as import substitution in order to save, rather than to earn foreign exchange. However, commodities are typically imported because doing so is more efficient than producing domestically.

In selecting tradable commodities for diversification, or commodities for expanded production, it is important to note that prices are more stable for commodities traded in large volume. Therefore, if all other things are equal, diversification into commodities which have a large traded volume would be likely to experience less price volatility. Unfortunately, all other

things rarely are equal and commodities traded in large volume are often low-value commodities.

As Vietnamese incomes increase, the domestic market will become more demand driven. Consumers will shift toward higher quality items as well as a wider variety of foods - including high-value commodities such as fruits and vegetables and some animal products.

Thus, as mentioned above diversification is widely defined as a process of shifting from low-value crops to high-value crops and non-crop activities. However, this type of diversification is more risky due to the high price volatility in the high-value commodity markets and therefore is a difficult option, especially for poor farmers. Diversification into high-value crops and activities is inhibited by a range of factors such as a lack of liquidity and access to credit, lack of information, skills and education, lack of necessary land and labour resources or poor infrastructure, among others.

Given the well-known benefits of specialization, why would farmer households wish to shift into diverse agricultural production? A number of reasons make farmers diversify their activities. At least six factors can be identified:

Firstly, diversification can be a strategy to reduce risk. Risk management may help explain diversification within on-farm activities as well as the diversification from agricultural production into non-farm activities. To reduce risk through diversifying productive activities, farmers generally have to sacrifice their average income. Thus, diversification is likely to occur when households are particularly risk averse or when income sources are highly variable. This seems to be consistent with the case of Viet Nam where poor farmers are more likely to have diverse activities than richer households. In addition, poor farmers in Viet Nam have to diversify not only because they are typically risk averse, but also because they do not own enough land to earn a living for their relatively large family. Under-employment is another explanation for agricultural diversification in Viet Nam.

The second motivation for diversification is that there may be positive complimentary effects between different activities that make the total income from combining activities greater than from any single one. It is very common practice when farmers combine livestock with crop production to make full use of by-products.

Third, diversification may be useful in terms of adapting to poorly-functioning markets. If the plot of land allocated to a household is too small to fully utilize its family labour, one solution could be to rent or purchase additional land. Despite the farmer being able to afford to buy some more land, if land markets do not exist, then the only way is to use his “surplus” family labour in non-farm enterprises or wage labour even if the return is lower. Alternatively, if credit markets do not operate efficiently and a household has a cash constraint, it may use non-farm activities to earn cash to pay for agricultural inputs.

The fourth motivation for diversification is to optimize the family labour occupation by combining different activities with different seasonal peaks. This fact also helps explain non-farm activities during the off-season and wage labour during the harvest time of major cash crops.

Fifth, heterogeneity in the skills or employment opportunities of household members can motivate the household to diversify.

Finally, diversification may be motivated by the diverse consumption needs and high transaction costs in purchasing consumer goods. This seems to be common practice in isolated areas where selling and buying goods is costly and self-sufficiency is the most sensible solution.

The transition process which occurs in rural areas of Viet Nam can be considered as a series of consecutive institutional changes in search of more optimal institutions allowing the development of this area. According to some researchers, these reform measures generally are the adoption and generalization of good practices of local communities by the central government.

In rural areas, has the transition from collective agriculture to the household economy happened? During the period of collective farming, due to difficulties in the management of

upland non-rice food crops and animal husbandry, it was decided that these activities should be given to the household economy in addition to cropping on individual plots and at home in the garden. Therefore, the income from the household economy increased and surpassed that of the co-operatives. In some areas peasants practised "underground contracts" (khoan chui), in which paddy land was leased to farmers for a fixed contribution to the co-operative. In these villages production increased. Directive No. 100 (1981) was the legalization of this institution. Viewed from an institutional perspective this directive gives farmers the right to decide the use for their labour and the return for their labour. In 1981, households began to be reconstituted as the major units of agricultural production in place of the farm co-operatives. Households were allocated specific plots of land for management under a contract system. The co-operatives still held a monopoly over the provision of inputs and the marketing of outputs.

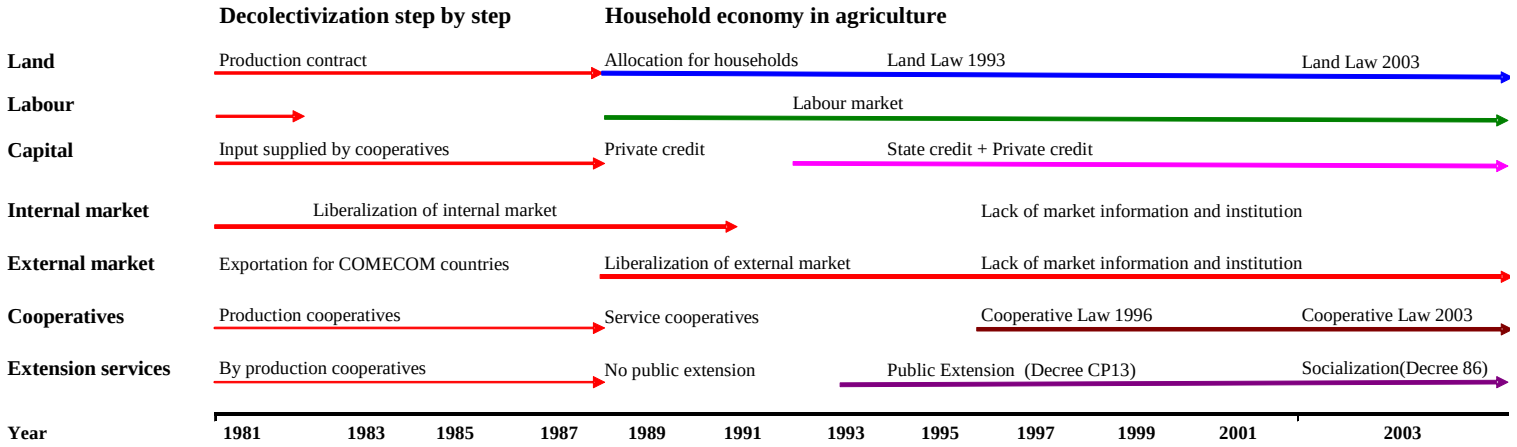
However, farmers were not yet fully satisfied with this new system. In many villages farmers practised "full contracts" (khoan trang), in which paddy fields were leased to households without any responsibility from the co-operative. This initiative lead to decision No. 10 (1988), which was in reality the right to decide the use of capital. Together with the abolition of the state procurement and supply system, the household economy system was almost resuscitated. After this decision the land was still controlled by co-operatives, however, in 1988 with the enactment of Resolution No. 10, household property rights were strengthened and although the state retained ownership of the land, households were allocated the rights over land in exchange for land tax. By 1992, 6 million of the 7 million hectares of agricultural land were farmed under direct household usage rights, although the specific arrangements varied from place to place.

Despite the existence of the 1987 Land Law which prohibits the selling of the land, an underground land market was forming. The 1993 Land Law only legalised this situation under a formal right of transfer of the land use rights. In July 1993, the revision of the Land Law allowed for the extension of tenure of use rights to 20 years and more importantly made provision for the transfer of use rights. The last revision of the Land Law in 2003, consolidated the land use rights and resolved the problem of land transaction between agriculture and industry.

So after three consecutive reforms, full rights regarding the main factors of production have been returned to the household and the collective farming system has been completely dismantled. This process occurred over 12 years and during this time the peasant household economy was being reinforced to take full responsibility for agricultural production in the whole country.

In the context of market liberalization to gain entry into the WTO these institutional reforms were the favoured condition to promote agricultural diversification in Viet Nam.

Figure 1.1 Economic reform and the institutional context of diversification in Viet Nam



1.2 Study objectives

The principal objective of the study is to investigate the socio-economic impacts of recent developments in the regional and global economic environment, including trade liberalization on upland agriculture at a village level and identifying constraints to the sustainable development of diversified agriculture, in particular upland agriculture based on CGPRT crops in Viet Nam.

The specific objectives are:

1. To review the historical development and current status of diversity in agricultural production and of marketing systems focusing on CGPRT crops;
2. To critically review historical policies that may affect CGPRT crop consumption and utilization, agricultural systems and the environment;
3. To assess the impact of economic transformation and trade liberalization on CGPRT crop-based farming systems, diversified agricultural systems and the rural economy, welfare, and the environment;
4. To investigate the nutritional and/or industrial importance of CGPRT crops as well as diversified ways of consuming them and to explore the potential of product diversification to meet changes in demand;
5. To examine constraints and potential factors (economic, agro-ecology, socio-cultural) that determine the coexistence of sustainable development and diversified agriculture; and
6. To formulate policy options and recommendations to enhance sustainable diversified agricultural production.

1.3 Scope of the study

The country studies will be conducted in two separate phases, namely Phase I and Phase II within the three-year period of the project. Phase I (June 2003 - May 2004) contains descriptive and quantitative analyses of the current status of CGPRT crop agriculture and identification of its development constraints. Phase II (May 2004 - April 2005) covers descriptive and quantitative assessments of the performance of CGPRT crop-based farming systems and their horizontal integration in relation to private sector processing and institutional arrangements.

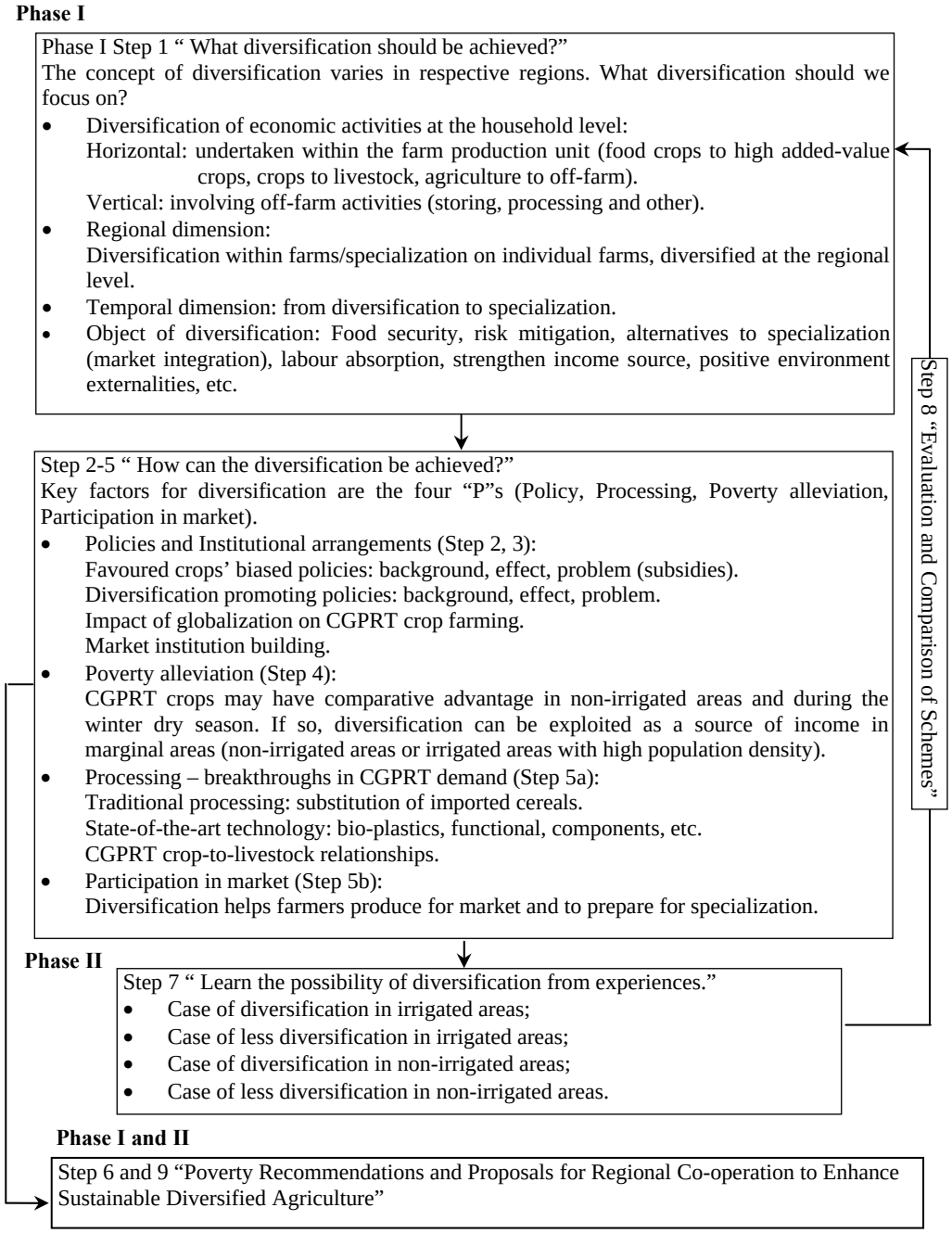
Phase 1: (Aug 2003 - May 2004)

- Historical review of policies and existing research on reforms and diversification;
- Statistical analyses of the production statistics of agro-ecological regions and provincial level data sets for the period 1990-2002;
  - Evolution of agricultural production, with an emphasis on CGPRT crops;
  - Calculation of Simpson Diversity Index (SID);
- Panel data analyses of existing household surveys: VLSS 93, VLSS 98 and VHLSS 2002, in order to evaluate the impact of policies on diversification and CGPRT crops at a household level;
- Conduct a qualitative field survey in one province by region: to study local policies in different areas for the promotion of diversification in North Viet Nam:
  - Province of Son La representing a northwestern mountainous area (non-irrigated area);
  - Province of Yen Bai representing a northeastern mountainous area (non-irrigated area);
  - Province of Thanh Hoa just north of central Viet Nam (irrigated area with less diversification);

  - Province of Bac Ninh representing the Red River Delta (irrigated area with diversification);
- Conduct a qualitative field survey to study the marketing system and the market for CGPRT crops:
  - Maize in Son La
  - Cassava in Yen Bai
  - Peanut in Thanh Hoa
  - Potato in Bac Ninh.

2. General Conceptual Framework and Research Methodology

2.1 General conceptual framework



2.2 Research methodology

Phase 1:

- Historical review of policies and existing documentation;
- Statistical analysis of production statistics of agro-ecological regions and provincial level data sets;
- **Simpson diversity index (SID)**.

In order to evaluate quantitatively the household income diversity a criterion named "Diversity index" was proposed. This index is a modification of the index of diversity used in ecology proposed by Simpson (Odum, 1986).

The diversity index has the following form:

$$D = 1 - \Sigma (x_i / X)^2$$

Where,

x_I is the value of the component i of income X for the type of household (i=1...n); and

X is the total value of income of the type of household.

The value of the diversity index changes between zero and one. The closer the value of this index to zero, the more the household is specialized. As the index approaches one, the more diversified the household is.

- **Specialization index (SP)** will be calculated in addition to show the current status of diversification at the national level.

$$SPij = Rij / Ri, \quad Rij = Aij / \Sigma Aij, \quad Ri = Ai / \Sigma Ai$$

SPij: Specialization index of commodity i in region j;
Rij: Proportion of commodity i in harvested area of region j;
Ri: Proportion of commodity i in harvested area of whole country;
Aij: Harvested area of commodity i in region j; and
Ai: Harvested area of commodity i in whole country.

If SPij is more than one, it means region j is specialized in commodity i in the country. This calculation shows which regions are the production centres of respective commodities.

- Evolutive statistical analysis from existing household surveys (VLSS 93, VLSS 98 and VHLSS 2002).

For each year of study each farm is categorized by its income profile, and for the whole period by its income trajectory.

In order to negate the household scale, the income profile is calculated per capita.

The change in paddy price is used as a deflator to adjust the commodity prices in the respective surveyed years with current prices since the paddy price accurately reflects the economic condition in rural areas.

Firstly, for each year, the data analysis describes the situation of diversity and identifies the different types of household by income profile.

Secondly, for the whole period, the income trajectories are identified through data analysis with the same selected variables for three years at a time.

The profiles and trajectories are compared using correspondence factorial analysis. Factorial axes show the components of income diversity. Based on these axes, cluster analysis

identifies and presents income trajectories and typical farm situations. This classification is a hierarchical cluster analysis.

Diversification and specialization are analysed by the comparison of different income trajectories followed by the household types in three observations, VLSS 93, VLSS 98, VHLSS 2002:

- Qualitative field survey in one province by region: to study local policies in marginal areas; and
- Qualitative field survey to study the marketing system and market of CGPRT crops.

Phase 2:

- Field survey of diverse farming systems; and
- Field survey of the CGPRT commodity chain.

3. Basic Socio-economic Information of Viet Nam

3.1 Demographic profiles of Viet Nam

Viet Nam is a very densely populated country. The concentrations are particularly high in the deltas (as many as 1,000 inhabitants per square kilometre in the Red River Delta), in contrast to the mountainous regions (where population density can fall as low as 50 inhabitants per square kilometre). After a period of birth control implemented by the authorities, the country has now entered a phase of demographic transition with an annual population growth rate of 1.7 per cent. The relatively low level of urbanization (23.5 per cent) is growing significantly (the urban population is increasing by 3.5 per cent per year). The rural exodus, initially curbed by authoritarian measures, is now tackled by various policies: colonization (often authoritarian) of the pioneer fronts in the South and in the Central Highlands; economic diversification, notably through industrial development; and urbanization of the rural areas, with the development of secondary urban centres in the countryside. Although the socio-economic condition of the population as a whole would seem to have improved; increased revenues and the reduction of malnutrition, inequalities have nevertheless opened up.

With a population of 76.3 million inhabitants in 1999 – estimated at 79.7 million in 2002 – Viet Nam is one of the most densely populated countries of the region, except Singapore. The population is very unequally distributed over an area of 330,900 sq km. Within the two deltas of the Red River and the Mekong, the two rice granaries of the country, 57 per cent of the population occupies only 18 per cent of the total area. Thus, in the highland areas there are very low population densities – falling to about 50 inhabitants/sq km in the case of the Central Highlands, whereas the population density can reach 400 inhabitants/sq km in the southern plains (Mekong Delta) and more than 1,000 inhabitants/sq km in the northern plains (Red River Delta).

Since the end of the 1980s, the annual rate of demographic growth has slowed considerably: between the censuses of 1979 and 1989 it was at 2.1 per cent, but fell to 1.7 per cent between the last censuses (1989 and 1999).

This situation illustrates the end of the demographic transition, which began at the start of the 1950s and is characterized today by a slow natural increase in the population resulting from both a low fecundity rate and a low mortality rate. As a result of the high birth rate in the past, the Vietnamese population is young but beginning to age (Hoang Xuyen, 2000).

Thus, in 2000, 54 per cent of Viet Nam's population were under 25. This results in significant cultural changes. Indeed, as Gubry noted, in 2000, 62 per cent of the population had either not experienced war or had no specific memories of it (they were under five in 1975); and 40 per cent had not experienced a totally planned economy or had no specific memory of it (they were under five in 1986, the adoption date for the Renovation policy, or *Doi moi*), (Gubry, 2000).

The dependency ratio of the population fell rapidly according to the population census with 98 in 1979, 86 in 1989 and 71 in 1999. This phenomenon was due to the lower birth rate.

Table 3.1 Demography and labour force profile *(according to the last census, 1999)*

Population	76.3 million
Annual population growth (between 1989 and 1999)	+1.7 %
Annual urban population growth (between 1989 and 1999)	+3.6 %
Annual rural population growth (between 1989 and 1999)	+1.2 %
Life expectancy	67.8 years
Adult literacy rate	93.1 %
Sex ratio (men/100 women)	96.7 %

There are also economic consequences, for example, the active population increases by 3 per cent each year. There are thus 1.4 million young people entering the labour market each year and it is an educated labour force (in 2001, 93 per cent of the adult population was literate whereas, in 1945, 90 per cent of the population was illiterate), (NCSSH, 2002). The level of education was different by region due to historical and geographical reasons.

Table 3.2 Level of education by region

	Level of education					
	Total	No schooling	Primary educational incomplete	Primary	Secondary	Upper secondary
Nationwide	**100.00**	**4.89**	**20.11**	**30.65**	**33.09**	**11.26**
Urban	100.00	1.43	10.51	22.73	27.91	37.42
Rural	100.00	4.89	20.11	30.65	33.09	11.26
Red River Delta	100.00	0.90	6.99	21.69	54.49	15.93
North East	100.00	6.05	13.61	28.90	39.40	12.04
North West	100.00	17.41	28.03	30.76	20.30	3.50
North Central	100.00	1.91	9.92	24.28	46.98	16.81
South Central	100.00	3.61	25.03	39.21	23.34	8.81
Central Highlands	100.00	15.27	21.29	30.95	23.80	8.69
North East of South	100.00	3.83	26.73	38.86	20.22	10.36
Mekong Delta	100.00	7.06	37.27	37.36	12.60	5.71

Source: Moustier, Dao The Anh and Figué, 2003.

The improvements in production conditions in the country are a major concern for the durability of agricultural holdings, notably in areas of high demographic pressure, and to reduce the inequalities between rural and urban settings. This can be achieved through the diversification of agricultural activities, structured intensification of farming systems and the extension of farmed areas in these zones.

The occupation structure of the labour force in rural areas shows the importance of the agricultural labour force with 67.2 per cent in 2001. The structural change of the labour force is still low. The price of labour is slightly lower in rural areas (1 US dollar/day wage rate in 2002) compared to income in urban areas (34 US dollars/month: minimum wage in public companies in 2002).

3.2 Economic profile

3.2.1 Average GDP per capita

Average annual incomes are twice as high now as in the mid 1980s, rising to between 265 and US$ 400 per inhabitant per year, depending upon the source (GSO, 2002; NCSSH, 2002). The latest value of GDP per capita in 2003 was US$ 485 (UNDP, 2004). Poverty has diminished, the rate falling from 75 per cent in the mid 1980s to 58 per cent in 1993 and to 37 per cent in 1998 (NCSSH, op. cit). The malnutrition rate for children under five (calculated using the size/age ratio) fell from 56.5 per cent in 1990 to 36.5 per cent in 2000 (NIN, 2003).

These improvements should not, however, mask some weaknesses. Viet Nam remains a very poor country (114th position in terms of GDP/inhabitant and 104th in terms of the HDI out

of 162 countries in 1999 compared to 150th and 116th position out of 173 countries in 1992, NCSSH, op.cit, p. 45). Not only do inequalities remain, notably between the rural and urban zones with 45 per cent poor in rural areas compared to 9 per cent in urban areas in 1998 (GSO, 2000), they are even increasing. Successively increasing food production has secured the food provision for the whole country and also turned Viet Nam from a chronically food-deficient country to the second largest rice exporter in the world, after Thailand. From 1990 to 2000, annual food production in Viet Nam increased by more than 1 million tons reaching a record high of 34.4 million tons in 2000. The average per capita food output, therefore, increased from 332 kg in 1990 to 443 kg in 2000.

Table 3.3 Gross domestic product (GDP), rural and urban populations and share of the agricultural sector to GDP and employment

Year	GDP (at current prices, billion US$)	Share of agriculture to GDP	Total population (thousand persons)	Rural population (%)	Employment in agriculture-fishery-forestry ('000 persons)	Share of agriculture, fishery and forestry to employment (%)
1990	7.40	38.8	66 074	7.97	21 476	7.30
1991	7.68	40.5	67 491	7.94	21 907	7.27
1992	9.66	34.0	68 899	7.91	22 340	7.24
1993	13.15	29.9	70 276	7.86	22 756	7.21
1994	16.29	27.4	71 596	7.82	23 156	7.17
1995	20.73	27.2	72 841	7.78	24 165	7.32
1996	24.65	27.7	73 999	7.75	23 874	7.07
1997	26.34	25.8	75 080	7.71	24 196	7.01
1998	26.77	25.8	76 108	7.67	24 504	6.95
1999	28.64	25.5	77 118	7.64	24 792	6.89
2000	30.97	24.5	78 137	7.59	25 045	6.82
2001	32.17	23.3	78 686	7.53	25 305	6.72
2002	34.59	23.0	79 727	7.49	n.a.	n.a.
Average annual growth rate (%)	14.75	-4.86	1.80	1.40	1.70	-0.70

Source: GSO, 2002.
n.a. = not available.

3.2.2 Growth rates of the national economy

During the last 15 years under "Doi moi", Vietnamese agriculture has made great achievements. GDP growth has been high and stable, with an annual average rate of 7.47 per cent. Despite relatively lower growth, agricultural GDP, including forestry and fishery, also increased annually, at 4.13 per cent during 1990- 2002. Fishery, however, has a higher growth rate compared to the sector's average. While the growth rate of agricultural GDP alone tends to be quite stable over time, the fishery sub-sector has enjoyed an increasing rate. The growth rate of the forestry sub-sector is rather low with a declining trend.

Table 3.4 Annual GDP growth[a] in Viet Nam (%)

Sector	1990-1995	1996-2002	1990-2002
Nationwide	**8.18**	**6.56**	**7.47**
1. Agro-forestry-fishery	4.09	4.13	4.13
a) Agriculture	4.10	4.02	4.10
Crops	4.06	3.85	4.01
Livestock	4.47	5.13	4.75
Agro-Services	2.93	2.21	2.60
b) Forestry	1.70	0.80	1.28
c) Fishery	5.21	6.23	5.63
2. Industry and construction	12.00	9.75	11.07
3. Service	8.60	5.39	7.00

Source: GSO data and author computation (GDP at 1994 prices).
[a] Compound growth rate.

3.2.3 Economic growth rates by economic sector

The growth in agriculture over the last decade was due to not only the increase in food crop production but also to increases in the production of livestock and aquaculture. To improve farmer income and living conditions, farming diversification based on natural and market conditions should be recognized as an important means.

Table 3.5 Growth rates of agricultural gross output by sector

Region	Annual growth rate in 1995-2002 (%)				
	Crops	Livestock	Fishery	Forestry	Agriculture-forestry-fishery
Nationwide	**5.60**	**6.51**	**10.64**	**2.60**	**6.28**
North West	5.54	5.08	6.67	4.80	5.21
North East	5.56	5.27	10.19	5.41	5.50
Red River Delta	3.58	6.83	12.23	-3.36	4.72
North Central Coast	5.29	5.93	8.08	0.34	5.08
South Central Coast	3.72	5.11	10.49	-0.66	5.45
Central Highlands	17.11	16.18	6.31	1.48	16.02
South East	5.44	10.04	7.51	0.74	6.04
Mekong River Delta	4.22	4.73	11.48	4.74	5.92

Source: GSO, 2003.

During the period of economic reconstruction, the Vietnamese government promoted comprehensive agricultural development shifting towards a more efficient crop structure of farm system and diversifying agriculture away from solely paddy cultivation. However, agricultural diversification and its efficiency are closely related to the development of commercial agriculture. Although semi-subsistence agriculture is predominant in Viet Nam, commercial agriculture has been developing rapidly, especially since the beginning of a market-oriented economy and the more open policy to the world outside. Under the new regime of renovation, farmers are allowed to use their allotted farmland freely and to market their produce as they see fit. They now have greater opportunities to select the best crop combination to grow in terms of market considerations. This new system provides farmers incentives and possibilities to increase agricultural production leading to a surplus which can be sold.

3.2.4 Sectoral shares of the national GDP

Table 3.6 Viet Nam's GDP by sector and year (VND billions, current price)

	1990		1995		2000		2003	
	Value	%	Value	%	Value	%	Value	%
Nationwide	**41 954**	**100.0**	**228 892**	**100.0**	**441 646**	**100.0**	**605 491**	**100.0**
1. Agro-forestry-fishery	16 251	38.7	62 219	27.2	108 356	24.5	131 998	21.8
a) Agriculture	13 720	32.7	52 713	23.0	87 537	19.8	101 054	16.7
Crops	11 639	27.7	44 418	19.4	70 946	16.1	82 178	13.6
Livestock	1 806	4.3	7 161	3.1	14 544	3.3	19 377	3.2
b) Forestry	1 252	3.0	2 842	1.2	5 913	1.3	6 648	1.1
c) Fishery	1 279	3.0	6 664	2.9	14 906	3.4	24 296	4.0
2. Industry	9 513	22.7	65 820	28.8	162 220	36.7	242 033	40.0
3. Services	16 190	38.6	100 853	44.1	171 070	38.7	231 460	38.2

Source: GSO, 2003.

In Viet Nam, agriculture always plays important role in the nation's economy. The critical policy reforms in the 1990s launched the country's success in achieving high agricultural growth. The most dramatic change occurred in the transformation of agriculture

from self-supply to market oriented supply. During this period, the country achieved high growth at an annual rate of 4.3 per cent for agriculture and 5 per cent for aquaculture. Agricultural value continuously increased over time. The yield of many crops and animals have dramatically increased; 33 per cent for rice, 6-7 per cent for coffee, and 100 per cent for rubber. National food security has been ensured and exports of agricultural products are on the rise. Strong development of the agricultural sector has attracted large numbers of labourers to this sector; 73 per cent of the total labour force in 1990 and 67.2 per cent in 2001.

In addition, thanks to the strategy of industrialization and modernization, industrial activities and services were also quick to rise and contribute more to GDP. Agriculture's contribution to GDP has deceased overtime from 34.7 per cent in 1985 to 21.8 per cent in 2002.

Although agriculture contributes only about 21.8 per cent to GDP, 75 per cent of the country's population live in rural areas and 67.2 per cent of the population are dependent on agriculture for their livelihood. Therefore, developing a substantial agricultural sector as a source of capital will provide motivation to enhance the industrialization process of the nation.

Table 3.7 Gross output in agriculture by sub-sector

Year	Gross output in 1994 price (VND billion)			
	Gross output of agriculture	Gross output of crop production	Gross output of livestock	Gross output of fishery
1990	61 817.5	49 604.0	10 283.2	8 135.2
1991	63 512.1	51 247.5	10 294.5	9 308.4
1992	68 820.3	55 132.6	11 651.0	9 798.7
1993	73 380.5	58 906.2	12 309.1	10 707.0
1994	76 998.3	61 660.0	12 999.0	13 028.0
1995	82 307.1	66 183.4	13 629.2	13 523.9
1996	86 489.3	69 620.2	14 347.2	15 369.6
1997	92 530.2	74 492.5	15 465.4	16 344.2
1998	96 102.7	77 298.2	16 204.2	16 920.3
1999	102 932.9	82 945.6	17 337.0	18 252.7
2000	112 111.7	90 858.2	18 505.4	21 777.4
2001	114 989.5	92 907.0	19 282.5	25 359.7
2002	121 010.5	96 921.2	21 199.7	27 441.0
Average annual growth rate (%)	5.2	5.2	5.6	9.4

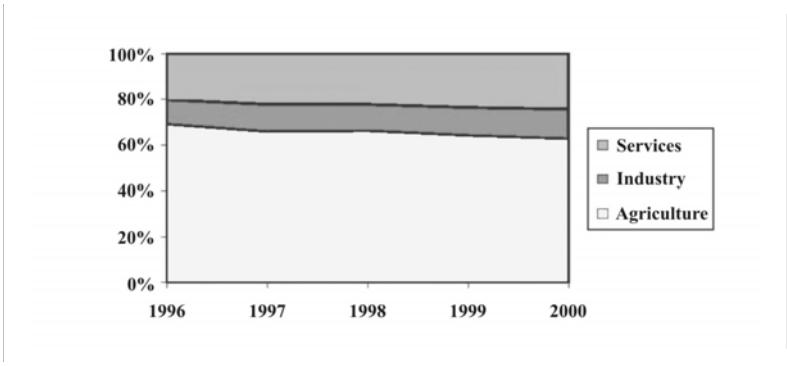
Source: GSO, 2002.

3.2.5 Sectoral shares of the national employment opportunity

The share of the agricultural labour force is still dominant in Viet Nam, about 62 per cent. The decrease in agricultural labour is slow, but the absolute number of the active rural population continues to increase. The increase of the active rural population creates a high rate of underemployment. The rate of underemployment in rural areas is very high. This is a challenge for rural development. The increase in the agricultural labour force in over last 25 years has been 3.1 per cent per year. The industry and service sectors, which developed well in the cities were unable to absorb the increasing labour force. The growing labour force had to be shifted from agriculture, otherwise labour productivity and per capita income could not increase, to non-agricultural activities very quickly. About 13 per cent of the labour force is moving temporally to cities in search of jobs. The handicraft villages are developing actively, but the number of households specializing only in non-agricultural activities is not so high. Surveys show that handicrafts, food processing and trade are the main activities. The two latter activities have shown the most rapid growth. The most important constraints are risk and the lack of a market. Very dynamic regions but also very stagnant ones exist. There are not yet encouraging policies or support from the state.

Non-agricultural activities are a part of the household economy. With the exception of a few specialized households, most households are involved in small-scale trade, handicrafts, small industries or selling labor force. Many households have people working in cities or other regions. All these activities complete the household's income.

Figure 3.1 Change in employment sectors in Viet Nam



Source: Moustier, Dao The Anh and Figué, 2003.

3.2.6 Gini index of income distribution

In the National Viet Nam Living Standards Survey, household expenditure was greater than income according to the data. The differentiation by GINI index of expenditure has increased at a low level compared to other countries in the region. The highest level of differentiation can be seen in the South East, Central Highlands and Red River Delta while the lowest is in North Central and Mekong River Delta areas.

Table 3.8 Differentiation in expenditure by Gini index among different regions (%)

	1993	1998	2002
Nationwide	**0.34**	**0.35**	**0.37**
Urban	0.35	0.34	0.35
Rural	0.28	0.27	0.28
Northern mountains	0.25	0.26	0.34
North West	0.32	0.32	0.36
North East	0.25	0.29	0.30
Red River Delta	0.36	0.33	0.33
North Central Coast	0.31	0.31	0.36
South Central Coast	0.36	0.36	0.38
Central Highlands	0.33	0.30	0.30

Source: Estimation of VLSS 1993, 1998 and VHLSS 2002, published by the World Bank in 2003.

Table 3.9 Revenue differentiation of population (thousand dong/cap/month)

	1994	**1999**	**1999/1994**
National	168.11	295	1.75
20% poorest	63.04	97	1.54
Urban	359.7	832.3	2.31
20% poorest	127.52	200	1.59
Rural	141.1	225	1.59
20% poorest	58.96	83	1.41
Northern mountains	132.4	210	1.59
20% poorest	57.63	78.1	1.35

Source: GSO, 2000.

3.2.7 Average agricultural landholding

Table 3.10 Characteristics of farms

	1998	2001
Total agricultural (farm) area ('000 ha)	8 080.2	9 382.5
Average farm size (hectares)	0.68	0.56
Area of farms by type of ownership (hectares):		
• Family household	0.60	0,56
• Farms	6.11	6,12
• State farms	179.6	540.0
Classification of farms by size (%)		
• Small: Less than 1 hectare	84.92	88.29
• Medium: 1-5 hectares	14.63	11.5
• Large: over 5 hectares	0.45	0.21
Classification of farms by type of ownership (%)		
• Family household	99.54	
• Farms	0.44	
• State farms	0.03	

Source: VLSS 1998 and Results of general investigation of GSO in 2003.

During the current phase of agricultural development in Viet Nam, the increasing gap between rich and poor and the high growth rate of the population need to be considered. The data shows that the number of small farms has increased year by year (84.92 per cent in 1998 compared to 88.29 per cent in 2001).

The land structure is changing in Viet Nam. The average farm size reduced from 0.68 hectares in 1998 to 0.56 hectares in 2001. Land differentiation is increasing over time. The Gini index for farm size was 0.499 in 1993 before the application of the Land Law. This index was 0.566 in 1998 and 0.619 in 2002 according to different surveys. Therefore, land differentiation was more rapid during the period 1993-1998 than the period 1998-2002.

The cultivation sector has made significant changes recently with the area of perennial and annual crops (except rice) rising sharply. During 1996-2000, the total perennial crop area showed very high growth at 9.7 per cent per year on average. The main reasons were an increase in industrial perennial crops including coffee, rubber, cashew and increases in fruit tree areas such as longan, lychee, mango, citrus and so on. During 1996-2000, industrial perennial crop areas increased on average at 9.2 per cent per year, and fruit trees 9.4 per cent per year.

Table 3.11 Annual average growth of crop areas in Viet Nam, 1986-2000

	2000 ('000 ha)	Annual average growth			
		1986-2000	1986-1990	1991-1995	1996-2000
Total area	12 470.7	2.69	1.24	3.04	3.51
Annual crops	10 448.9	2.08	0.81	2.64	2.54
Food crops	8 368.9	1.51	1.10	2.32	1.04
Other annual crops	808.7	2.37	-2.37	5.80	2.74
Perennial crops	2 021.8	7.47	5.47	6.78	9.74
Industrial, forestry crops	1 397.4	7.72	7.24	6.60	9.22
Fruit trees	541	5.51	1.91	4.49	9.40

Source: GSO, 2001.

Along with strong expansion of industrial trees such as coffee, rubber, pepper and fruit trees, the perennial crop area has increased continuously, from 10.4 per cent in 1990 to 12.1 per cent in 1995 and up to 16.2 per cent in 2000 of total crop area.

On the other hand, the annual crop share has dropped due to some policies which have encouraged structural changes, i.e., crop diversification to help households develop higher profit non-food crops. In 1990, the annual crop area share was 89.6 per cent, but this dropped to 83.4 per cent in 2000. In addition, owing partly to the changing of low yield rice areas to value-added

crops and aquaculture, the rice area has shrunk since 2000. According to the latest report by GSO, the rice area in 2002 was about 7,485 thousand hectares, 300 thousand hectares lower than in 2000. Meanwhile, the food crops and vegetable area has risen. Recently, a number of land areas shifted to cultivate high-value crops such as tomato, cabbage, kohlrabi, green beans and flowers, which are 5-10 times more valuable than rice. Besides enhancing fishery activities and adapting some rice areas to aquaculture production, the aquaculture export value in 2001 rose by over 20 per cent to US$ 1.8 billion compared to 2000.

Table 3.12 Share of crops in total planted area (%)

	1990	1995	2000
Total planted area	100.0	100.0	100.0
Annual crops	89.6	87.9	83.8
Grains	71.6	69.8	67.1
Annual industrial crops	6.0	6.8	6.5
Perennial crops	10.4	12.1	16.2
Perennial industrial crops	7.3	8.6	11.2
Fruit trees	3.1	3.3	4.3

Source: GSO, 2001.

In terms of crop diversification, the government would like to promote the concentration of agricultural commodity-specific production in most favourable areas such as coffee and rubber in the Central Highlands and the South East, tea in the Northern Uplands and Lam Dong province, sugarcane in the Central Coastal and South East regions, fruit trees in some provinces of the Mekong River Delta (e.g. longan and rambuttan in Tien Giang) and in some provinces in the Red River Delta (lychee in Hai Duong, longan in Hung Yen).

3.2.8 Agricultural landlessness

In terms of cultivated area, field accumulation has tended to have increase recently. The number of the farmers with 0.2-0.5 hectares of cultivated area had decreased gradually during the period of 1994-2001 while households with 1-3 hectares has risen sharply, accounting for 2.54 per cent of total, and household which conduct business without land has risen by 3 per cent.

Due to field accumulation, an increasing number of farmers conduct business without land but this occurs unequally among different rural areas. Particularly in the South East where industrial and service activities have developed quickly, the number of farmers without land makes up 43 per cent (according to consumers' use survey in 2002 carried out by GSO of Viet Nam). Others regions with a high development rate are Mekong River Delta and South Central Coast.

Table 3.13 Evolution of rate of landless farmers (%)

	1993	1998	2002
Nationwide	**8**	**9**	**19**
Northern Mountains	2	1	5
Red River Delta	3.2	3	14
North Central Coast	4	8	12
South Central Coast	11	2	20
Central Highlands	4	3	4
South East	21	24	43
Mekong River Delta	17	21	29

Source: Estimation of VLSS 1993, 1998 and VHLSS 2002, published by the World Bank in 2003.

The private sector is very significant in the agricultural sector. State enterprises have a very limited role in production. The majority of producers are private households.

Table 3.14 Number of agricultural enterprises by type in 2001

	State enterprise	Private enterprise	Limited company	Foreign investment enterprise	Other
Nationwide	**927**	**2 530**	**72**	**52**	**22**
North West	40	5	3	3	1
North East	160	9	4	3	8
Red River Delta	206	25	13	5	3
North Central Coast	153	1	8	0	2
South Central Coast	55	143	6	9	1
Central Highlands	187	2	10	13	0
South East	83	648	24	17	0
Mekong River Delta	43	1 697	4	2	7

Source: GSO, 2001.

3.3 Extent of agricultural diversification

3.3.1 Horizontal diversification

The Vietnamese government focuses policy to promote high-value agricultural commodities such as fruits, vegetables, coffee, industrial crops, dairy, livestock and aquaculture. The development of diverse products is based on the comparative advantage of different regions in Viet Nam. Difficulties lie in identifying the policy to promote these products in the context of market fluctuations. Hybrid rice receives modest promotion because of the low quality of the product. An important state programme focuses on hybrid rice introduction. The prospect of hybrid rice depends on the quality because of the increasing demand for high quality rice.

Diversification by production value is considered both for products at a regional level and livelihoods at a household level. This is a new policy domain for Viet Nam and more research is required in order to identify policy options. The case studies are important because they generate specific insights and practical lessons about the appropriate roles of policy, public investment, and institutions in helping small-scale farmers participate in high-value commodity chains. Our main question is that, in order to promote diversification, does the government have to subsidize the agricultural product? Or we can create favourable advisory and technical services for farmers and then leave them to choose their activities? The second method seems more adapted for strong diversification of demand and the government cannot cover all of these demands. This policy can encourage farmers to move towards market-driven behaviour rather than waiting for government subsidies.

In the last 20 years, Vietnamese agriculture has made great and solid achievements. Productivity of raw agro-products has continuously increased at a rate of more than 5 per cent per year. Aquaculture production increased at a very high rate of more than 9 per cent per year. However, there is no change in structure between cultivation and husbandry. Crop cultivation still occupies a high percentage (nearly 80 per cent) of the total of raw agricultural productivity, while husbandry occupies only 20 per cent.

Table 3.15 Average Simpson diversity index by region, 1996-2002

	Simpson diversity [a/] index for crops	Simpson diversity [b/] index for agriculture	Simpson diversity [c/] index for agriculture-forestry-fishery
Nationwide	**0.58**	**0.71**	**0.80**
North West	0.56	0.69	0.77
North East	0.56	0.73	0.80
Red River Delta	0.49	0.68	0.73
North Central Coast	0.51	0.69	0.79
South Central Coast	0.55	0.71	0.81
Central Highlands	0.46	0.56	0.60
South East	0.66	0.77	0.83
Mekong River Delta	0.48	0.63	0.76

Source: Data GSO, 2003, computed by Dao The Anh.

[a/] The Simpson diversity index for crops is computed from the value of gross production at constant prices (1994) of crop groups: food crops, vegetables, annual industrial crops, perennial industrial crops, fruits and other crops.

[b/] The Simpson diversity index for agriculture is computed from the value of gross production at constant prices (1994) of crop groups plus: animal, poultry, other livestock and agricultural services.

[c/] The Simpson diversity index for agriculture-forestry-fishery is computed from the value of gross production at constant prices (1994) of agriculture plus forestry, aquaculture and fishery.

The regional diversification of agriculture in Viet Nam is very strong. By comparing the Simpson diversity index by production value, the tendency is different between regions. In general, diversification increased during the period of 1996-2002, when crop diversification was most rapid. The South East is the most diversified. The Central Highlands is the most specialized region in terms of agricultural production.

The situation of crop diversification by area analysis shows a different picture. During the period of 1991-2002, only the North West region had a tendency of crop area diversification. The Mekong River Delta shows a tendency away from diversification towards specialization. This region has concentrated on rice production in recent years with exportation growth. For other regions, area diversification is less clear than the diversification in production value.

Table 3.16 Simpson diversity index by crop area [a/] in different regions

Year	Nationwide	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong Delta
1991	0.51	0.56	0.63	0.41	0.56	0.54	0.80	0.79	0.23
1992	0.52	0.68	0.64	0.41	0.58	0.54	0.80	0.81	0.23
1993	0.53	0.70	0.64	0.41	0.58	0.54	0.81	0.82	0.23
1994	0.55	0.70	0.65	0.41	0.58	0.55	0.83	0.82	0.24
1995	0.54	0.72	0.62	0.43	0.59	0.57	0.85	0.82	0.26
1996	0.55	0.72	0.69	0.46	0.60	0.59	0.87	0.81	0.24
1997	0.56	0.74	0.69	0.44	0.60	0.59	0.86	0.82	0.23
1998	0.55	0.75	0.69	0.44	0.62	0.61	0.85	0.82	0.22
1999	0.53	0.73	0.68	0.42	0.63	0.56	0.81	0.80	0.13
2000	0.57	0.75	0.72	0.44	0.63	0.59	0.76	0.81	0.18
2001	0.59	0.75	0.73	0.43	0.63	0.61	0.77	0.83	0.19
2002	0.55	0.73	0.69	0.40	0.61	0.58	0.78	0.79	0.13

Source: data GSO, 2003 computed by Dao The Anh.

[a/] The Simpson diversity index by crop area is computed from the cultivated area of each of the 17 main crops: rice, maize, sweet potato, vegetables, soybean, peanut, other beans, cassava, sugarcane, tobacco, tea, rubber, cashew, café, others industrial crops, pineapple and other fruit trees.

Household income diversification

Economic structural change and agricultural diversification has made large consequential changes not only on household income but also on the share of income sources of households. Studying the income structure of rural households over ten years' data, agricultural production has always been the key source. Income share from agro-forestry activities accounted for 60 per cent of total household income (Table 3.17). The share of income from non-agricultural activities has fallen over the past five years, from 18 per cent in 1998 to only 9 per cent in 2002. This reflects the results of industrialization and job creation to raise non-agricultural income for rural households. The economic structural change in the most recent year also impacted household income structure.

In agriculture, income share from cultivation has dropped, from 47 per cent in 1993 to 46 per cent in 1998 and to only 38 per cent in 2002. Income from livestock has fluctuated, with a reduction during 1993-1998, but rising again since.

Table 3.17 Household income structure, 1993-2002

	Income			Percentage of income		
	1993	1998	2002	1993	1998	2002
	'000 dongs/household/year			%		
Cultivation	3 249	5 065	4 923	47	46	38
Livestock	785	1 097	1 630	11	10	13
Aquaculture	214	310	243	3	3	2
Forestry	137	380	1 201	2	3	9
Non-agriculture [a/]	1 309	1 941	1 205	19	18	9
Salary, wages [b/]	539	982	1 932	8	9	15
Subsidies	680	1 146	1 448	10	10	11
Others	14	64	220	0	1	2
Total	6 928	10 985	12 803	100	100	100

Source: IFPRI, 2003.

[a/] Non-agriculture income includes non-farm activities conducted by households in rural areas like handicrafts, business, etc.

[b/] Salary and wage incomes include the official and regular salary of household members.

The economic structural transference and the business activities of households have changed income sources (Table 3.18). According to household living standards surveys in 1993, 1998 and 2002, the average number of sources remained mostly unchanged during 1993-1998, with four sources of income, but from 1998 to 2002, this number increased to 4.67 sources on average. This implies that economic development has created more opportunities to members of households.

The changes in income sources were unequal among regions. In 1993, a typical household in the northern mountains had 4.43 income sources, 4.53 sources in 1998 and 4.94 sources in 2002. In other regions such as the Red River Delta and the North Central Coast, the number of income sources has fallen since 1998 because households have specialized their business activities.

Comparing indicators across regions, it is interesting to note that the income sources of households in the northern mountains are more diverse than in any other region. This is true whether we measure diversity by the number of income sources or by the Simpson Diversity Index. The least diverse livelihood patterns are found in the South East. Given that the Northern Uplands is the poorest region in Viet Nam and the South East is the most urbanized and therefore least poor, these results are consistent with the idea that diverse rural incomes are associated with poor households that diversify in order to reduce risks associated with fluctuations in income from any given source.

Table 3.18 Diversification in income sources in rural areas by region

Year and region	Number of income sources	Simpson diversity index
1993		
Northern Mountains	4.43	0.49
Red River Delta	4.16	0.48
North Central Coast	3.57	0.45
South Central Coast	3.74	0.40
Central Highlands	3.41	0.31
South East	3.36	0.37
Mekong River Delta	4.31	0.43
Nationwide	4.02	0.44
1998		
Northern Mountains	4.53	0.49
Red River Delta	4.50	0.49
North Central Coast	4.82	0.52
South Central Coast	4.08	0.47
Central Highlands	3.72	0.36
South East	3.92	0.39
Mekong River Delta	4.30	0.40
Nationwide	4.41	0.46
2002		
Northern Mountains	4.94	0.59
Red River Delta	4.37	0.56
North Central Coast	4.64	0.58
South Central Coast	4.47	0.53
Central Highlands	5.24	0.52
South East	4.33	0.47
Mekong River Delta	4.90	0.51
Nationwide	4.67	0.55

Source: IFPRI, 2003.
Note: Simpson Diversity Index by income source is calculated by World Bank, 2004.

In the low-income regions such as the northern mountains, the Central Highlands, the Mekong Delta and the North Central Coast, the average number of income sources was higher. The reason is that the people in these regions do a lot of work to earn money, and some poor households have to diversify to limit the risks from fluctuation.

3.3.2 Specialization index by crop area of main CGPRT crops

In the context of agricultural diversification, CGPRT crops have a tendency to be specialized in some regions with production market oriented. The evolution of specialization index by crop area could illustrate these tendencies.

During the period of 1991-2002, maize was more and more specialized in terms of cultivated area in the of northwest mountains (Table 3.19). On the contrary, in the Red River Delta, the area of maize has decreased and been replaced by other crops.

Table 3.19 Evolution of maize area specialization index in different regions

Region / Year	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong River Delta
1991	3.86	2.60	1.03	0.87	0.57	2.12	1.31	0.07
1992	4.12	2.65	1.08	0.97	0.57	2.02	1.02	0.08
1993	4.32	2.70	1.07	0.95	0.52	1.88	1.02	0.08
1994	4.23	2.61	1.04	1.05	0.59	1.62	1.10	0.11
1995	4.15	2.34	1.23	1.06	0.53	1.61	1.38	0.10
1996	4.03	2.69	1.21	1.12	0.53	1.61	1.41	0.09
1997	4.03	2.66	1.15	1.16	0.53	1.68	1.37	0.07
1998	4.55	2.76	1.11	1.20	0.53	1.72	1.34	0.07
1999	4.64	2.83	1.05	1.32	0.59	1.37	1.31	0.07
2000	4.72	2.66	0.92	1.29	0.68	1.33	1.34	0.07
2001	4.83	2.58	0.69	1.20	0.78	1.51	1.30	0.09
2002	4.72	2.52	0.65	1.18	0.77	1.64	1.34	0.09

Source: Data GSO, 2003, computed by Dao The Anh.

During the period of 1991-2002, sweet potato was the most specialized in terms of cultivated area in the North Central Coastal region (Table 3.20). In some regions such as the Red River Delta, the North East, South Central Coast, the area planted with sweet potato has remained relatively unchanged, however, production has decreased.

Table 3.20 Evolution of sweet potato area specialization index in different regions

Region / Year	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong River Delta
1991	0.24	1.55	1.48	3.00	1.30	0.79	0.51	0.12
1992	0.40	1.61	1.79	2.97	1.16	0.73	0.34	0.11
1993	0.42	1.71	1.67	3.12	1.20	0.71	0.34	0.12
1994	0.44	1.78	1.60	3.22	1.36	0.78	0.29	0.11
1995	0.57	1.59	1.70	3.32	1.47	0.72	0.29	0.10
1996	0.58	1.92	1.66	3.36	1.39	0.65	0.25	0.11
1997	0.88	1.83	1.65	3.36	1.34	0.66	0.28	0.11
1998	0.95	1.95	1.64	3.52	1.34	0.56	0.27	0.11
1999	0.81	2.10	1.77	3.53	1.21	0.45	0.24	0.10
2000	0.78	2.07	1.83	3.54	1.28	0.41	0.24	0.11
2001	0.78	2.21	1.65	3.58	1.22	0.37	0.27	0.12
2002	0.83	2.21	1.80	3.17	1.13	0.39	0.30	0.14

Source: Data GSO, 2003, computed by Dao The Anh.

During the period of 1991-2002, soybean was most specialized in terms of cultivated area in the North West region and North East mountainous region (Table 3.21). In the Red River Delta, the area increase was slower. In the South East region, the area planted with soybean decreased rapidly.

Table 3.21 Evolution of soybean area specialization index in different regions

Region / Year	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong River Delta
1991	2.40	2.26	0.99	0.27	0.15	1.44	2.61	0.29
1992	3.15	2.29	0.85	0.27	0.10	1.76	2.30	0.28
1993	3.08	2.20	1.18	0.21	0.12	1.50	1.99	0.33
1994	3.49	2.28	1.68	0.21	0.13	1.21	1.40	0.33
1995	4.01	2.69	1.53	0.22	0.20	1.83	0.94	0.31
1996	4.30	2.95	1.74	0.20	0.19	1.91	0.70	0.29
1997	4.11	3.14	1.49	0.22	0.22	1.79	1.03	0.23
1998	3.97	2.90	1.63	0.25	0.45	1.62	0.91	0.30
1999	4.10	2.93	2.18	0.22	0.00	1.22	0.94	0.20
2000	4.50	2.96	2.13	0.24	0.00	1.47	0.69	0.13
2001	4.28	2.88	2.06	0.37	0.00	1.29	0.58	0.21
2002	3.94	2.82	2.06	0.45	0.00	1.43	0.47	0.21

Source: Data GSO, 2003, computed by Dao The Anh.

During the period of 1991-2002, cassava was most specialized in terms of cultivated area in the North West mountainous region and South Central Coastal region (Table 3.22). In the South East region, the area planted with cassava has increased rapidly with the recent development of a cassava processing firm known as VEDAN.

Table 3.22 Evolution of cassava area specialization index in different regions

Region / Year	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong River Delta
1991	2.82	1.77	0.49	1.31	2.76	1.61	1.50	0.10
1992	4.44	1.93	0.21	1.44	2.72	1.70	1.07	0.10
1993	4.32	1.86	0.20	1.47	2.76	1.77	1.11	0.11
1994	3.84	1.80	0.18	1.39	2.84	1.91	1.29	0.10
1995	3.85	1.64	0.23	1.39	2.52	2.17	1.63	0.10
1996	4.05	1.96	0.19	1.49	2.54	2.99	1.22	0.08
1997	4.38	2.09	0.21	1.57	2.60	2.11	1.20	0.09
1998	4.90	2.18	0.22	1.62	2.88	2.02	0.99	0.09
1999	5.19	2.26	0.24	1.56	2.81	2.02	0.74	0.10
2000	4.92	2.16	0.25	1.64	2.74	1.78	0.82	0.09
2001	3.53	1.67	0.20	1.24	2.48	1.37	2.12	0.09
2002	3.34	1.51	0.17	1.15	2.53	1.62	2.44	0.05

Source: Data GSO, 2003, computed by Dao The Anh.

During the period of 1991-2002, peanut was most specialized in terms of cultivated area in the North Central Coastal region (Table 3.23). In the Red River Delta, the increasing area was slower than the average of the country. In the South East, the area planted with peanut has decreased due to its replacement by industrial crops.

Table 3.23 Evolution of peanut area specialization index in different regions

Region / Year	North West	North East	Red River Delta	North Central Coast	South Central Coast	Central Highlands	South East	Mekong River Delta
1991	0.30	1.05	0.60	1.82	1.22	1.82	2.86	0.19
1992	0.68	1.12	0.57	2.02	1.25	1.89	2.41	0.16
1993	0.74	1.18	0.58	2.13	1.25	1.75	2.26	0.16
1994	0.77	1.19	0.61	2.12	1.29	1.54	2.15	0.18
1995	0.65	1.23	0.49	2.29	1.56	1.67	2.24	0.16
1996	0.77	1.24	0.70	2.30	1.41	1.61	2.17	0.17
1997	0.86	1.24	0.72	2.37	1.55	1.37	2.05	0.16
1998	0.82	1.21	0.74	2.59	1.72	1.16	2.04	0.16
1999	0.89	1.43	0.90	2.85	1.82	0.98	1.64	0.11
2000	0.92	1.37	0.90	2.90	1.88	1.00	1.59	0.10
2001	0.92	1.36	0.93	3.07	1.87	1.00	1.33	0.09
2002	0.90	1.33	0.90	2.93	1.76	1.01	1.52	0.12

Source: Data GSO, 2003, computed by Dao The Anh.

3.3.3 Vertical diversification

Diversification and market participation of farmers

As mentioned earlier, diversification is sometimes defined as the process of switching from food crops for self-consumption to producing goods or services for sale. The diversification can be expressed as a process of farmer market participation. In general, rural households are becoming more commercialized over time (Table 3.24). According to calculations of IFPRI based on the Viet Nam Household Living Standards Survey 2002, the marketed share of crop production in the rural Northern Mountains has increased from 22 per cent in 1993 to 33 per cent in 2002 (though this increase occurred only during the 1993-1998 period). For the country as a whole, the share rose from 40 per cent during 1993 to 61 per cent in 2002. The fact that the marketed share of crop output in the Central Highlands fell between 1998 and 2002 may reflect the drop in the world prices of coffee, reducing the value of sales relative to subsistence food crop production

Rural households in the northern mountainous region sell a relatively small portion of their crop output, just 33 per cent in value terms based on the VHLSS 2002. The commercial share of crop production in the northern mountainous region is similar to the share in the Red River Delta and the North Central Coastal region. In contrast, the marketed share of crop production is over 70 per cent in the Central Highlands, the South East, and the Mekong River Delta[1/].

Because non-crop agricultural production (livestock, aquaculture and forestry) and non-farm income tend to be more commercial, the marketed share of agricultural output and total income is almost always greater than the marketed share of crop output. Thus, about half the agricultural output of the rural northern mountainous region is marketed and two-thirds of total income is in the form of cash, according to the 2002 VHLSS. The southern regions tend to be even more commercially oriented. About 85 per cent of the agricultural output of the Southeast and Mekong River Delta is marketed, as is 90 per cent of the income in these regions.

[1/] These percentages are calculated as the sum of sales divided by the sum of output, giving greater weight to households with greater output. If the percentage is calculated as the average of the household level percentages, the marketed share is smaller. For example, the marketed share of crop production in Viet Nam in 2002 would be 43 per cent using this method of calculation, rather than 61 per cent as reported in the table.

Table 3.24 Commercialization share at household level

	Share of sold value on		
	Crop output [a/] (%)	Agricultural output [b/] (%)	Total household gross income [c/] (%)
1993			
Northern Mountains	22	36	68
Red River Delta	23	39	81
North Central Coast	22	37	74
South Central Coast	23	39	85
Central Highlands	78	77	92
South East	65	69	93
Mekong River Delta	56	59	88
Nationwide	40	48	84
1998			
Northern Mountains	33	44	75
Red River Delta	29	45	88
North Central Coast	30	44	80
South Central Coast	46	55	86
Central Highlands	78	78	88
South East	77	79	95
Mekong River Delta	74	74	91
Nationwide	54	59	87
2002			
Northern Mountains	33	50	69
Red River Delta	34	62	83
North Central Coast	39	64	83
South Central Coast	54	74	91
Central Highlands	73	72	79
South East	89	84	89
Mekong River Delta	84	85	91
Nationwide	61	70	83

Source: VLSS 1993, 1998 and VHLSS, 2002.

[a/] The sold crops value/crops value gross output.
[b/] The sold agricultural value/agricultural value gross output.
[c/] The sold household gross income value/ households total gross income.

Looking at the patterns of commercialization across income categories, it is evident that commercialization is higher among higher income rural households. For example, the share of crop production that is commercialized rises from 29 per cent among the poorest rural households to 56 per cent among the highest income category, according to the 2002 VHLSS.

A lot of research on the commodity chains of different agricultural products (value chains) were completed and it was found that a constraint to this development is a lack of farmer and market institutions.

In the study of factors determining structural change of the Vietnamese economy an evaluation of this change in eight economic regions of the country was made and a survey of these regions to identify the most dynamic cases of commercial agriculture was conducted. More than 40 cases were studied to identify different market institutions.

A preliminary typology of market institutions with 42 cases in different regions of the country was analysed to compare its positive and negative aspects. In Viet Nam, besides official contracts, diverse forms of oral engagements help farmers to sell effectively. These different types of engagement should be understood as contract farming in the larger sense of the term. Five main types were found in rural Viet Nam:

I. Sales contracts direct with state agro-processing enterprises: contract violation from both sides due to the high transaction costs, low farm gate price and weak regulation of inputs in terms of quality and quantity. Poor farmers also face the constraints of a lack of services and credit to organize the production for contract. The lack of a legal framework to enforce the compliance with contracts when price changes occur creates frequent problems.
II. Production contracts with foreign companies: the production contract makes the farmers depend completely on one firm. Additionally, this form of contract is only available to a small proportion of large farms, the poor have no access to this type of contract. Therefore, there are no sales contracts for outputs, just more pressure to buy expensive inputs.
III. Sale to private merchants through oral contracts: this is a misleading form of contract, because on the surface it appears beneficial to small-scale farmers but their bargaining power is very low due to the high transaction costs. This contract works in some commodity chains oriented to the domestic market such as vegetable or pork.
IV. Handicraft and industrial villages network: these market institutions have already existed for a long time in different areas.
V. Sales through service co-operatives: the impact is very diverse, but in some cases it works well with adequate value-added distribution, but the unstable output still exists.

Market institutions were surveyed to identify the most dynamic cases of commercial agriculture and the results are presented as a list classified by five main types:

I. Contract with state enterprises (11 cases)

1. Dairy farms in Moc Chau, Son La;
2. Tea farms in Moc Chau, Son La;
3. Sugarcane farms in Lam Son, Thanh Hoa;
4. Sugarcane farms in Quang Ngai;
5. Cotton production in Quang Nam;
6. Tobacco production in Quang Nam;
7. Cassava production in Quang Nam and Quang Ngai;
8. Corn production in Dong Nai;
9. Cashew nut production in Dong Nai;
10. Fruit production in Dong Nai; and
11. Dairy farms in Tien Du, Bac Ninh.

II. Contract with foreign companies (three cases)

1. Animal production in Dong Nai in contract with CP company;
2. Animal production in Quang Nam in contract with CP company; and
3. Tea production by Taiwanese companies in Moc Chau.

III. Sale to private merchants (seven cases)

1. Vegetable production in Gia Loc, Hai Duong;
2. Vegetable and potato production in Bac Ninh;
3. Buffalo trade in Tho Tang, Vinh Tuong, Vinh Phuc;
4. Coffee trade in Hoa Dong, Krong Pak, Dak Lak;
5. Sale of agroproducts (tea, coffee, fruit) in Son La;
6. Cattle sale in Cho Don, Bac Can; and
7. Sale of persimon in Bac Can.

IV. Handicraft and industrial villages (six cases)

1. Cassava processing in Hoai Duc, Ha Tay;
2. Rice processing and trade in Luu Xa, Duc Giang, Hoai Duc, Ha Tay;

3. Rice processing and trade in Trai Trang, Yen My, Hung Yen;
4. Village iron and steel production in Da Hoi, Chau Khe, Tu Son, Bac Ninh;
5. Artistic furniture production in Dong Ky, Dong Quang, Tu Son, Bac Ninh; and
6. Village paper production in Phong Khe, Yen Phong, Bac Ninh.

V. Sale through co-operatives (15 cases)

1. Pork production and commercialization co-operatives in Nam Sach, Hai Duong;
2. Pork production and commercialization in Cat Que, Hoai Duc, Ha Tay;
3. Safe vegetable production and commercialization in Van Noi, Dong Anh, Ha Noi;
4. Vegetable production and commercialization in Dai Thinh, Me Linh, Vinh Phuc;
5. Seed production in Nam Sach, Hai Duong;
6. Sale of cattle in Cho Don, Bac Kan;
7. Seed production in Phuong Vien, Cho Don, Bac Kan;
8. Establishment of geographical indication of aromatic rice in Hai Hau, Nam Dinh;
9. Establishment of geographical indication of lychee in Thanh Ha, Hai Duong;
10. Sale of rice for export in An Giang;
11. Co-operative of rice production in Truong Thanh, Phu Tan, An Giang;
12. Co-operative of baby corn production in Cho Moi, An Giang;
13. Co-operative of mango marketing in Hoa Loc, Cai Be, Tien Giang;
14. Co-operative of fish and aquatic production in An Giang; and
15. Commercialization of aquatic products (catfish, carps, shrimps) in Mekong Delta.

The supermarket is a new stakeholder in Viet Nam in terms of agricultural marketing

The growth of supermarkets in Viet Nam is following global patterns of the expansion of grocery retail chains in the developing world. Experience from Latin America and Thailand demonstrates the potentially rapid transformational effect of supermarkets – which now account for over 50 per cent of food sales. Multinational companies catalyse these processes. In Viet Nam, global chains such as Metro and Group Bourbon are recent arrivals along with strong domestic growth of supermarkets in major urban centres (Ho Chi Minh city and Ha Noi). In addition, most provincial towns already have a supermarket-type outlet run by the provincial food company. Procurement activities of supermarkets are related to agricultural value chains as they affect both processed agricultural products and fresh agricultural products. Processed products are often imported but are increasingly produced by local enterprises (either locally owned, joint ventures, or foreign owned). They include rice and rice products (e.g. flour, starch, noodles), sugar, confectionary products, tinned products, spices and condiments (e.g. pepper, fish sauce). Fresh products include fruits and vegetables, meat and livestock products (e.g. poultry, eggs, pork, beef), dairy products (e.g. milk, yoghurt, ice-cream, cheese), fish and seafood, cut flowers and ornamental plants. In the initial stages of development, supermarket products are mainly processed, dry or imported products. As supermarkets develop, fresh products become more important and a number of domestically produced items have appeared on supermarket shelves.

Some issues regarding agricultural diversification in past years

In general, agricultural diversification is still slow, mostly unprompted and has not followed closely market demand. The above analyses show that cultivation now makes up a large share of total agricultural production, of which the value of food crops accounts for over 60 per cent.

With economic development, agriculture gradually moves from mainly food production to a larger mix of farming activities, livestock, aquaculture, fruit production and industrial crops will increase. Finally, the share of non-agricultural activities will also increase dominating the rural economy.

Over the past twenty years, Viet Nam has intended to change the livestock sector into one of key industries, the livestock share, however, has still not exceeded 20 per cent of the total agricultural production value. In recent years, the share of agro-forestry-fishery in total GDP has clearly dropped, but in terms of total household income, the contribution of these sub-sectors has made a big share rising from 40.7 per cent in 1996 to 41.6 per cent in 1999. In rural areas, this rate rose from 57.3 per cent to 58.5 per cent during the same period and income from the industrial and services sub-sectors has fallen to 15.9 per cent from 17.9 per cent (Moustier, Dao The Anh, 2003). It shows that agro-forestry-fishery were always important sub-sectors in terms of being income sources of the people.

At present, rice still holds a key position both in terms of planted area (over 60 per cent), energy supply (75 per cent) and contribution to exports (from 14 to 15 per cent) (Table 3.25). Moreover, paddy production increased at a rate which is higher than that of agriculture in general.

Although agricultural exports rose strongly during the 1990s, commodity components have not seen significant changes. Rice and aquaculture products account for 55-59 per cent of total agricultural exports and have not changed much in the past decade. Coffee and rubber exports increased in the middle of the 1990s. Even though rice is still dominant, agricultural production and agricultural exports in Viet Nam have diversified to a large extent when compared to other developing countries. The two most important commodities (except for aquaculture products) are rice and coffee, making up of 37 per cent of agricultural exports and 17 per cent of the country's total export value.

Table 3.25 Structure of agricultural exports

	1990	1995	1996	1997	1998	1999	2000	2001	2002
Agricultural export value (US$ million)	1 149	2 521	3 068	3 239	3 324	3 774	4 308	4 428	4 630
Export share (%)									
Agro-products	68.2	69.3	70.4	68.9	68.4	67.5	59.5	54.7	52.6
Rice	32.6	21.0	27.9	26.9	30.8	27.2	15.6	14.1	15.7
Rubber	4.6	7.5	5.3	5.9	3.8	3.9	3.9	3.7	5.7
Cashew nut	1.9	3.5	2.5	4.1	3.5	2.5	3.0	3.4	4.6
Groundnut	3.7	2.8	2.3	1.4	1.3	0.9	1.0	0.9	1.1
Pepper	0.8	1.5	1.5	1.9	1.9	3.6	3.3	2.1	2.3
Coffee	6.4	23.7	11.0	15.2	17.9	15.5	11.0	8.8	6.8
Tea	1.7	1.0	0.9	1.5	1.5	1.2	1.3	1.6	1.8
Vegetables and fruit	5.0	2.2	2.9	2.0	1.6	2.8	4.9	7.8	4.3
Others	11.6	6.0	16.0	10.1	6.1	9.9	15.4	12.3	10.3
Forest products	11.0	6.1	6.9	7.0	5.8	4.5	3.6	4.0	3.7
Aquatic products	20.8	24.6	22.7	24.1	25.8	25.8	34.3	41.0	43.7
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: MARD, 2003.

Furthermore, agricultural diversification sometimes was far from primary production and processing, leading to a contradiction between processing and raw-input producing zones. Another significant problem is the case of the sugar industry and the fruit and vegetable industry. Some sugar mills with hundreds of billions of Vietnamese dongs invested have to operate at very low capacity (20-30 per cent) due to raw material insufficiency. Some rather isolated mills may only use 10 per cent of their capacity. As a result processing costs are very high and some factories have gone bankrupt forcing the state to compensate the losses. Thus, sugar mills have now become large burdens for the state.

3.4 Extent of unemployment and poverty

3.4.1 National unemployment

The transfer of economic mechanisms in the most recent period has come with a stable rate of urban unemployment. In 1998 and 1999 despite low GDP growth, the rates of unemployment rose a little, but in 2001, this rate decreased (Table 3.26). The labour force in the agricultural industry has more chance to join production processes. However, this labour force seems unable to work fulltime.

Table 3.26 Unemployment rate in urban and rural areas, 1996-2002

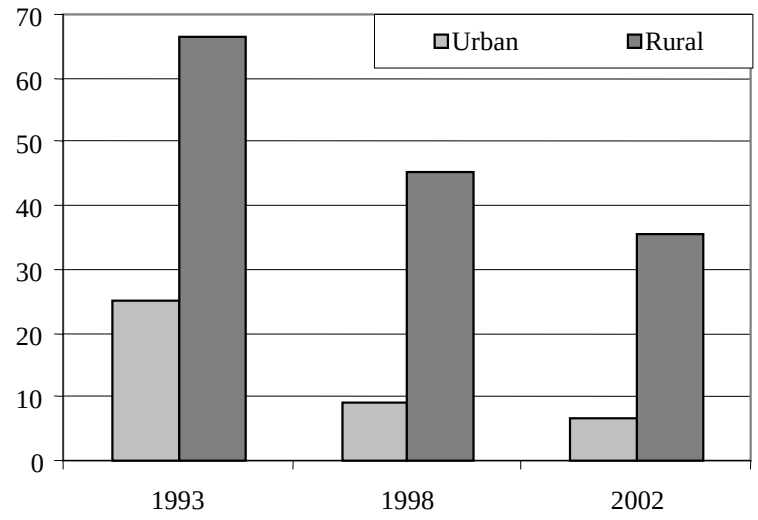
Year	Urban unemployment rate	Percentage of working time used in rural labour force
1996	5.88	72.28
1997	6.01	73.14
1998	6.85	71.13
1999	6.74	73.56
2000	6.42	74.19
2001	6.28	74.37
2002	6.01	75.41

Source: Statistics from Labour and Employment Survey (MOLISA, 2001 and 2002).

3.4.2 National poverty

As mentioned above, over the past few years, the living standards of people in both rural and urban areas has improved. The income of most farmers is, however, still low and the gap between rich and poor continues to widen. To improve the average income and standard of living of rural inhabitants, the adjustment of economic structure, particularly in the agricultural sector is always at the top of the priorities. In recent years, various changes in economic structure have been made. As a result, agricultural production has gained significant progress.

Figure 3.2 Poverty rates (%) in urban and rural Viet Nam



Source: GSO, VLSS, 1993, 1998 and VHLSS, 2002.

With great efforts focusing on hunger elimination and poverty reduction, Viet Nam has achieved considerable successes (Table 3.27). The poverty rate in Viet Nam has fallen dramatically from 58 per cent in 1993 to 37.4 per cent in 1998 and to only 29 per cent in 2002. However, it should be noted that the pace of poverty reduction in Viet Nam has slightly fallen year by year, from an average of 4 per cent per year during 1993-1998 to only 2 per cent per year during 1998-2002. In addition to this, there is still a large gap between rural and urban, lowland and highland standards. According to data from the Household Living Standards Survey in Viet Nam, 1993, the urban poverty rate was 25 per cent while the rural poverty rate was 66.4 per cent, then the poverty rate fell to just 6 per cent and 36 per cent in urban and rural areas respectively (Figure 3.2). However, in Viet Nam, the level of poverty varies significantly among regions. In general, the North West is the poorest region, followed by the Central Highlands and the North Central Coast. The poverty rate in the two deltas is still rather high. The recent IFPRI study shows that the two deltas have the highest number of poor in Viet Nam. This implies that poverty continues to remain a serious problem in lowland regions.

Table 3.27 Poverty reduction across regions [a/] (%)

	1993	1998	2002
Poverty rate	58.1	37.4	28.9
Northern Mountains	81.5	64.2	43.9
North West	81.0	73.4	68.0
North East	86.1	62.0	38.4
Red River Delta	62.7	29.3	22.4
North Central Coast	74.5	48.1	43.9
South Central Coast	47.2	34.5	25.2
Central Highlands	70.0	52.4	51.8
South East	37.0	12.2	10.6
Mekong River Delta	47.1	36.9	23.4
Food poverty	24.9	15.0	10.9
Northern Mountains	42.3	32.4	21.1
North West	26.2	22.1	46.1
North East	29.6	17.6	15.4
Red River Delta	24.2	8.5	5.3
North Central Coast	35.5	19.0	17.5
South Central Coast	22.8	15.9	9.0
Central Highlands	32.0	31.5	29.5
South East	11.7	5.0	3.0
Mekong Delta	17.7	11.3	6.5
Poverty gap	18.5	9.5	6.9
Northern Mountains	29.0	18.5	12.3
North West	26.2	22.1	24.1
North East	29.6	17.6	9.6
Red River Delta	18.3	6.2	4.3
North Central Coast	24.7	11.8	10.6
South Central Coast	17.2	10.2	6.0
Central Highlands	26.3	19.1	16.7
South East	10.1	3.0	2.2
Mekong Delta	13.8	8.1	4.7

Source: GSO.

Note: Poverty rates are measured as a percentage of the population. Poverty gaps reflect the average distance between the expenditures of the poor and the poverty line, in percentage of the latter. Regions are defined as in 2002.

[a/] The top portion of the table indicates the fraction of the population who cannot afford the consumption basket needed to secure 2,100 calories per day to each of its members. This fraction is called the poverty rate in what follows, while the cost of the consumption basket is known as the poverty line. The composition of the basket is derived from the VHLSS itself. It reflects the way households who are neither destitute nor well off allocate their spending. Considerable effort goes into computing the caloric value of each of the items in the basket. The middle portion of the table indicates the fraction of the population that is too poor to afford the food part of this consumption basket, even if they were not to spend on non-food items at all. The cost of this basket is known as the food poverty line, and the fraction of households who cannot afford this is called "food poverty" for brevity. It is clear that even poor households spend on non-food items. Households who could not afford the food part of the consumption basket are therefore unable to secure 2100 calories per day to their members (World Bank, 2004).

Today, rural households still represent a vast majority of the poor. And poverty will remain mainly rural for many years to come (World Bank, 2004). The disparity in terms of poverty between urban and rural areas is more and larger, especially in the Red River Delta.

There are many different external factors in terms of natural, social and infrastructure conditions (the plains have more advantages compared to hilly and mountainous areas), behaviour and purpose of production (socialization and commercialization of the South is higher than the North), relationship with outside market (coastal provinces have more advantages compared to isolated/inland provinces). Differences are also formed by internal factors such as the investment policy of local (more favourable in the southeast of Viet Nam) as well as concentrated level for investment priority (city and industrial zones are more advantageous) etc.

Therefore, the poverty situation is not homogeneous in different areas. Mountainous areas in the North, the North Central province and South Central Coast of Viet Nam have the highest poverty rates, such as Hoa Binh 56 per cent, Kon Tum 54 per cent, Quang Binh 46 per cent, Lai Chau 42 per cent.

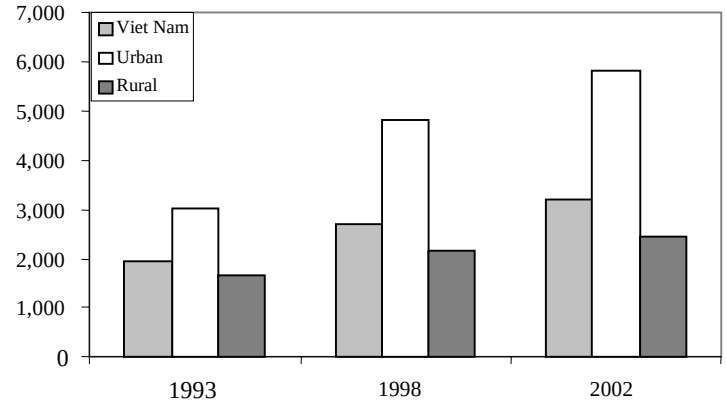
3.4.3 Rural/agricultural poverty

Due to production developments and the enhancement of the economic structure, the standard of living in both rural and urban areas in Viet Nam has gradually improved. Per capita income/expenditure has increased continuously, from VND 1,936 thousand in 1993 to VND 3,229 thousand in 2002 [2/]. However, income increases in urban areas have been relatively faster. (Figure 3.3)

During the period of 1993-1998, urban per-capita expenditure increased at a rate of 9.9 per cent per annum, while it was only about 5.4 per cent in rural areas. Furthermore, the income gap between rural and urban areas continues to widen. In 1993, per capita expenditure in urban areas was 1.8 times higher than that of rural areas. In 2002, however, this number reached 2.4 times.

Despite the progress over the past few years, the agricultural sector remains disadvantaged. The adjustment of the agricultural structure and agricultural diversification were very sluggish, not satisfying the growing demand from domestic, regional and international markets. Some products do not meet international standards, hence losing competitiveness. Market information is, at best, limited and has not helped producers in the decision-making process.

Figure 3.3 Real per capita expenditure in Viet Nam, 1993-2002 (thousand dong)



Source: VLSS 1993, 1998 and VHLSS 2002.

[2/] GSO, Statistical Yearbook 2001, Statistical publishing house, 2002.

In 2002, rural income was still very low at only US$ 200 per capita per annum. [3/] Additionally, it was very hard to find a stable job in rural areas. According to a survey by GSO, the rate of spare time in rural areas was at over 70 per cent. [4/] In fact, during the off-season, rural labourers often undertook non-agricultural activities or went to urban areas to earn money. Environmental pollution became far more serious with increased, uncontrolled forest destruction, overuse of pesticides and fertilizer, scarce fresh water sources and increased waste from manufacturing plants. All of these factors placed severe pressure on the rural environment and seriously affected the sustainability of agricultural production.

3.4.4 Factors affecting the extent of poverty

The "story" behind the reduction in poverty has somewhat changed over time. Earlier gains were associated with the distribution of agricultural land to rural households, in a context where economic reform provided the right incentives for increased farm production. But those gains reached a plateau long ago. In more recent years, the driving forces behind poverty reduction have been job creation in the private sector and the increased integration of agriculture in the market economy.

A vast majority of the working-age population of Viet Nam actually work, and labour market participation rates are among the highest in the world. What has changed is not the activity, but rather the composition of employment. Over the last four years, the proportion of people who predominantly work on their own farm dropped from almost two thirds to slightly less than half. Instead, many more people are now engaged in wage employment: 30 per cent of those at work earned a wage in 2002, compared to 19 per cent four years earlier. Thanks to buoyant expansion, by 2002, the formal private sector already accounted for around 2.5 million jobs, more than the entire public sector. However, a much larger number of jobs have been created by the informal private sector.

Over the past few years, increased incomes from farming have also been important in terms of reducing rural poverty. Farm households in Viet Nam have become much more oriented towards the market, as opposed to home consumption. Currently they are selling 70 per cent of their farm output, compared to 48 per cent nine years ago. This has not been at the expense of food security or nutritional intake as both of these indicators have also improved over time. Increased diversification has also helped farmers reduce their vulnerability to shocks.

At a deeper level, poverty reduction in Viet Nam has been associated with strong economic growth. Public policies can reach the poor through targeted transfers, and they can also increase their assets, especially in terms of educational attainment and health status. However, there is only so much targeted programmes and human development policies can do in the absence of sustained economic growth. From that perspective, the performance of Viet Nam since *Doi Moi* is simply spectacular. Except for a few countries recovering from civil war or economic havoc, over the last decade only China and Ireland have seen faster growth of GDP per capita than Viet Nam.

This performance has been made possible by sound macroeconomic management and the systematic introduction of market forces in the economy. The development strategy did not rely on a massive divestiture of state assets, other than agricultural land. There are at present almost 5,000 state-owned enterprises, and a programme to divest those operating in non-strategic sectors is moving slowly. Efforts to increase the productivity of the state sector have relied on increased competition in the markets for goods and services and, to a lesser extent, on the hardening of budget constraints faced by state-owned enterprises.

Looking forward, the "story" behind poverty reduction is likely to be sustained through the reform strategy of Viet Nam, embodied chiefly in the Comprehensive Poverty Reduction and Growth Strategy (CPRGS). This key policy document foresees the completion of the

[3/] Quoted from IFPRI, Income Diversification and Poverty Reduction in the North Uplands of Viet Nam, 2002.
[4/] GSO, Viet Nam Living Standards Survey 1997-1998, Statistical Publishing House, 2000.

transition to a market economy, with social policies aimed at keeping development inclusive, with an effort to build modern governance.

Implementing CPRGS will not be without difficulties, however. On a structural front, the policy area where reforms are most advanced is the integration with the world economy. The recent decision by the government to try to join the World Trade Organization confirms its commitment to increased openness. On the other hand, slow progress in the twin agenda of SOE restructuring and financial sector reform could create a considerable liability for Vietnamese society. The inability to harden budget constraints faced by state-owned enterprises would imply that a portion of today's economic growth will have to be devoted, sooner or later, to clearing bad debts and protecting the solvability of financial institutions. On a governance front, the abuse of public office for private gain risks making everyday life miserable, both when it happens at low levels leading to resource misallocation and waste, and when it affects collective decision-making. Tackling difficulties on these two fronts is key for Viet Nam to remain a success story in the longer term. While growth is bound to remain strong over the foreseeable future, failure to address these shortcomings could lead to the emergence of a crony variant of capitalism already seen elsewhere, not to the development of a vibrant market economy with a socialist orientation.

Will rapid economic growth be enough to eradicate poverty within the next few years? While the pro-poor nature of economic growth in Viet Nam over the last decade provides good reason to be optimistic, there are also clear signs that development is becoming less inclusive. Not surprisingly, bigger households, and especially those with more children, more elderly members, or where a spouse is missing, tend to have a lower level of expenditure per capita. Educational attainment makes a considerable difference too, and increasingly so. Even more striking are regional disparities, and especially the gap between urban and rural areas. Other things equal, an urban household spends almost 85 per cent more than a rural one. This effect dwarfs all others, including those associated with higher educational attainment. While correlation is not causation, this gap highlights the kind of urbanization pressures Viet Nam may face in coming years. Confronted with the possibility to substantially improve their well-being many rural households will choose to migrate to the cities and administrative barriers, no matter how severe, may not be sufficient to dissuade them. A rapid improvement of the well-being in rural areas might be the only way to slow down a migration wave in the making.

Poverty has a strong spatial (or geographical) dimension in Viet Nam. While positive developments are visible in all regions, poverty rates vary considerably across them, and the speed of poverty reduction varies too. Taken as a whole, the Central Highlands is the poorest region in the country, followed by the Northern Mountains and the North Central Coast. But this ranking can be questioned on the grounds that the Northern Mountains are quite heterogeneous, and the North West is actually the poorest region of all. Poverty rates are high in the two deltas and in the South Central Coast, but they are lower by half compared to the poorest regions. The Central Highlands also stands out because of very limited poverty reduction over the last four years. Food poverty in this region has remained almost unchanged for an entire decade, in sharp contrast with the improvements seen elsewhere.

The conclusions are different if the density of poverty is considered, rather than its incidence. From this perspective, poverty is very much concentrated in the two deltas and in the coastal areas. To some extent, this high density of poverty simply reflects the high overall population density in these areas. But the contrast between poverty density and poverty incidence points to an important policy challenge: reducing poverty in the areas where it is most severe can be very expensive, as those areas may not be populated enough to justify substantial investments. Some could even see this contrast as a justification for a benign neglect of the areas where poverty rates are higher, on the grounds that they are not where most of the poor live. But this interpretation would not be warranted, as the geographical distribution of the poor is changing as well. The areas of higher density nowadays are also those where poverty is more

shallow. Those with higher incidence, on the other hand, are likely to remain poor for many years to come.

Ethnic minorities are among the groups that will remain poor for longer. The Kinh and Chinese majority has handsomely benefited from growth. Ethnic minorities have made much less progress. A forward-looking estimate of the poverty rate of Viet Nam puts it at 21 per cent by 2010. Around 37 per cent of those living in poverty by then would be people of ethnic minority, more than twice their share of the poor in 1993, and close to three times their share of the Vietnamese population. By 2010, more than two thirds of those living in hunger (with expenditure below the food poverty line) could be people of ethnic minority. While poverty has fallen steadily among the ethnic groups of the Mekong River Delta and the Northern Mountains, it has only declined marginally in the North and the South Central Coast, and has actually increased in the Central Highlands. This latter trend can be partly attributed to the collapse in the price of coffee. Overall, it is fair to say that in the case of ethnic minorities, growth will not be enough. Specific policies targeted at ethnic minorities are needed. They range from the improvement of local infrastructure, to the redistribution of land currently held by state forest enterprises, to the legal recognition of communal agricultural practices, and to the development of social services in local languages. They also include measures to improve the representation of ethnic minorities in local decision-making processes and build good governance in the most remote areas of the country.

Rural-urban migrants are another group potentially at risk. On the surface, members of this group have done well. However, the insufficient development of urban infrastructure and the current administrative mechanisms to limit the mobility of the population may keep many migrants in poverty. A polluted environment, restricted access to social services in the case of unregistered migrants, the absence of strong social networks, a characteristic of Vietnamese "villages" (or *thon*), are drawbacks that more expenditure may not compensate. Even if only a small fraction of the rural-urban migrants were to fail, the absolute numbers could be large, given that almost one million people migrate to the cities every year. Squarely recognizing the problem, through the assessment of the situation of rural-urban migrant groups (registered and unregistered), would be a key first step. It could pave the way to appropriate planning of public action, from land zoning policies to the accelerated development of urban infrastructure and social services.

While the proportion of the population not living in poverty has increased steadily in Viet Nam, many households are still vulnerable to falling into poverty. Among the most common shocks they confront are episodes of ill health, failure of a crop or investment (such as death of livestock), adverse movements in the prices of key agricultural commodities, unstable employment opportunities, and the occurrence of natural disasters. Depending upon the estimate, between 5 and 10 per cent of the population of Viet Nam is still vulnerable to fall into poverty.

Overall, there is a steady tendency towards greater inequality, albeit at a moderate pace. The expenditure share of the poorest eighty per cent of the population has declined slightly over time, while that of the richest quintile has increased. This trend could actually be an underestimate. Household expenditure measured through household surveys falls short of consumption measured through national accounts, and the gap has increased over time. Depending on whether the rich or the poor are more likely to under-report their expenditure, inequality could be higher or lower than suggested by household survey data. In Viet Nam it appears to be higher. In 2002, the observed ratio between household expenditure per capita in the richest and poorest quintiles of the population was 6.03. This figure could be as high as 8.84 if values corrected for under-reporting were used instead.

The trend towards increased inequality requires a deep reconsideration of public expenditure and public investment programmes. Budget transfers already favour poorer provinces, but the rules and norms on which these transfers are based are still ad hoc. More equitable allocation mechanisms are needed, especially in the social sectors. Developments like

the recent creation of provincial healthcare funds for the poor are an important step in the right direction. State investment, on the other hand, favours richer provinces. This choice can be justified on the grounds that investment is more productive in densely populated and vibrant regions, and budget transfers can then be used to redistribute the increased wealth. However, the long-term sustainability of such a scheme is not guaranteed. As the gap between rich and poor provinces increases, the size of budget transfers will have to increase as well. Whether richer provinces will be willing to sustain year after year their poorer counterparts, as their relative backwardness makes them more expensive, remains an open question.

The quality of public spending needs to be reconsidered as well. Viet Nam has made remarkable progress in expanding the coverage of education over time, even among the poor. Primary education enrolment rates now exceed 90 per cent for all major groups, except for ethnic minorities and the poorest quintile of the population (two groups with a significant overlap). As for secondary education, the expansion of enrolment rates over the last decade has been spectacular but its pace has been quite different for the rich and the poor. The direct cost of education acts as a powerful deterrent for school enrolment. It takes the form of both explicit user fees, collected by the relevant authorities, and unofficial payments.

Economic transition brought dramatic changes to the health sector. As in education, the overall performance of Viet Nam in this area is considerably better than that of other countries at a similar development level. However, large disparities exist between the rich and the poor. The poor are less likely to report themselves as being sick despite their illnesses appearing to be more severe. Some of the most striking differences between poor and rich concern the health condition of children. The probability of being stunted among those in the poorest quintile of the population is almost three times as high as among children in the richest quintile. At nearly five, the ratio is even higher for the probability of being underweight. Out-of-pocket payments, whether official or unofficial, have become a dominant feature of the health landscape in Viet Nam. They are partly responsible for the reduced use of professional healthcare among the poor.

At present, public investment and recurrent expenditure are largely disconnected, resulting in the poor maintenance and operation of infrastructure. A forward-looking approach to public spending needs to be supported through the development of medium-term expenditure frameworks, especially in sectors that are key for poverty reduction, in particular education, health, agriculture and transport. The public investment programme, in turn, is basically a compilation of pet projects of authorities at different levels, without careful screening of their potential to support economic growth and lead to poverty reduction. Return rates for large-scale projects should be computed, and their potential poverty alleviation impacts assessed beforehand. Available evidence already points to large differences in impacts across sectors, from low in the case of irrigation infrastructure to high in the case of roads. Given that the public investment programme represents a claim on almost a fifth of Viet Nam's GDP, a selection of projects based on economic growth and poverty alleviation impacts could do more to reduce the number of poor than any targeted programme or safety net.

This said, targeted poverty alleviation programmes are not irrelevant, and in Viet Nam some have proven effective. This is the case, in particular, of the exemption of education fees. Increased reliance on local resources as the country decentralizes, and the irruption of market forces (both officially and unofficially) in the social sectors have led to a dramatic increase in out-of-pocket payments. As a result, professional healthcare services and school attendance have become increasingly burdensome to the poor, when they are not simply out of reach. One mechanism to offset this trend are education fee exemptions, which currently reach almost one seventh of the poor. These exemptions are associated with a 10-point increase in school enrolment among the children of the beneficiaries, and also with substantially lower educational expenditure. Healthcare cards, allowing access to health services at a reduced cost, appear to have a positive impact too. Improvement of delivery mechanisms, through healthcare funds for the poor, could increase their effectiveness. Results are more mixed for access to subsidized credit, which reaches less than 6 per cent of the poor. But again, the recent creation of the

Viet Nam Bank for Social Policies (formerly the Bank for the Poor) could expand coverage and lead, over time, to a better credit culture.

Overall, the Hunger Eradication and Poverty Reduction Programme, which currently serves as an umbrella for a variety of benefits, should become more focused, by concentrating on a limited number of benefits whose effectiveness have been proven. Benefits should also be designed in a way that broadens their coverage of the poor, and facilitates monitoring and evaluation, especially through the development of appropriate baselines.

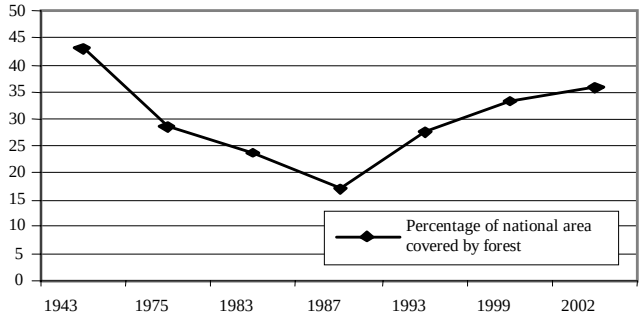
Equally important is to ensure that both targeted programmes and, more broadly, budget transfers, reach those in need. Viet Nam's spectacular success in reducing poverty took place in the absence of a mechanism to measure poverty or target the poor based on international standards. The distribution of agricultural land to rural households in the early 1990s, a process eminently vulnerable to capture by local elites, was remarkably egalitarian. The delivery of social services to the poor was also effective, as shown by the fact that Viet Nam's social indicators are substantially above those of other countries at a similar development level. Yet, the very idea of identifying the poor based on expenditure data has not been fully endorsed at all levels of government yet. It remains largely extraneous to local authorities. But keeping growth pro-poor in the new phase of development Viet Nam is entering will require an improvement in measurement and targeting methods. Progress in decentralization will increasingly require budget transfers from rich to poor provinces, hence a reliable way to measure poverty at the provincial level. The ever-growing role of market forces and out-of-pocket payments in the social sectors will make school fee exemptions and healthcare cards essential for the well-being of the poor; making sure that the neediest communes receive the resources to cover the cost of these benefits also requires reliable poverty measurement methods. Last but not least, an effective mechanism to identify the poorest households within each commune is necessary for the local allocation of benefits such as school fee exemptions and healthcare cards at the local level.

3.5 Extent of environmental problems

3.5.1 Deforestation rate

During the period of 1960-1980, deforestation was most rampant in Viet Nam among Southeast Asian countries due to the policy of establishing new economic zones by the government.

Figure 3.4 Percentage of national area covered by forest



Source: Viet Nam Forestry Sector Review, 1991 and MARD, 2003.

Since Doi Moi (1986), food security on the plains was assured but in the mountains it was always a problem of top priority. Deforestation has been reduced gradually since 1987 up to

the present day. The long-duration land allocation for households after 1988 was a very large incentive for rice intensification in the valleys of mountainous areas. The main hypothesis was that: food production intensification in the valleys was the positive factor controlling deforestation; market access in some regions stimulates crop diversification; the difference in an institutional context plays the crucial role in deforestation.

The relationship between deforestation, food production and population in northern mountainous areas

To find the relationship between deforestation and the main contributing factors: food production and population pressure, data was used covering provinces in the northern mountainous areas in 1960, 1978, 1989 and 1993. The increasing population was correlated negatively to forest area, while food production was correlated positively to forest area.

Production function of Cobb-Douglas:

$$\text{Forest area} = 9.05 * \text{Population}^{-0.95} * \text{Food production}^{0.47}$$

Coefficient of determination: 0.41

3.5.2 Factors affecting the extent of deforestation

Post Doi Moi, the evolution of agrarian systems has changed in the Northern Mountains:

- Access to the main types of land (valley land and uplands) is not equal among household types dependant upon both institutional factors (Bac Thai) and agro-ecological factors (Son La).
- The intensification of the lowlands is increasing. Rice yield is improving due to the development of irrigation, the use of high yielding varieties and chemical fertilizers. The new Chinese rice varieties contribute to this process.
- The rice area under shifting cultivation is reducing due to the deterioration of upland land by the reduction of the fallow cycle, and to the defined ownership of these lands.
- The diversification of cash crops such as maize is developed depending on market access and not on food security in the valleys. However, the development of crop production is also limited because problems of cropping systems on the slopes are not yet fully resolved.
- Reforestation and forest conservation have begun to be developed with the support of different factors: defined ownership on upland land and intensification in the valleys, but it is necessary to establish institutions to regulate free market impacts on upland production.
- Problems of institutions in the mountainous areas have to be resolved as a function of different ecological, traditional and ethnic conditions. Institutions of collective action in mountainous areas are not yet resolved.

These experiences seem to follow the experiences of different countries (Templeton and Scherr, 1999); when population pressure increases, the resources of agrarian systems are firstly destroyed and these systems face crisis. But due to increases in the cost of land and decreases in the cost of labour, the intensification process increases, land productivity improves and resources are conserved. These changes will induce new adapted institutions and new adapted technologies.

The factors which influence deforestation are multiple. It’s necessary to conduct the agrarian system approach to understand the cause in each locality in order to realize the correct intervention in the diversified context of mountainous areas.

3.6 Concluding summary

In the CPRGS, the government's strategy for agriculture and rural development for the next ten years is presented: ensure food security; diversify agricultural production; attach importance to market research and ensure timely provision of information; increase investment in agriculture; link the production of high-value crops to developing storage and processing facilities; promote research and the efficient use of natural resources; expand agriculture, forestry, fishery activities and extension activities in a manner that is suitable to production conditions in different areas and is driven by the poor; develop fisheries and diversify aquaculture; develop a disaster prevention strategy to minimize losses and stabilize livelihoods and production in disaster-prone areas.

The government will focus the policy to promote the high-value agricultural commodities such as fruits, vegetables, spices, industrial crops, dairy, livestock, fisheries and tuber crop processing. The development of diverse products will be based on the comparative advantage of different regions in Viet Nam. Difficulties faced are to identify the policies to promote these products in a context of market fluctuations.

Diversification is considered both at the products of the regional level and the livelihoods of the household level. This is a new policy domain for Viet Nam and more research is required in order to identify policy options. The case studies are important because they generate specific insights and practical lessons regarding the appropriate roles of policy, public investment, and institutions in helping small farmers participate in high-value commodity chains. Our main question is that, in order to promote diversification, does the government have to subsidize agricultural products? Or can we create favourable services for farmers and allow them to choose the activities?

4. Historical and Current Status of the Production of CGPRT Crops and Other Crops in the Country

4.1 Trends of CGPRT crop production

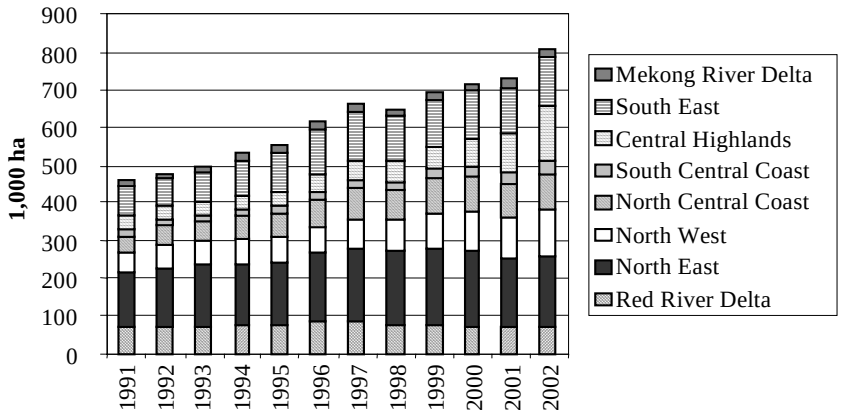
About 70 per cent of the population in rural areas takes part in crop cultivation of the main staple food crops: rice, maize, cassava and sweet potato. The productivity of food crops varies over time. After 1975, from 1976-1980, Viet Nam imported 8 million tons of food. Then, from 1981-1985 thanks to Direction 100 of the Central Committee of the Communist Party in 1981, food productivity increased to 3.6 millions tons, and the average food consumption per head was 295.5 kg/year (increased by 14 per cent). Resolution 10 of the Viet Nam Communist Party issued in April 1988 combined with applying advantage production technology lead to considerable improvements in agricultural production. From 1989, after achieving over 300 kg food/head/year, Viet Nam had surplus rice for export amounting to 1.42 million tons. And in 2001, Viet Nam became the second largest rice exporter in the world.

4.1.1 Maize

Maize production has experienced a significant change during the past few years, changing the status of Viet Nam from one of an exporter to that of an importer.

At the start of the 1990s, maize was used as a complementary food crop to rice and as swine feed. Domestic production was sufficient and Viet Nam also exported. Since 1995, swine breeders have begun to use more and more compound elements, in part made up of maize. As a result, demand is rising by an average of 12.7 per cent per year - 28 per cent for animal feed (FAOSTAT). As a response, maize is now farmed on larger areas and its production has been intensified. Yields are increasing in all regions, except in the Mekong Delta, which has experienced considerable reductions since 1996 due to the recent diversification to market gardening. Despite these increases, production, which only grows at 10.9 per cent per year, is insufficient to satisfy demand. It is thus necessary to resort to imports which are, moreover, less costly than local maize.

Figure 4.1 Changes in maize areas in the different regions of Viet Nam

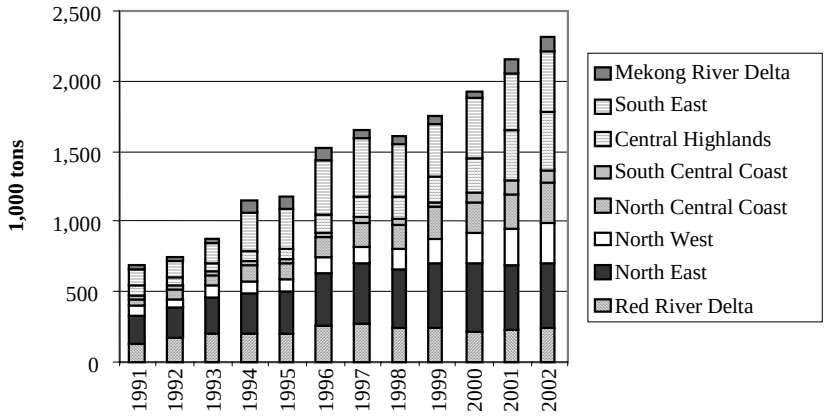


Source: GSO, 2003.

Maize is the main material for husbandry feed, husbandry which has been much developed in the past, therefore, demand for maize as animal feed is much greater. Eighty per cent of domestic maize is used by the animal husbandry industry (Dao Duc Huan e*t al*., 2002). Although maize output has grown rapidly in recent times it cannot satisfy local demand due to the demand from animal breeding becoming higher and higher. To increase imported maize, the government has abolished its quota and cut maize import tariffs. These methods have considerably reduced the gap between the domestic price of maize and the world price. However, in 2001, the domestic price of maize was 37 per cent higher than the world price (market price in Chicago, US). [1/] This difference is partly affected by import tariffs (5-7 per cent) and freight costs. Therefore, the abolishment of import tariffs may help reduce domestic maize prices.

Over-grown maize leads to a serious deterioration in the land and environment in the - North West, considered as a major maize production area. When the demand on food for people has been satisfied, cassava is not used as food or even for husbandry as before with the main reason being that cassava is of low quality compared to rice and maize. By this, the cultivated area of cassava decreased by 1 per cent per year although its yield has considerable increased recently with the appearance of cassava processing plants in the mountainous provinces.

Figure 4.2 Changes in maize production in the different regions of Viet Nam

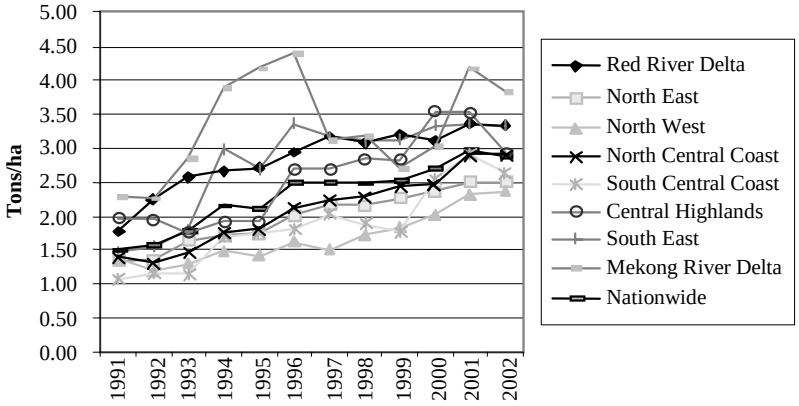


Source: GSO, 2003.

Thanks to the increased use of hybrid varieties, certain regions have become important production areas: the North East and the South East for highly dynamic swine breeding; and the North West to supply other regions, in particular the Red River Delta.

[1/] Source: Government Price Committee.

Figure 4.3 Changes in maize yield in the different regions of Viet Nam



Source: GSO, 2003.

North Viet Nam is made up of three regions: Red River Delta, North East Mountains and North West Mountains. For the last decade, maize production and consumption in these three regions have been dramatically changing as follows:

- Decreases in maize production in the Red River Delta:
  Maize was a very popular crop in the Red River Delta during the 1980s. After the reform at the end of the 1980s, however, a market appeared for various agricultural products such as vegetables, fruit trees, flowers, etc. These crops have more added value than maize due to economic development in this region. Farmers started to diversify their cropping, reducing the cultivated area of maize (Dao The Anh *et al*., 1999). Maize production in this region fell from 280,000 tons in 1997 to 210,000 tons in 2000.

- Increases in maize production in the North East and North West:
  Unlike the Red River Delta, maize production in both the North East and North West is continuously growing, especially in Son La province in the North West. This tendency can be explained by the increasing tradability of maize resulting from the growing demand for maize from the Red River Delta, and the favourable conditions for maize cultivation in these regions.

In this situation, where maize production and consumption have been radically redistributed, two distinguished regions have formed in North Viet Nam: producing and consuming. Consequently, maize has appeared and become one of the most important commodities. Maize from the North East is mostly consumed locally, but maize from the North West is transported to be sold in the delta. This commodity contributes to the economic and social development of the North West of Viet Nam. The Red River Delta, in addition to importing maize, stabilizes the supply of maize for livestock production which plays an important role in agricultural development. The North West creates an opportunity for farmers to diversify their production activities by growing maize not only for self-consumption but also as a tradable. This development tendency allows farmers to increase their income, hence reducing poverty. According to VASI research, in 1998 in Son La, the proportion of food crops (including maize) in the household gross income was about 28 per cent, compared to 41 per cent for rice and 31 per cent for fruit trees. Therefore, the potential for maize expansion is important, but unlimited development of maize may create negative externalities for the environment.

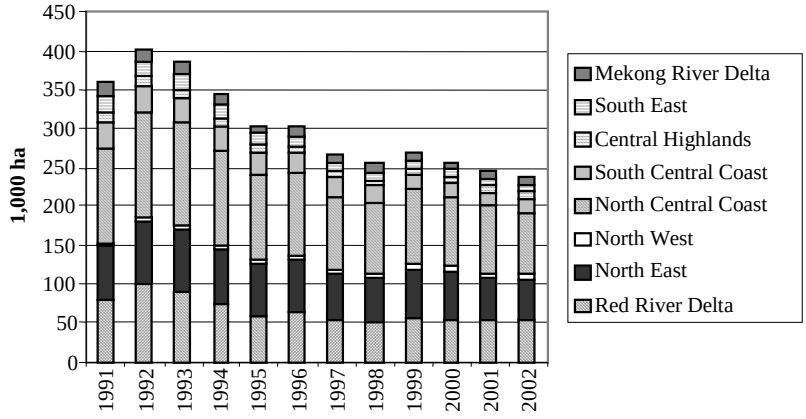
Unfortunately, from a scientific point of view, the maize commodity chain is not sufficiently understood. The government has provided financial support to study commodity chains of crops for export but not maize. Regarding maize, cultivation techniques are the only thing touched upon by recent research work. Social and economic problems, on the other hand, concerning maize production and trading – the maize commodity chain - have been neglected. Characterized by the important role of the maize commodity chain and by the lack of information concerning it, a case study on the production and trading of maize must be considered as priority future research to investigate diversification policies.

4.1.2 Sweet potato

The areas farmed with sweet potato fell sharply during the last decade, especially in the regions affected by agricultural diversification such as the Red River Delta and the North Central Coast. Indeed, sweet potato was substituted by rice for human food and by compound feedstuffs for swine feed, in particular in the Red River Delta. Sweet potato is also substantially linked to swine production in northern and central Viet Nam. In fact, since sweet potato cannot compete with cassava as a raw material for starch processing, about 70-80 per cent of the roots are fed to swine, either directly by the producers or indirectly by the root buyers.

Despite the fall in area, the volume of sweet potato produced has tended to stabilize in recent years. The two regions where the crop is most intensive remain the deltas of the Red River and the Mekong River.

Figure 4.4 Changes in sweet potato areas in the different regions of Viet Nam



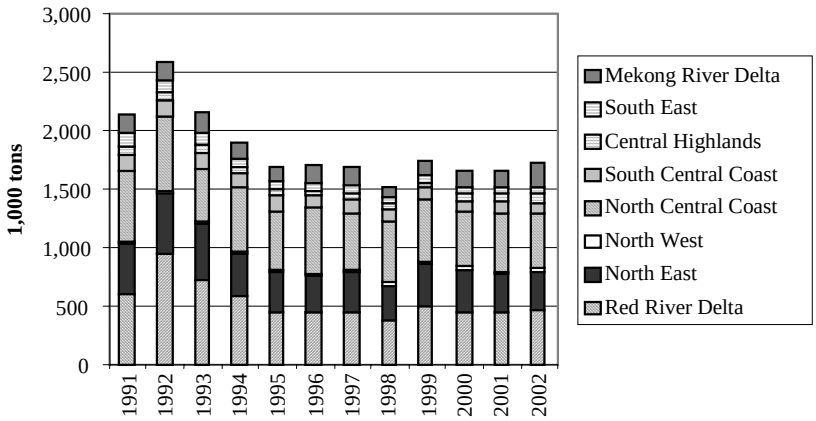
Source: GSO, 2003.

Viet Nam produces 1.6-1.7 million tons of sweet potato roots per year. In northern and central Viet Nam 70-80 per cent of the sweet potato roots are fed to swine while only a small percentage is consumed at home or sold in the market. The situation is quite different in the South where sweet potato is a cash crop rather than a staple crop.

Thus, the sweet potato-swine feed system is only practiced in the northern and central provinces of Viet Nam, and while farmers using this system traditionally raise two to five swine per cycle, with an average daily weight gain of 288 grams, the farmers of Dong Nai province in the south raise 25 swine per cycle with a daily weight gain of 522 grams. The difference in the growth efficiency is largely attributed to the feed. In northern and central Viet Nam sweet potato roots and vines, along with cassava, maize and rice bran constitute the major part of the diet, which is supplemented by various green forages.

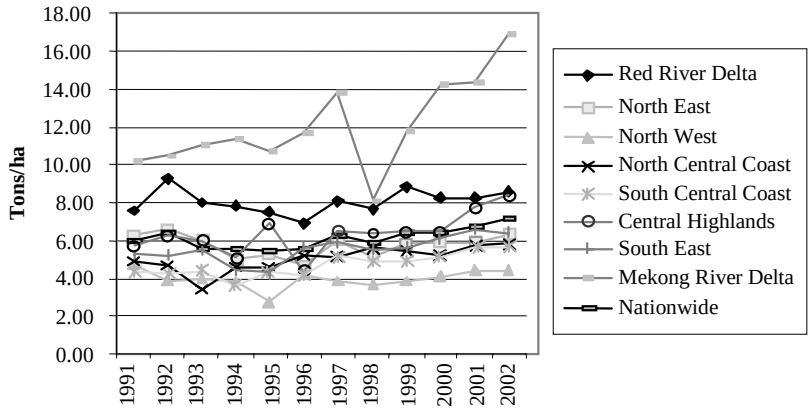
The seasons affect the variation in the amount of sweet potato fed to swine. Sweet potato is cultivated up to three seasons per year (mainly two) in northern and central Viet Nam; its availability is thus scattered in short spurts after each harvest because, traditionally, there are no means of storing either the roots or the vines in this sub-tropical climate. Thus, farmers feel obliged to feed large amounts to their swine within a short period after harvest to avoid loss.

Figure 4.5 Changes in sweet potato production in the different regions of Viet Nam



Source: GSO, 2003.

Figure 4.6 Changes in sweet potato yield in the different regions of Viet Nam



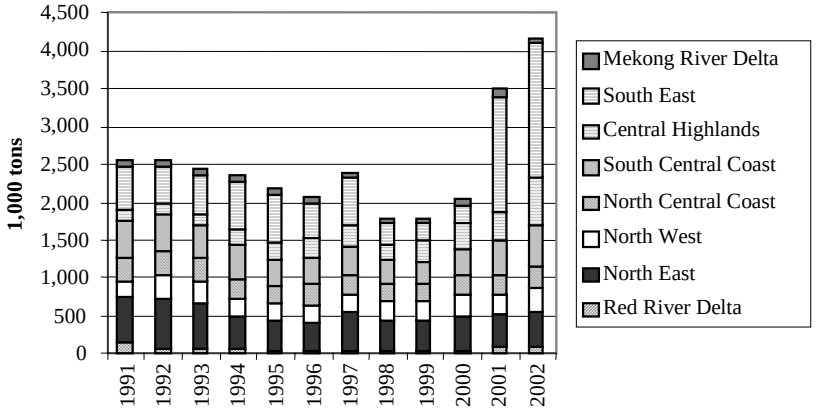
Source: GSO, 2003.

4.1.3 Cassava

During the first half of the 1990's, cassava production and area declined due to the food security assured more and more by rice and maize. After this period, we can observe the change in use for cassava. The starch industry developed rapidly in a different mountainous area. Viet Nam became the third largest exporter of cassava starch after Thailand and Indonesia. In 2001 and 2002, cassava production and area boomed due to the increased number of starch factories. This phenomenon encouraged cassava towards intensive cultivation. Cassava production is characterized by following points:

- Small farm size, yet cassava farms in the South East are double the size of those on average in the Northern Mountains. Most cassava farms are managed by households;
- Large farms achieve higher yields than small farms; and
- As of the most recent estimate: 24 per cent of cassava is processed into starch. The rest is mainly used for animal feed (fresh roots, dry chips and semi-processed flour).

Figure 4.7 Changes in cassava production in the different regions of Viet Nam

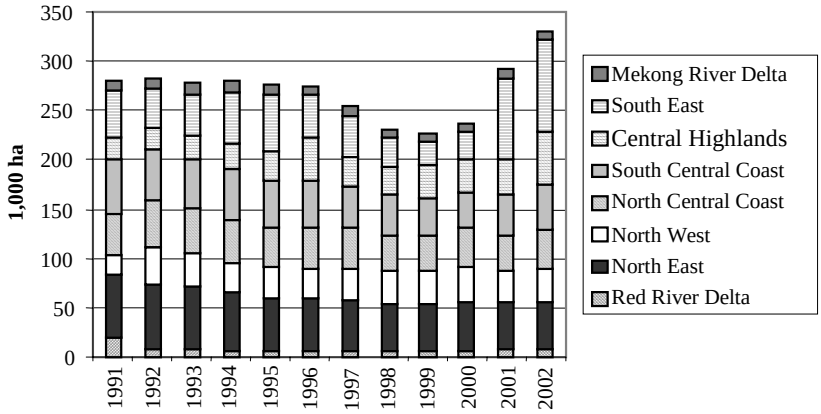


Source: GSO, 2003.

The Viet Nam Root Crops Programme, with strong support from CIAT, has made considerable progress since 1988. The CIAT collaboration with Viet Nam started much later than that with national programmes in other countries, yet, the rate of progress in increasing the yield potential of breeding populations has been the fastest. During 1993-1995, two new cassava varieties, KM 60 (Rayong 60) and KM 94 (Kasetsart 50), were selected and then named and released for production by the Ministry of Agriculture and Rural Development (MARD) in 1994/1995. Among these, KM 94 was the best variety in all standard yield trials (SYT) at HARC from 1991-1993; it was also evaluated in regional yield trials (RYT) in 25 locations in several provinces in 1994. The variety was released for production in 1994/1995 (Hoang Kim *et al*., 2002). The two varieties, especially KM 94, are now widely grown, covering an area of about 60,000 hectares in 1997/1998 (Hoang Kim *et al*., 2002). Profit comparisons between KM 60 and HL 20 in Dong Nai in 1995 showed that KM 60 returned a profit of 7.71 million dong/ha, while HL 20 only returned 4.19 million dong/ha (Hoang Kim *et al*., 2002).

In South Viet Nam the new cultivars have gained large acreage, already generating additional economic benefits to the order of US$ 5 million, shared by the processors, production organizers and small farmers, according to their size of operation. In North Viet Nam, the total economic scale is much smaller, yet new cultivars are spreading thin and wide. Here the additional cassava production is converted mainly into additional swine sales per family. This appears to be the most equitable contribution of crop breeding. Cassava, with the immediate possibility of yield increases, will play an increasingly important role as an income generator to upland farmers in Viet Nam. Advanced farmers, who obtain good yields and high profits by growing improved cassava varieties, became models for other cassava growers, resulting in the expansion of new varieties. In Tay Ninh province, for example, before 1990, Gon H34 and Binh Duong varieties occupied 100 per cent of the production area.

Figure 4.8 Changes in cassava area in the different regions of Viet Nam



Source: GSO, 2003.

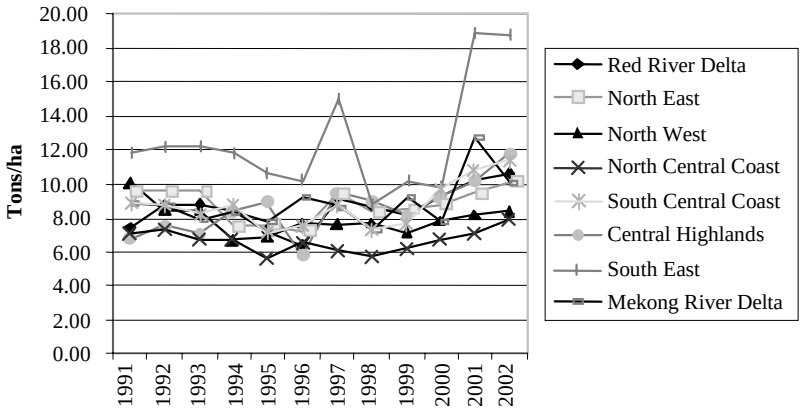
The total cassava area was 3,350 hectares with an average yield of 10.8 t/ha and production of 36,000 tons in 1990. However, in 1998, new high-yielding cassava varieties rapidly replaced the local ones. The new varieties; KM 94, KM 60, SM 937-26 and KM 95 soon covered 80-90 per cent of the total cassava area (about 15,000 hectare) of Tay Ninh with an average yield of 20.5 t/ha (Hoang Kim *et al*., 2002). Economic analyses showed that KM 60 could return a profit of 4.71 million dong/ha (Hoang Kim *et al*., 2002).

The Agricultural Planning Institute, studying the characteristics of cassava growing lands, showed that: i) the South East region has various kinds of soils with the best fertility compared with other mountainous and hilly regions; ii) the South East region has great potential for cassava production; and iii) present cassava growing soils have very low fertility in the South East region (Hoang Kim *et al*., 2002).

In recent years, the National Root and Tuber Crops Programme of Viet Nam, with the co-operation and assistance of CIAT, has drawn up a plan for strengthening the research and development capacity, with the objective of improving cassava production in Viet Nam. In the area of cassava agronomy (Hoang Kim *et al*., 2002), the programme has obtained the following results:

- Among various intercropping systems, the inter-planting of cassava with peanut, mungbean or maize were the most promising on high fertility soils, while intercropping with peanut was most promising on the poorer soils.

Figure 4.9 Changes in cassava yield in the different regions of Viet Nam



Source: GSO, 2003.

- Intercropping cassava with black bean or peanut and planting contour hedgerows of Tephrosia Candida[2/] was the best way to control soil erosion. Cassava cropped with hedgerow species like Gliricidia Sepium and Leucaena Leucocephela initially did not show a significant effect on yield at Hung Loc Centre, but a positive effect was observed in the long-term (after five to six years).
- Cassava populations of 10,000-14,000 plants/ha and 12,000-16,000 plants/ha should be recommended for Red Latosol and Grey Podzolic soils respectively.
- Long-term N-P-K trials have shown that the response of cassava to fertilizers is very different for the various types of soil: on the more fertile Latosols the response was not clear even in the third year, but on the Grey Podzolic soil in the South and on Red-yellow Ferrasols in the North the response of cassava was highly significant even in the first year, with the main response to K and N respectively.
- Short-term N-P-K trials showed a high response of cassava to K in Vinh Phu province; it also resulted in higher income due to fertilizer application in Dong Nai province.

The research results of VASI in Yen Bai province concerning cassava cultivation show that cassava in association with peanut is the best cropping pattern in terms of soil erosion control and economic returns. In the case of production for the starch business, cassava needs to be more intensive, so the associative cropping system will be an important aspect for the sustainability of cassava production.

[2/] A plant of the legume family which could prevent soil erosion and improve soil quality through the capacity of fixation of nitrogen.

Table 4.1 Economic results of cassava cultivation at Yen Bai province in 2001

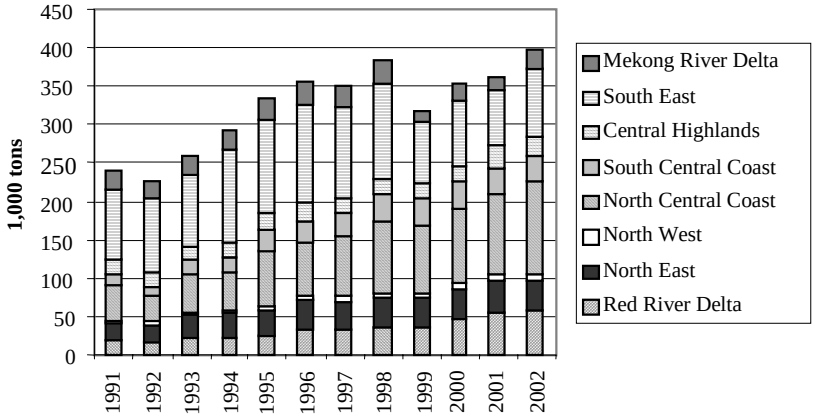
Cropping pattern	Vegetal cycle (days)	Yield		Results		
		Cassava (t/ha)	Peanut (t/ha)	Output value (1,000 d/ha)	Production costs (1,000 d/ha)	Profit (1,000 d/ha)
Cassava		*41.5*		*1 245.0*	*4 161.6*	*8 288.4*
Casv + 1 line peanut	115	39.2	9.7	1 661.0	6 566.6	10 043.4
Casv + 2 lines peanut		38.5	16.6	1 985.0	7 586.6	12 263.4
Casv + 1 line peanut	120	39.6	8.9	1 633.0	6 566.6	9 763.4
Casv + 2 lines peanut		39.0	15.3	1 935.0	7 586.6	11 763.4
Casv + 1 line peanut	107	40.8	6.9	1 569.0	6 566.6	9 123.4
Casv + 2 lines peanut		40.0	9.6	1 680.0	7 586.6	9 213.4

Source: Tran Ngoc Ngoan, Trinh Phuong Loan *et al*., 2002.

4.1.4 Peanut (Groundnut)

Groundnut is one of the main foreign exchange earning crops as well as being the source of oil, protein, food for people and fodder for cattle. Spring (February-June) is the most important time for the production of the crop. The autumn crop is mainly for obtaining high quality seed for the spring crop. Spring groundnut is grown under rain-fed production systems in North Viet Nam, while in South Viet Nam it is grown mostly under irrigation. It is predominantly grown as a sole crop, but in some areas it is intercropped with sugarcane, maize, cassava and upland rice during the rainy season. Groundnut is also grown to some extent as an intercrop with rubber (Hevea Bresiliensis Muell) or coffee (Coffea Arabica L.).

Figure 4.10 Changes in peanut production in the different regions of Viet Nam



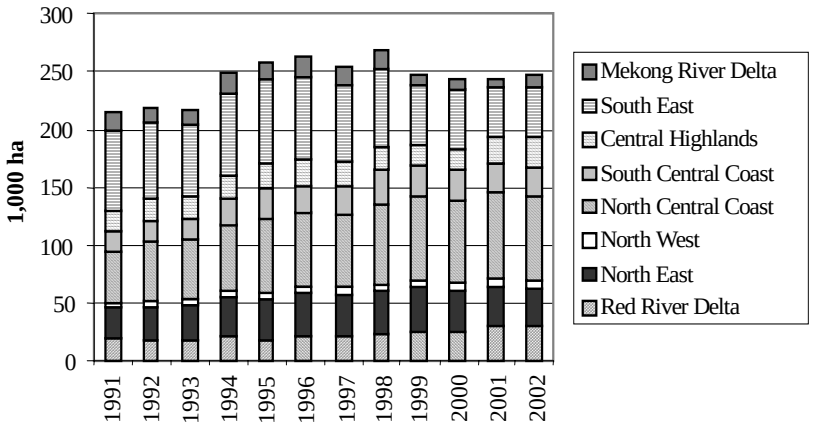
Source: GSO, 2003.

Area and production was almost stagnant during 1975-1990, but has shown a steady increase since 1994. Groundnut is grown on less than 250,000 hectares mainly in the following five eco-regions of Viet Nam:

- North East and North West mountainous areas: Groundnut is grown on about 41,000 hectares in Vinh Phuc, Bac Giang and Thai Nguyen provinces.
- North Central Coast: This is the most important groundnut production zone with an area of about 71,100 hectares in Thanh Hoa, Nghe An and Ha Tinh provinces.
- South Central Coast: Groundnut cultivation is mostly concentrated in Quang Nam and Da Nang provinces on about 29,000 hectares.
- Central Highlands: Groundnut is grown on about 18,600 hectares mainly in Dac Lac, Gia Lai and Kon Tum provinces.

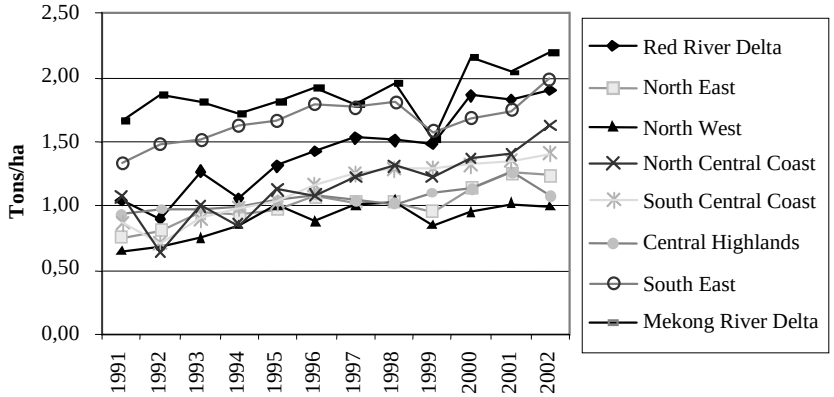
- South East: Groundnut is mostly concentrated in Binh Dinh, Binh Phuoc and Tay Ninh provinces on 68,800 hectares.

Figure 4.11 Changes in peanut area in the different regions of Viet Nam



Source: GSO, 2003.

Figure 4.12 Changes in peanut yield in the different regions of Viet Nam



Source: GSO, 2003.

Particular to the peanut sector in Thanh Hoa, diversification also manifests in deeper facets such as developing new winter-autumn peanut crops; and diversifying production techniques, varieties and markets.

Similarly to other northern provinces, the spring peanut crop is the major one. After harvesting, farmers normally keep a part of the product for breeding purposes for the next spring crop. However, the high content of oil in the product that is transformed in the preservation process can easily lead to the loss of germination capacity and affect the production results of the spring crop. To overcome this problem, some regions including Thanh Hoa plant a autumn-winter peanut crop to shorten the time of seed preservation. Furthermore, the addition of these crops into the cropping pattern increases the land-use efficiency, increasing agricultural output and the income of the farmers.

According to incomplete statistics, autumn-winter peanut crops in Thanh Hoa have received a considerable boost - from 300 hectares in 1997 up to 2,550 hectares in 1998 (production amounts to 1,960 tons)

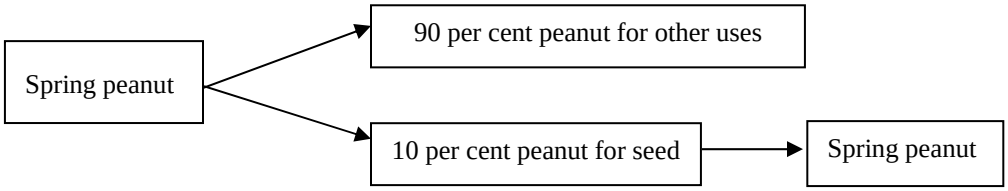
Table 4.2 Area and output of peanut in Thanh Hoa province

Year	Area (ha)	Output (ton)
1996	13 095	13 843
1997	12 892	14 060
1998	15 332	20 490
1999	14 052	16 460
2001	16 171	24 684
2002	16 812	27 137

Sources: Annual statistics of Thanh Hoa province, 2003.

Advantages in using the breeds of autumn -winter crop[3/]

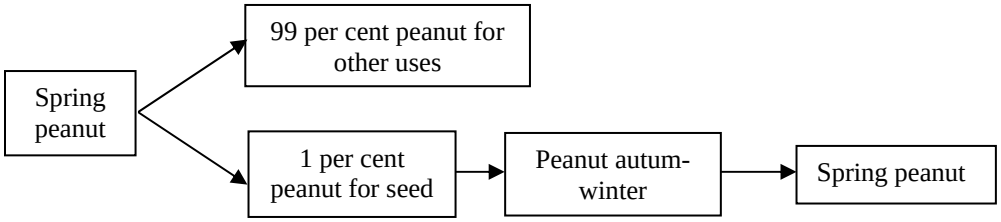
+ Using spring peanut of the previous crops for seed



Preserving for seven months

Preserving the seeds according to old practices requires a larger percentage of the crop (200-220 kg/ha), nearly 10 per cent of production. After seven months of preservation, the seed can easily lose its germination capacity in the low temperatures <15º C, low-scale of sprout, slow growth, and affect the defined density.

+ Using peanuts of autumn-winter crop for seed



If the peanuts from the autumn-winter crop are produced for breeding purposes, it will economize at least 9 per cent of the spring crop and this amount can be used for exporting or domestic use. Peanuts produced in the autumn-winter crop will achieve a high rate of germination because the preservation time is short. This breed can adapt to the required density; well grown plants are the main factor for increasing productivity, augmenting more crops, increasing income and improving farmers' lives.

Diversification in the peanut sector in Thanh Hoa also manifests itself in the introduction of new breeds with high productivity in production processing. In the autumn-winter crops of 2001 in Thanh Hoa, some new peanut breeds have been classified 'high productivity': L14(37,4

[3/] Nguyen Thi Chinh, Policies for the development of new autumn-winter peanut crops in northern provinces.

tons/ha); MD7(36,6 tons/ha); L02(36,6 tons/ha); LVT(30,5 tons/ha); L08(28,8 tons/ha); V79(26 tons /ha).

4.1.5 Comparing the economic efficiency of autumn-winter crop production with others

During autumn-winter, crops are cultivated on rice land after the harvesting of two crops. The comparison between the four main kinds of crop including peanut, maize, sweet potato and soybean shows: peanut gained the highest value of 20.3 million dong/ha with the nylon cover technique, second is maize with 9.6 million dong/ha, third is soybean with 9.0 million dong/ha and last is sweet potato with 5.9 million dong/ha. Net income/ha can be classified as follows: highest is peanut with 12,698 million dong, next is soybean with 6.456 million dong, third is maize with 4.848 million dong and finally sweet potato with 1.860 million dong. Besides the economic efficiency due to breed selling, autumn-winter peanut crops leave a fibrous quantity (5-8 tons) that helps to reduce the amount of fertilizer required for the next crop. Being positive in breed for the next crop is also the decisive factor for the spring peanut crop to achieve high and stable productivity.

Table 4.3 Economic efficiency of autumn-winter peanut production in comparison with other crops on rice land harvests in Lien Ha, Dong Anh District, Hanoi

	Peanut	Soybeans	Maize	Sweet potato
1. Output (quintal/ha)	29.0	18.0	48.0	80 quintal tuber +liana
2. Output value (thousand dong)	20.300	9.000	9.600	5.900
3. Total production cost (thousand dong)	7.602	2.544	5.152	4.040
- Cost for materials	4.192	1.460	3.067	2.790
- Cost for labour	3.410	1.224	2.085	1.250
4. Net profit (thousand dong)	12.698	6.316	4.848	1.910

Sources: Nguyen Thi Chinh, 2003.

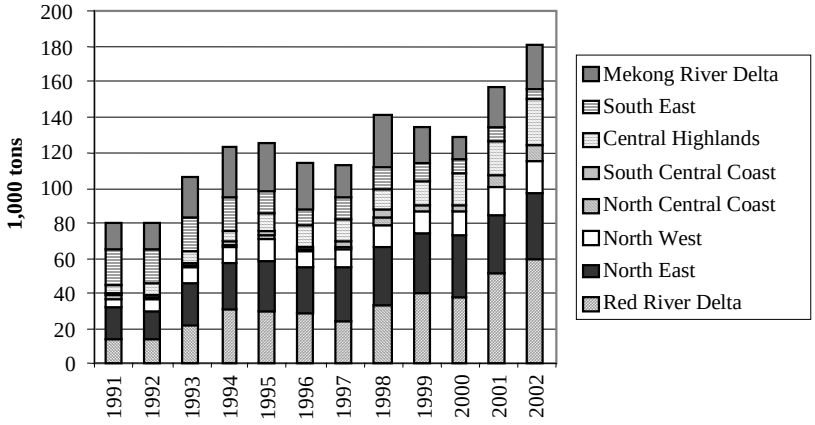
Notes: Price: Peanut 7 000 dong/kg; soybean 5 000 dong/kg; corn 2 000 dong/kg; sweet potato 800 dong/kg tuber + 200 dong/kg liana, 1 quintal = 100 kg

Peanut is currently the main export product of the province, however, only the raw materials are exported because of the lack of investment the processing industry has received meaning economic efficiency is still very limited. In 2002, the area planted with peanut in the whole province was 16,182 hectares (up 3.717 hectares in comparison with 1996), output was 27,137 tons (up 13,294 tons compared to 1996). In 2002, the quantity of peanut exported from the province was 8,372 tons, while the quantity in 2001 was 5,366 tons but only 256 tons in 1998.

4.1.6 Soybean

Soybean is the second most important legume in Viet Nam, however, area and production have remained stagnant. Although soybean is grown in more than 30 provinces, about 60 per cent of it is grown in Son La, Cao Bang, and Bac Giang provinces of North Viet Nam, and the remaining in Dong Nai, Dong Thap, and Dac Lac provinces of South Viet Nam.

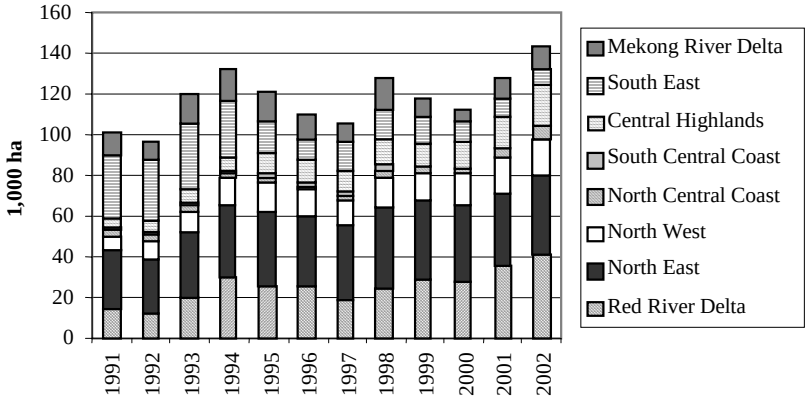
Figure 4.13 Changes in soybean production in the different regions of Viet Nam



Source: GSO, 2003.

Sixty-five per cent of soybean is grown in the highlands on soils of low fertility. The Red River Delta and Mekong River Delta are the next most important areas of soybean production since soybean can be grown all year round in various cropping systems. The spring crop (February-July) is grown under favourable weather conditions, while the summer or summer-autumn crop (May-September) experiences high temperatures and rainfall during the growth and development stages. In winter (mid-September-December), low temperatures and terminal drought are the main production constraints. Soybean is mainly grown after spring and autumn rice in the Red River Delta. In South Viet Nam the main cropping season is November-April (dry season), but it is also grown in the rainy season (April-August).

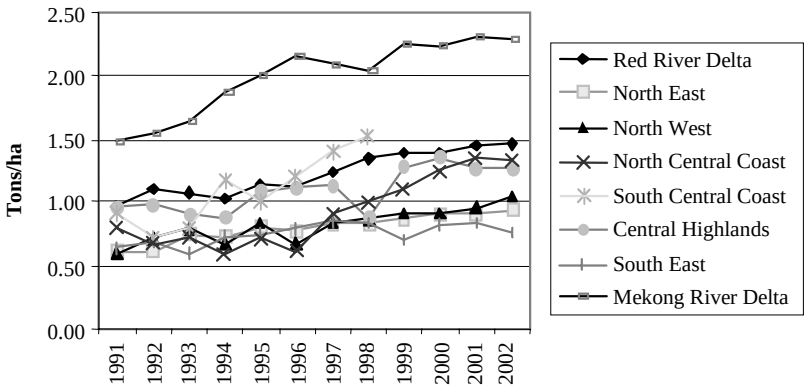
Figure 4.14 Changes in soybean area in the different regions of Viet Nam



Source: GSO, 2003.

Unstable and low prices were identified as important socio-economic constraints for both soybean and groundnut. Another constraint was the lack of farmers with enough cash to buy quality seeds and fertilizers as credit facilities are not available for legume crops. High costs of production are making domestic soybean cultivation unviable as imported produce is cheap.

Figure 4.15 Changes in soybean yield in the different regions of Viet Nam



Source: GSO, 2003.

Legume production can be increased substantially through the introduction of improved varieties and better management practices. Extending legume cultivation to rice fallows and introducing legumes into new cropping patterns could also help increase the area and production of legumes in Viet Nam. Potential areas for legume introduction are as follows:

- Currently in the Red River Delta, rice (spring) - soybean (summer) - rice (autumn), maize-soybean-rice, and soybean-soybean-rice cropping systems are mostly practiced. Groundnut, instead of soybean or maize, is more profitable in these cropping systems since the soils are light textured.
- Farmers are currently following rice-maize-sweet potato or rice-maize cropping systems on the Haplic Arenosols of the North Central Coast. Groundnut has good potential instead of rice in these systems as rice suffers moisture stress and produces low yields.
- The soybean-rice-maize system is widely practiced on the midlands of the Red River Delta. Introduction of newly developed medium-duration (95-100 days), high-yielding, rust resistant varieties of soybean such as DT 93, DT 84, AK 06, AK 05, and AK 04 can produce high yields. However, success of this system depends on sowing soybean by March and harvesting by early June.
- In rice-rice-fallow areas (Red River Delta), newly developed early maturing (80–85 days) and high-yielding varieties of soybean, with tolerance to cold (DT 93, AK 03, AK 02) can be introduced successfully. However, success of this system will depend on the selection of short-duration (90-95 days) rice varieties and timely soybean sowing (25 September to 10 October).
- In Bac Giang and Bac Ninh provinces, farmers follow a groundnut-rice cropping system. In this system, short-duration soybean (70–75 days) can be introduced successfully between spring groundnut and summer rice. However, the success of this system depends on the introduction of photo-insensitive rice and short-duration, heat tolerant soybean varieties such as Cuc Luc Ngan and DT 93.
- Soil evaluation in the nine agro-ecological zones of Viet Nam clearly suggests that about 4.6 million hectares is suitable for expanding legume cultivation. Groundnut can be grown successfully on 1.8 million hectares and soybean and other legumes on about 2.8 million hectares.

4.1.7 Potato

Potato is an important crop for Viet Nam, especially in areas such as the Red River Delta and North Viet Nam (winter crop - producing 85 per cent of Viet Nam's potato) and the area of Dalat (all year round - 15 per cent of total production). In 2002, total national consumption amounted to 535,000 tons, while total local production was 421,000 tons. About 114,000 tons were imported from China during the same year.

As a winter crop, however, potato is the second most important food crop after maize in the Red River Delta (RRD). At present, some 30,000-35,000 hectares of potato are cultivated in the RRD. However, the average yield is only about 12 tons/ha. Nevertheless, there is a common consensus that the potential in terms of both the area cultivated as well as the productivity per hectare could be greatly improved if better investment can be afforded through improved seed quality and the application of advanced agronomic practices.

In the RRD, potatoes are grown during the winter season after the summer rice crop, when it is cool, when the heavy rain stops and the rice fields can be prepared. The most suitable planting time for potato is during the first half of November. Early plantings may occur in late October. Later plantings are possible during December on upland land or where spring rice is not planted, but, in most cases, the potatoes must be harvested and fields available in late January for planting the spring rice crop which is normally transplanted during the first half of February. Therefore, the duration of a typical potato crop in the RRD is usually less than 90 days.

Table 4.4 Returns obtained from potato and rice in Bac Ninh province Unit: VND/hectare

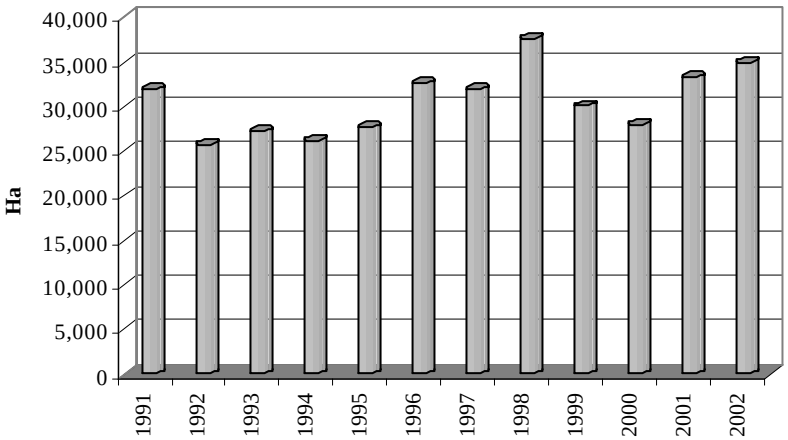
Categories	Rice	Potato
Total cost	**10 349 940**	**17 736 400**
Material cost	3 622 340	7 950 800
Labour cost	6 727 600	9 785 600
Total turnover	**11 120 000**	**26 410 000**
Net return	**770 060**	**8 673 600**

Source: Do Kim Chung, 2004.

In the Red River Delta, most potato is cultivated in a cropping system with rice. In this system, potato is cultivated in winter between the summer and spring rice crops as described in the previous section. In the uplands, potato may be cultivated in cropping systems with other spring and summer crops such as corn, mungbean, soybean, sweet potato and vegetables. However, in all cases, the potato remains a winter crop. Typical cropping patterns are: spring corn – mungbean – potato or sweet potato – soybean – potato.

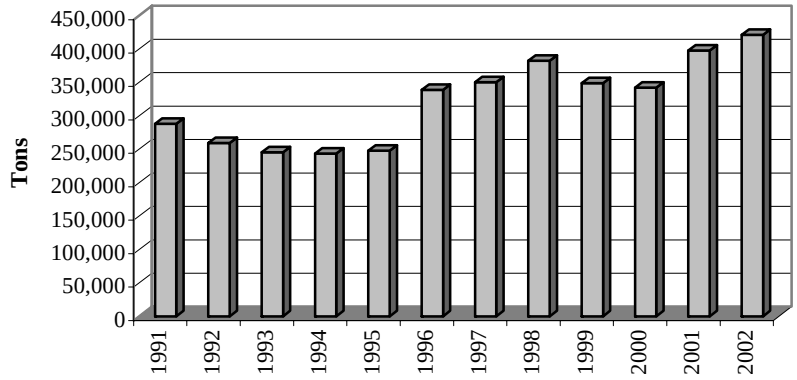
During the growing season, potatoes are grown on small fields scattered around in patches with fields planted with sweet potato, winter corn and/or other vegetables such as cabbage, tomato, kohlrabi, onion, etc. Inter-cropping is not a common practice in the Red River Delta.

Figure 4.16 Potato area in Viet Nam, 1991-2002



Source: GSO, 2003.

Figure 4.17 Potato production in Viet Nam, 1991-2002



Source: GSO, 2003.

Ackersegen has long been the traditional variety in the RRD. Introduced by the French, this variety is known locally as *Thuong Tin*. It has been proven to be well adapted to the growing and storage conditions experienced in the RRD, but it is susceptible to late blight and almost every kind of virus.

Because of the difficulties in obtaining new seeds, local seed stocks of Ackersegen have been found to be severely degenerated due to viral infection. Consequently, yields from this variety have been found to average only 8-9 tons per hectare.

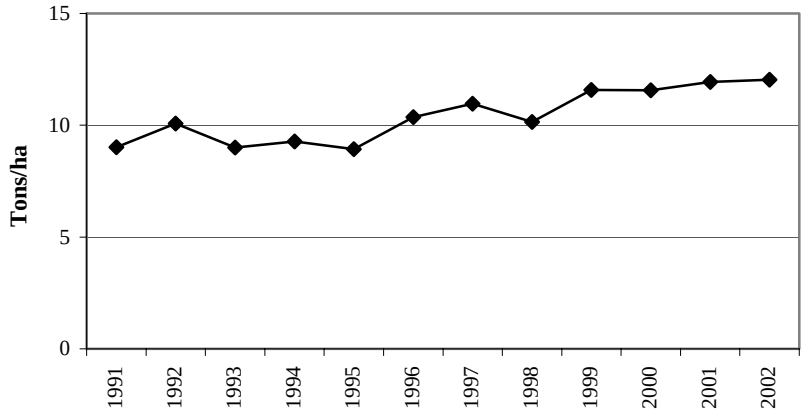
Since the early 1970's, a large number of varieties have been introduced through a co-operative project between Viet Nam and Germany. Among these, the varieties Kardia and Mariella were identified as the best and approved for release in 1979 as Viet Duc 1 and Viet Duc 2, because of their adaptation to the short day conditions and high productivity. These varieties, however, have poor storability under the high ambient temperatures experienced in the RRD. Furthermore, as no viable seed multiplication system is in operation, they have never been produced at any scale larger than a few dozen hectares.

Later introductions from Europe (Holland, France, Scotland, Germany) and Canada have seen numerous varieties such as Nicola, Diamant, Liseta and Provento prove promising.

However, these varieties have also encountered similar problems of fast degeneration and poor seed multiplication and supply.

Since the early 1980's, in collaboration with CIP, the National Potato Programme started a local potato breeding project with the introduction of suitable breeding material from CIP. The major criteria for selection in the RRD has been the adaptability of the material to the short day conditions, early and fast tuber bulking, good storability under high ambient temperatures, resistance to late blight and virus and acceptable eating quality. The varieties P-3, KT-3 and VC 51.6 are among the best clones selected thus far.

Figure 4.18 Potato yield evolution in Viet Nam, 1991-2002



Source: GSO, 2003.

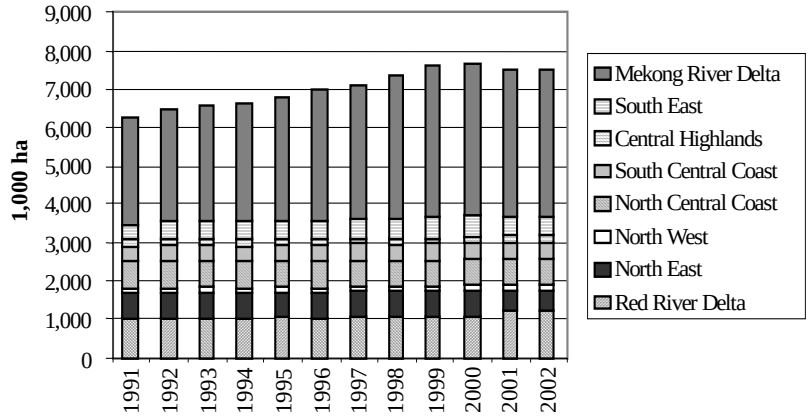
4.2 Trends of non-CGPRT food crop production

4.2.1 Rice

The production area and yield of rice has steadily increased at levels of 1.3 per cent and 3.7 per cent per year respectively. Today, rice is the most significant agricultural product for exporting from Viet Nam occupying more than 12 per cent of total export value during 1996-2000. In terms of crops, in order to improve the yield and value of agro-products today, farmers are investing more in breeds, fertilizers and pesticides. They have begun to use new varieties of plants, which have high yield, high quality, are resistant to pest and to diseases. The increasing use of modern varieties in rice production at 6.6 per cent per year in area contributes strongly to rice exportation. Chemical fertilizers are also used more than before to cultivate intensively with an annual growth rate of 9.5 per cent per year. Pesticide use by farmers has increased rapidly also. A serious danger to the environment and to farmer's health is the abusage of pesticide due to the lack of knowledge in this domain. Irrigation is one important input, and with the investment of the government, has now reached 3 million hectares. In reality, the efficient irrigated area represents about only 2 million hectares.[4/] The extendable area for irrigation is becoming less and less. In the policy choice, we have to think now about the efficiency of irrigation investment. For all the factors of rice intensification, Viet Nam rice production is near to the saturation point in terms of yield improvement. Hybrid rice use is one solution to resolve this constraint, but the low quality of these kinds of varieties is the new constraint for its promotion.

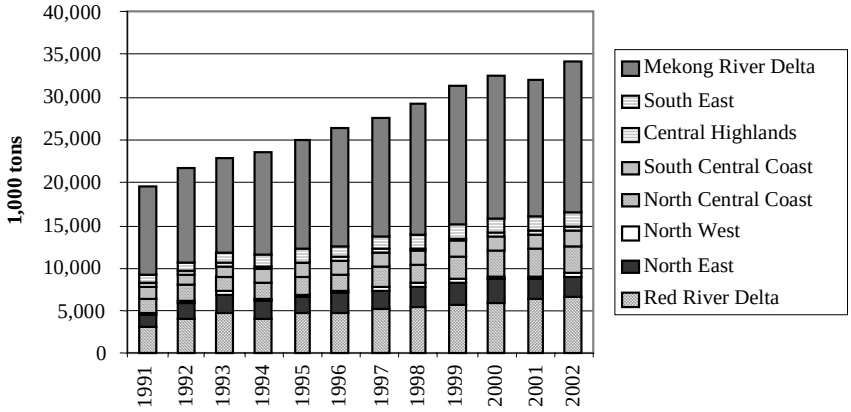
[4/] UNDP-MARD, 2002. Farmer needs study.

Figure 4.19 Changes in rice areas in the different regions of Viet Nam



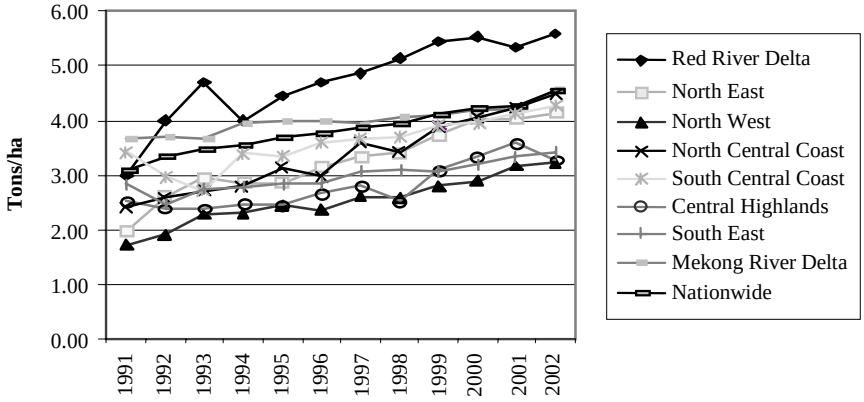
Source: GSO, 2003.

Figure 4.20 Changes in rice production in the different regions of Viet Nam



Source: GSO, 2003.

Figure 4.21 Changes in rice yield in the different regions of Viet Nam



Source: GSO, 2003.

Table 4.5 Imported hybrid rice seed and domestic seed production, 1998-2000

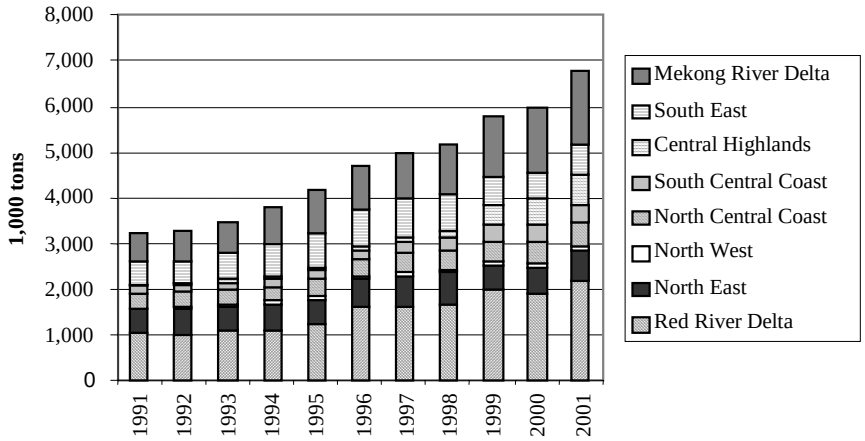
Year	Imported hybrid seed	Domestically produced hybrid seed	Total hybrid seed	Per cent domestic
1998	4 106	750	4 856	18
1999	8 157	773	8 930	9
2000	13 482	1 426	14 908	11
Total	25 745	2 949	28 694	11

Source: Nguyen Cong Thuat and Nguyen Khac Quynh, 2000, cited by Dao The Anh, 2004.

4.2.2 Vegetables

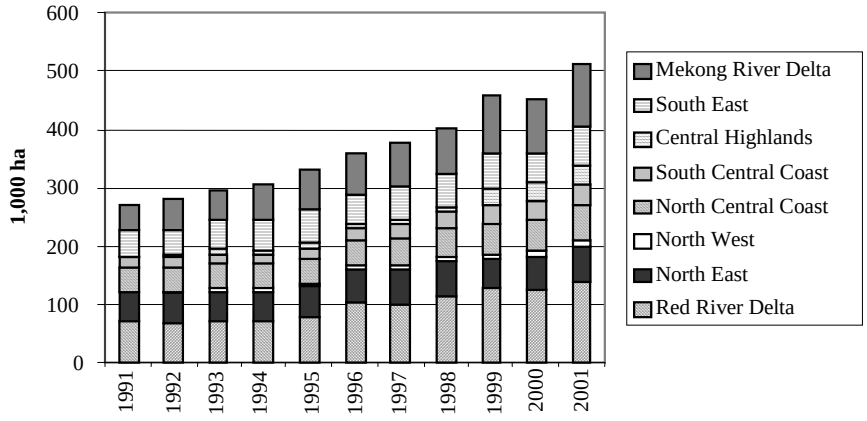
During the 1990s, vegetable production increased in tonnage by 7 per cent per year between 1991 and 1998, and consumption by 6 per cent from 1991 to 2000; the surplus was exported. The quantity was sufficient for consumption but the quality was poorly adapted to demand. Moreover, the supply was very seasonal. The farmed areas, which increased on average by 5 per cent per year, remain very modest and only cover 6 per cent of annual crops.

Figure 4.22 Vegetable production in different regions



Source: GSO, 2003.

Figure 4.23 Vegetable area in different regions



Source: GSO, 2003.

The production of vegetables varies according to the agro-ecological region and the possibilities for commercialization offered by the level of urbanization. With a tropical climate and cold monsoons, the Red River Delta has a markedly cold winter which is favourable for market gardening. In recent years, this region has diversified its crops and produced vegetables destined for the local market and for the south of the country. The yields here are the highest in Viet Nam. However, intensification goes hand in hand with increased use of chemical products, which pose health problems for consumers and producers alike.

The Mekong Delta has also seen its vegetable production rise, but for a range of diversified tropical vegetables and for production seasons different from those of the Red River Delta. The Red River Delta, which has the advantage of a winter season, can produce temperate vegetables for the whole country from November to April (cabbage, for example). The region of Da Lat in the Central Highlands which benefits from a temperate climate, produces temperate vegetables throughout the year for all regions of Viet Nam, and also for exportation to neighbouring countries.

Table 4.6 Rates of fertilizer and pesticide use, cultivated area of modern varieties and total irrigated area

Year	Quantity of fertilizer per hectare of agricultural land [a/] (kg/ha)	Rates of pesticide use for rice (1,000 dong/ha)	Areas using modern rice varieties [b/] (%)	Total irrigated land area (thousand ha)
1990	84		47.5	2 900
1991	130		52.1	2 900
1992	117		58.8	2 900
1993	105	119	63.2	3 000
1994	145		71.6	3 000
1995	133		76.2	3 000
1996	181		83.8	3 000
1997	191		87	3 000
1998	224	243	87.2	3 000
1999	242			3 000
2000			90	3 000
2001				3 000
Average annual growth rate (%)	9.46	15.35	6.60	2.62

Source: Dao The Anh and Hoang Vu Quang, 2004.

[a/] Data compiled by Dr. Nguyen Van Bo, MARD.
[b/] Modern rice varieties: coming from research institutes and importation.

4.3 Trends of perennial crop production

4.3.1 Fruits

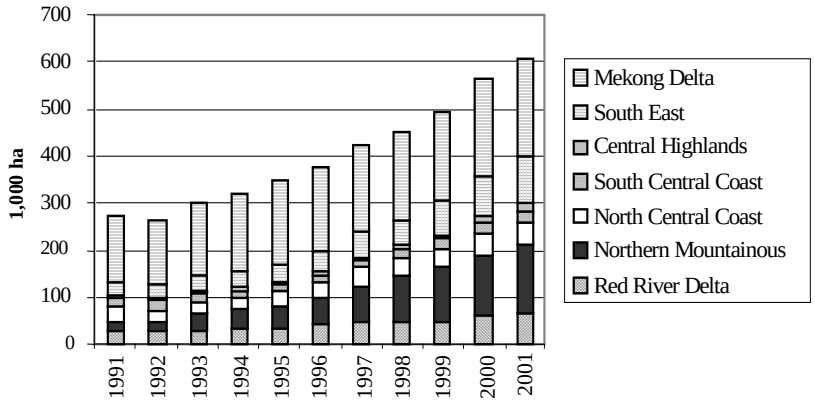
For ten years, fruit production in Viet Nam has witnessed significant changes in response to the new needs of the domestic market.

In the Red River Delta, fruit trees previously confined to family gardens, are planted in orchards. This change is, however, limited by the policies of maintenance and control of rice-farming areas with a view to guarante food security. In the North, the programmes for restoring graded slopes have often led to fruit plantations. In the Mekong Delta, the diversification strategies have, in particular, been oriented towards fruit production in large areas. During the 1990s, this accounted for half of the total area of fruit tree plantations in the entire country and now accounts for more than a third.

On the other hand, in the central coastal regions, the sandy soil and climatic conditions are unfavourable for fruit production and in the Central Highlands, coffee farming leaves little space for the development of fruit tree farming.

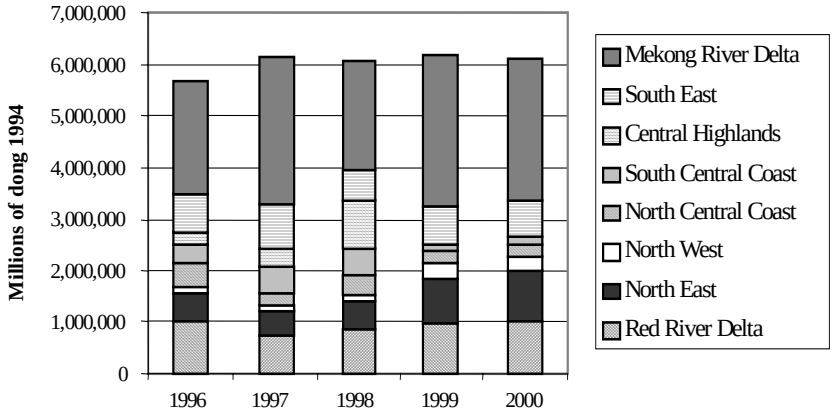
Among the fruit trees, the lychee and the longan have experienced spectacular growth since 1993: an average of 37 per cent per year. At present, these two species alone occupy 26 per cent of fruit tree land.

Figure 4.24 Changes in fruit areas in the different regions of Viet Nam



Source: GSO, 2003.

Figure 4.25 Changes in fruit production in the different regions of Viet Nam



Source: GSO, 2003.

4.3.2 Coffee and other perennial industrial crops

Over the past ten years, the cultivated area of perennial industrial crops such as rubber, coffee, cashew and tea has continuously increased. During the period of 1990-2000, pepper area rose by 13 per cent per year on average to 24.5 thousand hectares in 2000. Cashew area rose by 17.5 per cent per year on average to 191.8 thousand hectares over the same period. Coffee experienced the highest growth, at an average of 25 per cent per year during 1990-2000 to 561 thousand hectares in 2000. With such strong development, Viet Nam is now the top Robusta coffee and black pepper exporter in the world; the third largest rubber exporter and the seventh largest tea exporter.

Table 4.7 Area growth of some industrial crops

Crops	Area in 2000 (thousand ha)	Annual average growth		
		1990-1995	1996-2000	1990-2000
Pepper	24.5	-4.4	30.2	12.9
Coffee	561.9	19.1	30.8	25.0
Cashew	191.8	35.2[a]	6.8	17.5
Tea	89.5	2.2	6.2	4.2
Rubber	406.9	4.9	7.1	6.1

Source: GSO, 2001.
[a] 1992-1995.

Coffee is driven by exportation for the international market with very rapid growth; 22.3 per cent. From 1982 to 1988, the cultivated area of coffee was further expanded through investment and co-operation with former socialist countries. By 1994, the total coffee production area was 150,000 hectares, just 1.32 per cent of Viet Nam's total crop area. In the late 1990s, this area began to increase much more rapidly, by an average of 20.7 per cent per year, to 516.7 thousand hectares in 2000, making up 4.14 per cent of Viet Nam's total crop area, and making coffee the third most widely planted crop after rice (which accounts for 61.4 per cent of total crop land) and maize (5.7 per cent). Between 1980 and 2000, Vietnamese coffee production area increased 23 times while output increased more than 83 times.

Table 4.8 The coffee situation

Year	Area Planted (thousand ha)	Production (thousand tons)	Yield (tons/ha)
1991	114.3	100.0	0.88
1992	140	119.0	0.85
1993	150	136.0	0.91
1994	215	177.0	0.82
1995	186.4	218.0	1.17
1996	254.2	181.0	0.71
1997	340.4	392.0	1.15
1998	370.6	382.0	1.03
1999	477.7	482.0	1.01
2000	561.9	802.5	1.43
2001	565.1	840.6	1.49
2002	535.5	699.5	1.31
2003		771.2	
Average annual growth rate (%)	**15.50**	**22.26**	**5.86**

Source: GSO, 2003.

One of the main reasons for the rapid increase in coffee cultivation was the sudden price surge in the world coffee market, which brought increased benefits to coffee producers. The global coffee price increased considerably to US$ 1,873/ton in 1994 and then to US$ 2,411/ton in 1995, due mainly to a severe frost in 1994 that substantially cut the coffee production of Brazil, the world's biggest coffee producer. Viet Nam gained substantial export earnings at this time from coffee. Along with the increase in cultivation area, coffee became one of the most important export commodities of Viet Nam during the 1990s. Recently, its annual export value has ranged from US$ 400-600 million, providing between 6 and 10 per cent of national export revenues.

This rapid expansion of coffee production requires small-scale farmers in the Central Highlands to build strong capacity to modernize their way of coffee production to meet the growing demand. Some research in this field shows that poor farmers actually have a negative

impact on this process with prices decreasing in recent years. As world prices declined to their lowest ever levels in real terms in 2001, the impact of this on the mean price paid to Vietnamese coffee farmers in the immediate post-harvest period in each of the past four years can be seen in Table 4.9. [5/] They urgently need the support of the efficiency advisory service for agriculture.

Table 4.9 Derivation of the net margins of an experienced coffee farmer with mature trees, 1998-2001 (US$)

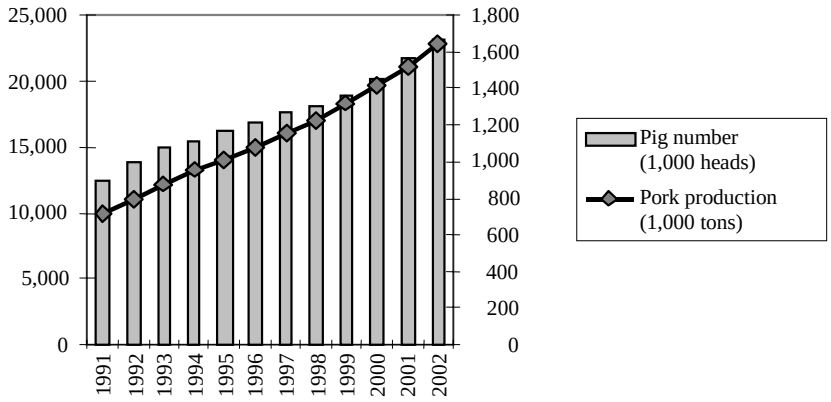
	1998	1999	2000	2001
Price per ton into processing plant	1 525	1 144	854	472
Cost of production per ton	500	500	500	500
Net margin per ton	1 025	644	354	-28
Net margin per hectare	3 280	2 061	1 133	-90

Sources: VINACAFE and Institute of Agricultural Economics, cited by Dao The Anh, 2004.

4.4 Trends of animal production

Livestock activities have seen a continual increase, notably with regard to swine and poultry breeding. From 1991 to 2000, the number of swine increased by 5 per cent per year and poultry by 5.7 per cent. This growth mainly concerns the large deltas and, to a lesser extent, the North East Mountains and the South East region. The change is also qualitative: the breeding of exotic lean swine is developing to satisfy the demand of local urban markets, especially in the Red River Delta.

Figure 4.26 Changes in swine production in Viet Nam, 1991-2002



Source: GSO, 2003.

4.4.1 Swine breeding

Swine breeding plays a major role in the animal husbandry sector of Viet Nam. In the last five years, pork production has accounted for an average of 76 per cent of the gross production of meat. Swine breeding is being vigorously developed in the Red River Delta, Mekong River Delta and the South East region. Over the past 10 years (1990-2002), the average growth rate of the swine herds in the Red River Delta and the South East region has been pretty high at 6.1 per cent and 9.4 per cent per year respectively. In 2002, the number of swine in the Red River Delta reached nearly 5.4 million, 24 per cent of the country's total. In the last six years (1997-2002), swine breeding in the Red River Delta has developed at a rate of 6.55 per

[5/] Citation of FAO, 2002.

cent per year, which is higher than that of the first half of the 1990s (5.65 per cent). In 2002, the Mekong Delta was home to 3.15 million swine making up 13 per cent of the country's total.

Swine breeding has recently begun to be developed in the North East and South East regions. Swine breeding households in the South East are large-scale industrialized and commercialized operations. Swine breeding in the North Central Coast and the South Central Coast has increased slightly recently at rates of 4.8 per cent and 4.3 per cent respectively.

Table 4.10 Number of swine in different areas of Viet Nam, 1990-2002

Region	Swine in 2002 (thousand)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	1 050.9	3.26	6.03	4.64
North East	4 917.9	5.08	5.44	5.26
Red River Delta	5 396.6	5.65	6.55	6.10
North Central Coast	3 569.9	4.61	5.00	4.81
South Central Coast	2 028.7	4.12	4.49	4.30
Central Highlands	951.0	6.93	5.22	6.08
South East	2 103.0	11.83	7.04	9.44
Mekong River Delta	3 151.5	6.75	3.71	5.23
Total	23 169.5	5.61	5.39	5.50

Source: GSO, 2003.

Due to the higher number of swine, pork production in Viet Nam has increased rapidly in recent years. From 1990 to 2002, pork production in Viet Nam grew at 7.2 per cent per year reaching 1.6 million tons in 2002.

The largest pork supplier is the Red River Delta. Pork production in 2002 was 436 thousand tons, accounting for 26.4 per cent of the total. Despite being home to 13 per cent of the total number of swine, the Mekong Delta accounts for 21 per cent of total pork production, with 349 thousand tons in 2002. This partly shows the higher rate of productivity and effectiveness that the Mekong Delta and the South East are enjoying. It is the result of applying modern technology and breeds in agricultural production.

Table 4.11 Pork production in different areas of Viet Nam, 1990-2002

Region	2002 (thousand tons)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	28.3	4.21	5.79	5.00
North East	257.6	6.08	7.90	6.99
Red River Delta	436.8	8.83	7.68	8.26
North Central Coast	188.8	6.34	4.95	5.65
South Central Coast	120.7	5.59	5.86	5.73
Central Highlands	51.1	6.99	8.27	3.63
South East	202.9	10.61	10.69	10.65
Mekong River Delta	349.3	5.86	7.07	6.47
Total	1 653.6	7.00	7.37	7.18

Source: GSO, 2003.

In swine breeding, the proportion of the sows tremendously affects pork production and the number of swine. In the past 10 years, the herds of sows have expanded well, with an average growth rate of 6.1 per cent per year. In 2000, there were 2.8 million sows in the country, making 14 per cent of the total number of swine. The Red River Delta has the highest ratio with more than 730 thousand heads in 2000, accounting for 26.3 per cent of the country's total, followed by the North East Mountains (550 thousand, 20 per cent) and the Mekong River Delta (400 thousand, 14.1 per cent).

Table 4.12 The growth rate of sows by region

Region	Sows in 2000	Annual growth rate (%)		
		1990-1995	1996-2002	1990-2002
North West	148 735	7.35	3.56	5.46
North East	557 448	7.35	4.33	5.84
Red River Delta	732 207	10.24	6.16	8.20
North Central Coast	357 555	6.86	1.46	4.16
South Central Coast	244 132	3.27	4.34	3.80
Central Highlands	144 431	2.31	5.00	3.65
South East	241 791	10.84	9.28	10.06
Mekong River Delta	391 909	9.83	6.25	8.04
Total	2 688 208	7.35	4.85	6.10

Source: MARD, 2003.

The South East experienced the largest growth. The annual figure for the past 10 years is 10.1 per cent, the highest in the country. The area supplies a large number of sows for other regions.

Swine breeding is an age-old industry in Viet Nam and hugely affects the income and employment of rural communities. Presently, the potential of swine breeding in the two mentioned deltas is tremendous.

In recent years, for husbandry, in the markets of big cities and for export demand, consumers are choosing to buy good quality, lean, hygienic products. Thus, farmers are more and more concerned about increasing the quality of breed and animal feed. The large households specialized in husbandry have begun to change from traditional animal raising to industrial raising to increase the quality of the products with low fat meat. The small households need to co-operate in order to produce commercial standard meat.

Table 4.13 Proportion of producers using exotic breeds (%)

Household type	Swine	Chicken
Small household	10	22
Large household	55	70

Source: IFPRI and MARD, 1999.

4.4.2 Poultry farming

The poultry farming industry (including chicken, ducks, geese) is important next to swine breeding. Backyard poultry raising is developing in many areas, including the plateau and mountainous areas.

Poultry farming is most developed in the Red River Delta and Mekong River Delta. The number of domestic fowls in the above two areas was 100 million in 2002, accounting for nearly 50 per cent of the total. The North East Mountains and the South East region have achieved well in recent years. During the period of 1990-2002, the growth rates of the two regions were 7.4 per cent and 9.34 per cent respectively. Despite the high growth rate during 1990-2002 (12.6 per cent per annum), the herd of domestic fowls in the Central Highlands is not well developed yet. It makes up only 2.6 per cent of the total figure.

Table 4.14 The amount of domestic fowls by region

Region	2002 (thousand)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	7 114	5.64	8.29	6.97
North East	47 334	8.02	6.76	7.39
Red River Delta	50 662	4.98	8.67	6.83
North Central Coast	29 786	7.46	7.76	7.61
South Central Coast	15 365	6.22	6.43	6.33
Central Highlands	6 256	7.05	18.22	12.63
South East	26 779	9.20	9.49	9.34
Mekong River Delta	49 991	3.90	5.68	4.79
Total	233 287	5.96	7.50	6.73

Source: GSO, 2003.

The main outputs of poultry farming are eggs and especially meat. Due to the large increase in the number of heads, the Red River Delta and the Mekong River Delta produce the largest amount of poultry meat. In 2002, poultry meat production in the Red River Delta and Mekong River Delta were 81.5 and 92.2 thousand tons respectively, accounting for 21 per cent and 22 per cent of the total amount of the country. Like swine breeding, besides the two aforemention deltas, the North East Mountains and the South East region also have the potential to promote poultry farming. The herd of domestic fowls in the Central Highlands and the North Central Coast is increasingly developing.

Table 4.15 The amount of domestic fowl in different areas

Region	2002 (thousand tons)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	5.2	8.66	1.84	5.25
North East	58.7	9.88	7.97	8.93
Red River Delta	81.5	10.19	7.67	8.93
North Central Coast	31.3	9.74	7.37	8.56
South Central Coast	16.5	2.07	10.18	6.13
Central Highlands	6.9	13.92	14.56	14.24
South East	46.4	3.47	14.45	8.96
Mekong River Delta	92.0	3.08	6.95	5.01
Total	338.4	5.9	8.0	6.9

Source: GSO, 2003.

Within poultry farming, chicken is the major product both in terms of number of heads and amount of meat produced. Chicken accounts for 76 per cent of total domestic fowl and meat production. The rest is mainly duck. Duck breeding is well developed in the Mekong River Delta. Duck production in the Mekong River Delta makes up 56 per cent of the total. Whereas that in the Red River Delta accounts for only 10 per cent.

Recently, the backyard method of raising chickens has drawn attention, especially in the highland and mountainous areas. It is a policy which can raise peasant's income and is a good solution for hunger elimination and poverty reduction, helping the farmers enhance their income and living standards. There are many projects to increase the number of chickens, especially in mountainous areas.

4.4.3 Beef breeding

The beef breeding industry is not yet well developed in Viet Nam. The country had over 4 million heads in 2002, of which 1.5 million are plow bulls. Beef production accounts for only 5 per cent of total meat production. Beef breeding is quite well developed in the central provinces, where swine breeding and poultry farming are underdeveloped. The North Central

and the South Central coastal regions possess the largest amounts of livestock with 855,000 and 793,000 respectively in 2002.

Table 4.16 Growth rate of beef in Viet Nam, 1990-2002

Region	2002 (thousand heads)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	182.0	1.82	4.84	3.33
North East	695.9	4.88	3.53	4.20
Red River Delta	350.0	3.09	1.84	2.46
North Central Coast	855.9	4.89	0.07	2.48
South Central Coast	793.6	3.69	-1.77	0.96
Central Highlands	391.0	6.20	-1.41	2.39
South East	516.3	2.95	2.49	2.72
Mekong River Delta	278.3	-8.17	10.93	1.38
Total	4 062.9	3.37	1.17	2.27

Source: GSO, 2003.

Demand for beef in Viet Nam is pretty high and will continue to grow over the next few years, especially in big cities. With production at 92.2 thousand tons, domestic producers only partly satisfy domestic demand.

Major beef suppliers are: the South Central Coast (25 thousand tons) and the South East (18.7 thousand tons). The North East and the North Central Coast supply a modest amount of beef: 10.2 and 13.6 thousand tons respectively, due to a large ratio of plow bulls (more than 50 per cent of the total number of heads).

Table 4.17 Growth rate of live beef in Viet Nam, 1990-2002

Region	2002 (thousand tons)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	5.2	11.83	3.41	7.62
North East	10.2	2.43	10.55	6.49
Red River Delta	9.1	29.81	7.79	18.80
North Central Coast	13.6	3.47	7.47	5.47
South Central Coast	25.9	1.13	11.15	6.14
Central Highlands	11.7	4.29	7.37	5.83
South East	18.7	15.70	2.78	9.24
Mekong River Delta	8.0	-4.51	6.11	0.80
Total	102.45	4.72	6.63	5.67

Source: GSO, 2003.

Besides supplying a large amount of beef for domestic consumption, the South East is also a major milk supplier. The South East in 1999 had 25,555 dairy cows (of which Ho Chi Minh City has 21,894), accounting for 86 per cent of the total bovine population. Milk production in the area in 1999 was 34,075 tons, accounting for 86 per cent of the total. Recently Viet Nam expanded this industry into many provinces like Binh Duong, Dong Nai, Hanoi and Son La.

4.4.4 Buffalo breeding

Buffaloes are used mainly for plowing in Viet Nam. In 2002, there were 2.8 million buffaloes in the country, of which plow buffaloes accounted for nearly 2 million or 70 per cent. In line with agricultural mechanization, buffalo breeding is dramatically slowing down in some areas like the Red River Delta, the Mekong River Delta, and the South East. During 1990-2002,

the number of buffalo in the Mekong River Delta reduced by 15 per cent annually, with only 37,000 heads remaining in 2002.

In some highland and mountainous areas, the buffalo breeding industry is still developing at a low rate, owing to the need for plow power and buffalo meat. Over the past 10 years, the number of buffaloes in the North West and Central Highlands provinces has increased by 3.6 per cent and 1.28 per cent respectively.

Table 4.18 Growth rates of buffalo in Viet Nam, 1990-2002

Region	2002 (thousand heads)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	390.4	4.48	2.84	3.66
North East	1 267.8	2.46	-0.20	1.13
Red River Delta	125.8	-4.23	-8.33	-6.28
North Central Coast	689.4	2.63	0.62	1.63
South Central Coast	129.9	0.12	0.75	0.44
Central Highlands	47.6	2.63	-0.07	1.28
South East	126.4	-0,84	-5.43	-3.13
Mekong River Delta	37.3	-14.59	-16.17	-15.38
Total	2 814.4	0.58	-0.79	-0.11

Source: GSO, 2003.

During 1990-2002, the production growth of buffalo meat slowed. In some areas such as the North West and Central Highlands, the production of buffalo meat is still increasing; by 5.97 per cent and 17.4 per cent annually respectively.

Table 4.19 Growth rates of buffalo meat in Viet Nam, 1990-2002

Region	2002 (thousand tons)	Annual growth rate (%)		
		1990-1996	1997-2002	1990-2002
North West	5.2	6.54	5.41	5.97
North East	19.1	5.40	2.16	3.78
Red River Delta	4.1	10.14	-0.17	4.99
North Central Coast	8.8	3.85	3.38	3.61
South Central Coast	2.0	5.31	2.76	4.03
Central Highlands	2.3	16.53	18.24	17.38
South East	8.7	5.33	6.37	5.85
Mekong River Delta	1.5	-8.1	-13.51	-10.82
Total	51.8	3.0	1.0	2.0

Source: GSO, 2003.

Following the development of poultry farming, beef breeding and swine breeding, the demand for buffalo meat will have a tendency to increase over the coming period. Buffalo breeding will continue in the highland and mountainous areas.

4.5 Cropping patterns of CGPRT and non-CGPRT crops by region

The following crops/species tend to be the most suitable for the promotion of farm diversification taking into account respective localities.

1) *Red River Delta* has 1.48 million hectares of natural land of which 721 thousand hectares are agricultural land, 50 thousand hectares are forest and 41 thousand hectares has the potential for agricultural use. Potential water bodies for aquaculture amount to 185,288 hectares. In addition, about 39,776 hectares in the Gulf of Tonkin could be used for marine aquaculture. Small ponds and lowland rice fields are used for aquaculture in association with cage fish culture in the rivers. Shrimp farming on the coast of the region has recently begun, but is

expanding very fast. In the region, agriculture is characterized by the relatively small size of farms with an average per household labour force. Rice is the dominant crop with two growing seasons. Due to land limitations it is difficult to generate sufficient farm income relying on rice alone. Most farmers in the region, therefore, have to introduce annual industrial crops, vegetables, fruits, livestock and aquaculture. Typical farm crop/enterprise combinations are:

Double cropping of rice;
Rice + two vegetables (or soybean);
Double cropping of rice + winter crop (maize, soybean, peanut, sweet potato or vegetables);
Four vegetables; and
Single cropping of rice + aquaculture.

2) *Mekong River Delta* covers a total area of 3,960,000 hectares. Potential water bodies for aquaculture amount to 963,700 hectares. The climatic and soil conditions are favourable for farming, especially for rice cropping, and the farm size in terms of land as well as labour force is relatively large compared to those in other regions. However the excessive expansion of double rice cropping per year has led to a deterioration in soil fertility and more pollution due to heavy chemical use. This region is ranked number one in the country not only in terms of cultured area but also the production of both fresh water and brackish water aquaculture. The farming systems found are:

Rice + fish;
Double cropping of rice + fresh water prawns + fruit trees;
Double cropping of rice + marble goby fruit trees; and
Rice + brackish water shrimp

3) *Central Highlands* covers a total area of 5,440,000 hectares of which 570 thousand hectares are under crop cultivation, 1.7 million hectares are forest, and 980 thousand hectares have the potential to be cultivated. Potential water bodies for aquaculture amount 34,186 hectares. Perennial industrial crops such as coffee and rubber are dominant and most profitable in the area. However, to maintain soil fertility and to create job opportunities during the off season, livestock could be introduced and annual crops should be combined with coffee and rubber growing as intercrops. Culturing fish in reservoirs, small lakes and ponds is also observed. With regard to annual crops some typical cropping patterns are:

Double cropping of rice;
Rice + two upland crops (soybean, maize);
Three upland crops; and
Monoculture of upland crops (soybean, maize, cassava).

4) *North Mountains and the Midlands* consists of 10.1 million hectares of hilly and mountainous areas of which 1.3 million hectares are agricultural land, 2 million hectares are forest and there is still a potential of 1.28 million hectares for agriculture use. Quang Ninh is the only coastal province which has good conditions for cage culture of marine fish up to 3,300 hectares. In this region, the farming systems vary according to the gradient of the hills. Perennial fruit trees (lychee, longan, apricot, plump, peach, cinnamon, apple) and industrial crops are commonly found on the slopping lands. In the Midlands, double and triple cropping patterns with annual crops (rice, peanut, soybean, maize, potato, vegetables) are widely practiced. Culturing fish in reservoirs, small lakes, ponds and lowland rice fields is also common. Some typical cropping patterns are:

Perennial industrial crop (tea, cinnamon, coffee), fruit tree;
Spring upland crops (peanut, soybean) + summer rice;
Monoculture of upland crops (upland rice, soybean, maize, cassava, peanut);
Spring rice + summer rice (on irrigated land); and
Rice + two upland crops (beans, maize, cassava, peanut).

5) *North Central Coast* has a total area of 5.1 million hectares. This region is the wettest part of Viet Nam with annual rainfall between 2000 and 2900 mm and 80 per cent of its area is hilly or mountainous. The summer is very hot and the area is prone to typhoons between early May and August. Cropping patterns are as follows:

Perennial crops: wood tree, coconut, fiber-producing plants (coastal sandy soil);
Spring rice + summer rice (on irrigated lowland);
Spring peanut + early summer rice + winter vegetables (rainfed lowland);
Spring peanut + summer sesame + winter maize (rainfed lowland); and
Two tree upland crops per year (spring peanut, summer sesame, sweet potato, maize, vegetables).

6) *South Central Coast* covers 4.42 million hectares of which 550,000 hectares are agricultural land and 1,700,000 hectares are forest. This is the driest part of Viet Nam with annual rainfall between 700 and 1,550 mm. The region has a long dry period of 6-7 months and is prone to typhoons. Potential water bodies for aquaculture amount to 61.4 thousand hectares, with many natural and hydroelectric reservoirs. Cropping patterns include:

Two rice crops (spring rice and autumn rice);
Spring rice – upland crops (soybean, peanut, sweet potato);
Tree upland crops (peanut – mungbean- sweet potato);
Monoculture of upland crops (cassava, sugarcane, upland rice); and
Four vegetable crops.

7) The *South East* covers a total area of 2,340,000 hectares of which 0.9 million hectares are agricultural land, 0.53 million hectares are forest and a potential of 200 thousand hectares for agricultural use. Potential water bodies for aquaculture amount to 97,433 hectares (5.82 per cent of the total potential water bodies for aquaculture in Viet Nam). Reservoirs, small lakes and ponds are used for aquaculture in freshwater areas while it is common on the coast to practise shrimp culture. In 2002, about 24.7 per cent of these potential water bodies were used for aquaculture. Cropping patterns include:

Double cropping of rice;
Rice + two upland crops (soybean, maize); and
Monoculture of upland crops (soybean, maize, cassava).

4.6 Trends in marketing of CGPRT crops

4.6.1 Maize marketing channel in Son La province

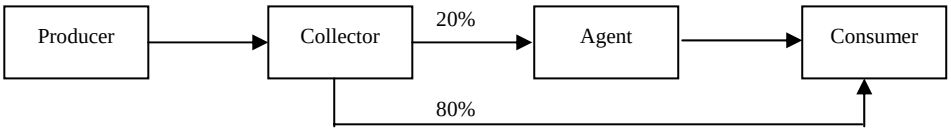
The maize commodity chain has developed since 1995, promoting and building a large consumption network in relation with the agricultural structure transition process. During this process, livestock farmers have increased the amount of feed purchased from the market and decreased the amount produced in their own fields. The development of hybrid maize seeds and feeding technologies which prefer concentrate feed to forage is also a driving factor for the expansion of the maize market.

4.6.2 The circulation of maize in the market

This is an interchange of products from producer to breeder aimed at meeting market demand. The actors acknowledge the demand which forms the standard on quality, quantity and the mode of exchange during production, distribution and consumption.

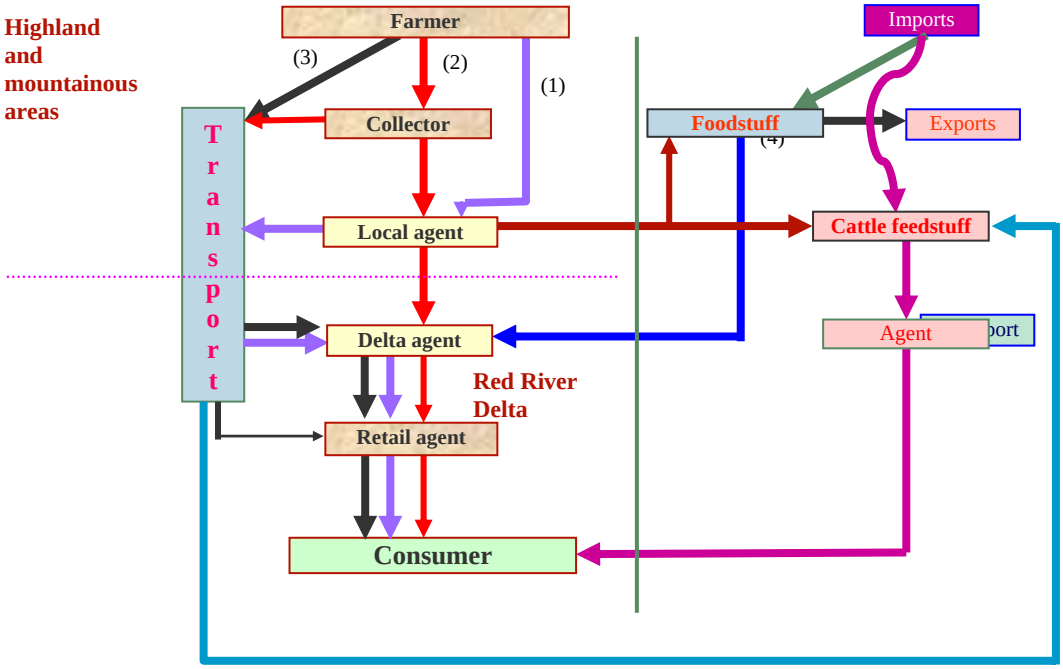
Maize, which is planted in the Red River Delta satisfies only 50 per cent of the demand but the exchange process of local maize still regulates the breeders in the neighbourhood.

Figure 4.27 The interchange of produce in RRD



However, the maize exchange process to serve breeding is mainly in other regions, especially in the North West. Maize in the North East is also developing but now mainly focuses on breeding demand in the region, a small part (10 per cent of the output) goes to cattle feedstuff companies.

Figure 4.28 The circulation of maize to the RRD



Users

Quantity, quality, kind of product and mode of payment are important elements for users to establish relations with agents. The breeders in the Red River Delta often appreciate the domestic maize quality, especially the maize from Son La. Their demand is the monthly stable quantity and quality of the product during the year.

Retailers

Retailers often relate to big agents in the delta being on time with commodity resources. These actors always have a variety of products to sell, and its market often serves small-scale breeders. The main selling product is maize flour. On average, they sell from 8 to 10 tons per month for the main crop, and from 3 to 5 tons per month otherwise.

Red River Delta wholesaler

The Red River Delta wholesalers are always stable commodity providers to the locals. They usually have relationships with three to seven carriers, and five to seven local agents at the regions such as Hoa Binh, Son La, Thanh Hoa, Nghe An, Hai Phong. These agents are concentrated providing maize resources for the delta. The quantity sold during the peak season is from 50 to 300 tons per month and during the off season from 5 to 60 tons per month. They also sell to breeders and small stable agents. However, they often sell on credit to the breeders and small agents. The large agents pay much attention to providing goods on time. They can go to other provinces to directly trade and buy products. They have difficulties in finding good providers at times when the product is insufficient.

Carriers

Carriers are people who have a means of transport (lorry). They usually have seasonal activities. They create relationships with 15 to 20 agents in the delta, retail agents, who have stable resources from five to ten local agents and collectors. Besides, they also establish relationships with the cattle feedstuff industry. The carriers are unique actors who directly pay trading partners in the commodity chain.

Local wholesaler

The quality and quantity of the product are not important elements when creating relationships between agents and producers. This relation depends on trading production materials. Local agents have seasonal commercial activities for maize. They directly buy farmers' products in the villages and also create themselves a network of collectors of about three to five people. The agents often dry the products for the market. An agent, on average, sells about 1,000 to 1,500 tons per year of maize and has about seven to ten seasonal labourers per day specializing in drying maize seed. Some agents are provided drier machines by cattle feedstuff companies in order to increase product resources. These agents play an important role in regulating the quantity sold in the market and determining the selling price.

Collectors

Collectors are people in the local neighbourhoods. They clearly understand the situation of production in the region. There are two ways of collection: fixed collecting and mobile collection. Fixed collection means that collectors work at their place of residence. They provide rice and materials for farmers and collect and buy maize in season. Each person on average can collect from 70 to 100 tons per year. Mobile collection applies to collectors who have a means of transport. They can go far to collect and can collect from 500 to 700 tons per year.

Farmers

The delta farmers plant winter maize on wetland, mainly mixed crops. The output doesn't meet the animal husbandry demand of farming households. Producers in the highlands and mountainous areas normally plant on the slopes. Maize is single planted. Returns from maize make up 85 per cent - 95 per cent of the income of the households. The results of the survey show that 98 per cent of households in the highlands and mountainous areas don't know where their product will be sold. They have no ability to select seeds or decide the selling price.

Currently, farmers are faced with soil erosion, being forced to accept prices because they aren't active about capital and fertilizer.

Feed companies

Feed companies play an important role as importers of maize for the domestic market. They are also the biggest maize store actors in the commodity chain. These companies have the facilities to store maize. However, the storage of maize is limited by the size of the storehouse and capital.

Feed processing companies are important actors in determining the price of maize in the market. The buying maize price of these companies as well as the selling price of processed products influences the price of maize on the market. CP and Proconco are two companies buying great quantities of maize from the North West.

Actors	Difficulties	Implemented Solutions
Users	• Maize price is high and unstable • Occasional shortage of maize supply	• Using industrial foods when the price of maize is high or there is a lack of maize
Retail agents	• Unstable demand • Not enough capital	• Buying from delta agencies
Delta agents	• Supplying resources for shortage months • Capital and place for storage	• Directly and continuous transaction with local agents • Searching for new buyers
Carrier	• High cost due to police corruption	
Local agencies	• Capital for trade and investment • Maize resource from farmers	• Contract with farmers to secure maize supply
Collectors	• Difficult traffic conditions • Insufficient capital	• Contract with farmers to secure maize supply
Producers	• Difficult traffic conditions in remote areas • Soil and environmental problems	

4.6.3 Relationships between actors

Actors who join the commodity chain (from producers to consumers) closely connect with each other through the production, trading and consumption processes. The relationship between the delta agents and the local agents is an important element of each goods channel. It is the central junction between production and the market. Our survey shows that where the delta agents and local agents are, commercialization develops rapidly and breeding and production both develop too.

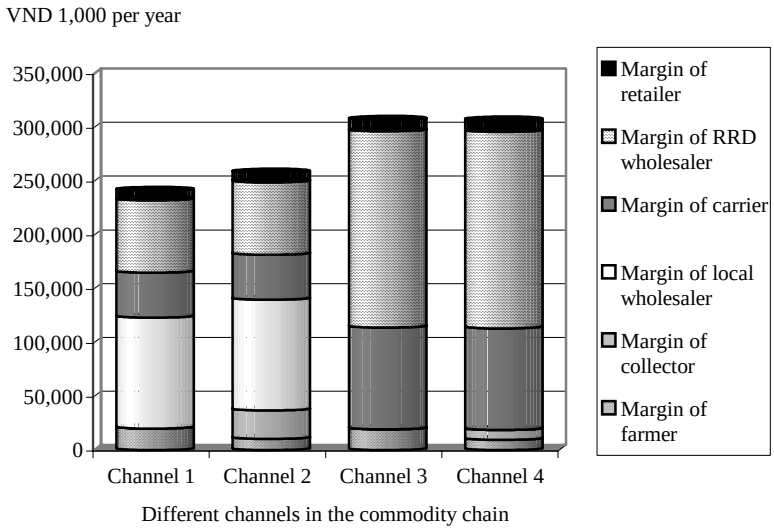
4.6.4 Economic results of different actors including farmers

The maize commodity chain in Son La is composed of five marketing channels in three communes: next to road (commune 1), middle (commune 2) and far (commune 3),

- Channel 1 and channel 3: Marketing channel of commune 1.
- Channel 2 and channel 4: Marketing channel of communes 2 and 3.
- Channel 1 and channel 2: Channel of maize dried by machine.
- Channel 3 and channel 4: Channel of maize dried in the sun.

Figure 4.29 shows the scale of activities which directly affect the income of each actor in each marketing channel. The delta wholesalers have the highest income, about 67-183 million dong per year, 6.4 to 20 times higher than the farmers' income.

Figure 4.29 Profit allocation of the maize commodity chain between actors



Source: ASD survey, 2003.

Figure 4.29 also shows the difference between the two kinds of product: sun dried maize and machine dried maize in the same market and the difference between places in the same region; the more favourable infrastructure condition a region has, the higher the income its farmer receive. This is the case of channel 1 and channel 3. Analyses show the important role of delta agents and local agents in the commodity chain; they have the ability to determine the price of the commodity (buying bulk quantities and having a large collection network). Delta agents are exposed to high risks when buying maize dried in the sun; if they don't sell it quickly the maize becomes mouldy.

4.6.5 Efficiency of the maize market and commodity chain

1. Advantages

- Under the current strategy of animal husbandry development, the market has much potential.
- The consumption network has developed widely and the quality of domestic maize can compete with imported maize.
- Producers receive high income from planting maize, commodity chain actors have relative ties that create many diversified and stable networks.

2. Weaknesses

- Not enough maize supplied to the Red River Delta when the maize in the North West is not harvested.
- Production price is high, reserve system is not enough to apply market demand.
- Farmers are faced with deteriorating soil quality.

3. Prospect of the commodity chain

- The maize commodity chain is facing challenges of quantity and quality as well as the production price to benefit from the demand from animal husbandry.
- Breeders and delta agents have stable connections for quantity and quality, improving the stability of their production activities.
- Intensive maize issues with conserving the soil and environment.

4.7 Concluding summary: factors affecting the marketing of CGPRT crops

- The appearance of maize trading is accompanied by the development of breeding.
- The internal market is large and there is a lot of potential left to be exploited. Analyses show that the maize market is promoting the development of production in rural areas, especially in highland and mountainous areas.
- Suitable state policies promote the development of production and husbandry and that of the maize commodity chain. The development of market mechanisms and increased investment in infrastructure provides favourable conditions for the appearance and development of new market institutions. However, state institutions have been imperfect, lacking close relations among commodity chains creating joint co-ordination among commodity chains which creates difficulties for producers, especially ethnic people, and unfair competition among actors within the commodity chain.
- At present, the government protects internal production by imposing import tax. As well as creating activity for merchants, they also act as intermediary between producers and consumers. Nevertheless, in order to integrate with the economy, when the mechanism changes to suit a new situation, actors need to be more active, especially producers.

In the future, the following problems have to be solved within the maize commodity chain:

- Planning production, building specialized production areas as well as having institutions that can reduce the deterioration of the environment.
- The government must have more concrete policies to help the agents of the commodity chain perform, especially helping farmers be more active in production to reduce production costs, enhancing their competitive ability to produce, and developing multi-crop systems to provide solutions to the shortage of crops in the market.
- Researchers need to help agents join together to receive information, for example, by setting up join relations among farmers to support one another in production, among agents and producers, and among agents and consumers.
- The government and related organizations need to research and analyse more thoroughly, not only within the region but also nationwide and also establish a model to assist actors and researchers when formulating strategies.

5. Overview of Agricultural Diversification Related Policies in Viet Nam

The main agricultural and trade policies from 1988 to 2001

April 1988
Recognition of family-based agricultural farms as autonomous agricultural units; allocation of agricultural land to family farms for a duration of up to fifteen years; orientation of agricultural co-operatives towards the service to farmers (supply of inputs and sale of products); increase of transfers to the agricultural sector: 6 per cent of national GDP before 1988, rose to 8 per cent in 1988 and reached 10 per cent in 1995 (Resolution No. 10).

May 1989
Price liberalization; abolition of subsidies for consumption and ration cards (Decision 150-CT).

June 1991
First credits destined for family farms (Directive 202).

March 1993
Credit policy for family farms (Directive 14-CP).
Implementation of a state system of agricultural extension (Directive 13-CP).
Creation of regulatory funds to stabilize the prices of rice and sugar.

June 1993
New series of reforms to improve the socio-economic environment of agricultural exploitation. The Land Law: liberalization of the land market (Decree 64/CP, 27/09/1993); allocation of agricultural land to family farms for between twenty and fifty years depending on the land, although the land remains the property of the state; as well as the rights of use, creation of new rights: transfer, sale and rental of user rights, mortgage, inheritance, compensation in the event of requisition. Continued reform of the agricultural credit system: increase in the VBARD budget; creation of a Bank for the Poor to facilitate access to credit for the least well-off peasants. Promotion of average and large-sized farms.

March 1996
Strengthening co-operatives in the different economic sectors; new co-operative model: commercial "co-operative financial shares", the shares of which must be financed by membership fees.

March 1997
Liberalization of the domestic circulation of rice: abolition of controls and transport licences; increase in export quotas to 3.5 million tons (Decree 140/TTg of the government); export taxes of 1 per cent for quality rice and 0 per cent for rice with more than 25 per cent fragments from 1998 (CIE, 1998). For the year 1997, taxes vary from 1 per cent to 3 per cent depending upon the quality of the rice.

May 1997
Decentralization to heads of provincial committees (local administrative authorities) of responsibility for monitoring and controlling the granting of loans for rice purchases for exportation.

January 1998
Measures to encourage the private sector to export rice: increase in export quotas (4 million tons), (Decision 12/TTg). Start of the liberalization of the fertilizer market: authorization to import for private companies with quotas.

November 1998
Government subsidize loans to buy stock rice for exportation.

December 1998
Establishment of a minimum price for rice (50/1998/QD-TTg). Use of price regulation funds to subsidize interest for the purchase of 1 million tons of rice if prices are low to create an export stock over two months.
Export quota increased to 4.5 million tons.

March 1999
Purchase of temporary stock increased from 1.5 to 1.8 million tons of rice over four months instead of 2 (Letter 275/CP-KT KH).

September 1999
Creation of export support fund (Decision of Prime Minister 195/1999/QD-TTg).

December 1999
Fertilizer import quotas lifted (Decision 242/1999/QD-TTg); commercialization primarily undertaken by private traders. Allocations of rice export quotas to non-state-controlled companies: five private companies and four joint ventures (Decision 273/1999/QD-TTg); authorization for foreign export companies to buy rice from the peasants directly. Authorization for loans of up to 10 million dongs of short-term credit, with the land deed as a guarantee (Decision of the Prime Minister).

2000
Development of the market and improvements in the quality and competitiveness of agricultural products by decisions and decrees concerning land, credit and products other than rice (Resolution of the Party).

March 2001
Total liberalization of rice exports: export quotas and taxes rescinded (Decision 223/QD-TTg).

May 2001
Total liberalization of input imports: abolition of all fertilizer import quotas and control of the management of importing companies.

Policy environment

Since the 1980s, the Government of Viet Nam has been managing the transition from a relatively closed, centrally planned economy towards one which is market-oriented with reasonable state interventions. The country is open to the world economy and market forces are gradually taking an essential role in directing resource flows within the economy.

Agricultural reform is a starting point of this renovation process. It is also important to note that the structural adjustment and diversification in agriculture under the reform framework are seen as two of the most important measures for increasing income and the living standards of rural inhabitants. A series of policy-induced successes allowed the agricultural sector to strengthen its position in the overall economy, both in terms of foreign exchange earnings and GDP contribution. Recognizing the important role of agriculture, the government affirmed that

rural development should follow the direction of "promoting a rural diversified market-based economy making full use of the relative advantages of each region within the country and being in line with the steps of the country's industrialization and modernization".

The first reforms during 1981-1988

The overwhelming concern of the policy-induced economic downturn in 1979 already began to call for changes in economic regime. However, the first steps of the reform were not implemented until January 1981.

Instruction No. 100 promulgated by the Central Committee of VCP in 1981 formed a contract system giving more control to farmers in production activities. According to the "product contract" system, the role of an agricultural co-operative is limited to providing services such as preparing land and providing water, seeds, fertilizers and pesticides. The farmer is contracted to deliver a given quota of rice to the co-operative, and can keep the surplus above the quota and sell it at the free market. The contracts were set to be valid for five years. Under Instruction No.100, however, farmers still could not make production decisions, they were still workers "hired" by the co-operative.

It is notable that the most crucial step of the early reform stage was the introduction of *Resolution No. 10* by the Central Committee of VCP in April 1988. This regulation defined farming households as autonomous economic units in rural areas, ending the monopoly position of the collectives. Farmers now were allowed to make their own decisions concerning production in response to market demand. Agricultural diversification, thus, was able to develop in a more favourable environment.

The reform process reached its peak in 1989 along with a series of radical changes that swept away most of the remnants of the central planning system, creating an environment for a market-oriented economy. Controls such as urban rationing, administered prices, state procurement and public monopoly in the domestic market were abolished. As a result, the marketing and domestic trade of agricultural products is now mainly in the hands of the private sector, with an estimated share of approximately 60-80 per cent of marketed products.

Resolution No. 5 approved at the Seventh Party Congress in 1993 moved further in the direction of rural development and recognized the long-term land use rights for farming households including the right to exchange, transfer, lease, inherit and mortgage. These rights promoted farmers' efforts to invest in land reclamation and land improvement in order to multiply seasonal crops.

5.1 Public policies on CGPRT crop and other food crop production

5.1.1 Land policy

Over the last two decades, land policy in Viet Nam has shown a steady shift towards the granting to households more and more flexibility in the use and exchange of land. Before 1988, almost all agricultural land was allocated to co-operatives and state farms. Resolution No. 10 of the Central Party Committee (promulgated in 1988) established the basic conditions under which farm households were allowed to have long-term land-use rights to agricultural land with the period of tenure varying according to the type of crop. It gave farmers the right to receive land-use rights on a long-term basis, but did not recognize the right to transfer, mortgage or inherit these rights.

The Land Law of 1993 went further to recognize the "five rights" of land use: exchange, transfer, leasing, inheritance and mortgage. It also recognized the concept of land value to be used as a basis for land taxation and compensation when land is taken by the state for public use. Land use certificates would be 20 years for annual crops and 50 years for perennial crops. The Land Law of 1993 also specified that a ceiling of 2 hectares for annual crop land in the

North Plains and 3 hectares in the South Plains. Since the approval of new land laws in 1993, the majority of land used for food crops was registered with land user certificates. In upland areas, however, forestry SOEs still retain legal control over large areas of degraded land, which are used for crop production by many poor families.

The 1998 Amendment to the Land Law introduced flexibility in the implementation of the land ceilings, depending on local conditions. In addition, farmers were allowed to rent land in excess of local limits, and individuals and organizations were allowed to rent land for non-agricultural investment purposes.

Recently, Resolution Three issued on 2 February 2000 recognized the concept of large-scale commercial farms, *trang trai,* and announced the government's intention to promote and support these farms. The resolution, however, did not provide a definition of commercial farms, nor did it detail the types of support that the government would provide.

After ten years of stable food security, the governmental decision in June 2000 to reduce the amount of land for rice cultivation for other crops also stimulated diversification. Since June 2000 to the present day, rice area has reduced by 217,000 hectares (MARD, 2004).

5.1.2 Agricultural tax and subsidies

Farmers have to pay some agricultural tax for the land allocated. The state has promulgated the Law on Agricultural Tax with a collection level applied at 7 per cent of output (lower than before at 10 per cent). Such a tax encourages the efficient use of agricultural land and ensures equity between land users. Due to the loss of agricultural outputs caused by natural disasters, the agricultural tax could be reduced or exempted. In general, farmers may receive some subsidies for seeds and other inputs (fertilizers, pesticides, etc.) if they use new varieties and apply new production technologies.

Rural credit and financial services: Currently, the major agents involved in the formal rural credit system are the Viet Nam Bank for Agriculture and Rural Development (VBARD), Bank for the Poor (VBP), and the Peoples' Credit Fund (PCF). However, in remote and mountainous areas farmers find it difficult to access the formal credit system. Moreover, it is argued that both VBARD and PCF seem to be prone to only help the better-off farm households. There seems to be no linkage between rural credit and the government's monetary policy, and the informal market appears to be more efficient than the formal one.

5.1.3 State extension

According to Decree No. 13/CP (1993), the agricultural extension system consists of two forms: public and voluntary agricultural extension. The public agricultural extension system seems to be well organized from the central to local level. At the national level, the Extension Department of the Ministry of Agriculture and Rural Development (MARD) is responsible for co-ordinating all the extension activities throughout the country. Each province has an Extension Centre that belongs to the Provincial Department of Agriculture and Rural Department. At a district level, there are Agricultural Extension Stations and local extension officers. Voluntary agricultural extension organizations can be research institutions, universities or other organizations or individuals that are voluntarily involved in agricultural extension activities. Agricultural extension services are tied to a particular programme, usually associated with the transfer of improved technologies to farmers. For the past five years, the government has allocated available funds for agricultural extension services and programmes that are usually associated with a new variety package (e.g., hybrids of rice, corn, cotton, sugarcane) or special production techniques (changing cropping pattern, integrated pest and nutrient management). This fund was distributed to the different agricultural extension organizations to cover the salaries of the extension staff, administrative costs and some important national extension programmes. These organizations selected pilot sites, organized the training of selected farmers for introducing a new variety package or new production techniques and supported them with

new seeds, fertilizers, pesticides, etc. and organized field visits. Normally, farmers do not have to pay anything for the extension services. Many pilot production sites have witnessed positive results. Despite some major achievements, the agricultural extension service still faces constraints such as budget deficits and poor management capacity.

Key government extension programmes

Over the past ten years, the government has approved 19 agricultural extension programmes, eight forestry extension programmes and five fishery extension programmes; these are key programmes and have received VND 340 billion from the state budget. In the localities, peoples' committees have ratified hundreds of programmes totalling about VND 70 billion. Thus, the government and the localities together have invested approximately VND 1,000 billion for extension activities, an average of VND 100 billion per year. In total, there are 8,500 extension models from national programmes and 15,000 extension models from local extension programmes (DAFE-MARD, 2003). Extensions programmes also have negatives aspects buts their influence is important for agriculture development.

Training and the staff of trainers in agricultural extension

There are two types of training: professional and technical training.

Technical training includes the following forms:

1. Training according to farmers' requirements

This is a very popular activity which attracts the participation of agents in promoting agricultural extension such as: from provincial centre of extension, district stations of agricultural extension, district stations of veterinary, district stations of plant protection, district bureaus of agriculture and rural development, companies of insecticides, companies of foodstuffs for domestic animals.

The People's Committees of commune[1/], the co-operatives, associations and organizations have requirements for training. However, requirements are not always accepted because of the shortage of human recourses and/or materials.

2. Training combined with model building

This is the training method in the applied research subjects, the programmes of a province displaying models and models of producing breeds. The farm households that participate in the models are compelled to participate in the training, however, if there are any vacancies, other farmers can participate.

3. Training according to the requirements of companies

This form of coaching is held to popularize and sell a companies' products. Companies producing feedstuffs for domestic animals, companies for insecticides, etc. contact co-operatives to carry out the training courses. Farmers participating in the coaching are paid a small sum of money and are provided with materials.

Centres of domestic animal breeding also have this form of training to help farmers understand the advantages of artificial insemination to promote the activity of providing the products of the centres.

4. Other forms of technical training

There might be other forms of technical training including IPM training or advisory training for a small number of cadres. The purpose of this training is to teach farmers the way to control general epidemics by maintaining the balance between pests and insect eaters in nature and using insecticides only when the situation of pests is seen to be uncontrollable.

[1/] The People's Committees of commune is the lowest level of public administration at communal level.

5.1.4 Professional training

Professional training encouraging agricultural extension is held by the appropriate centres (one to two courses/year) to improve the knowledge and ability of state cadres undertaking agriculture and people encouraging agriculture outside the system (the Association of Farmers, the Association of Women, the Youth Union, the Association of Gardeners, the Association of Veterans, heads of co-operatives, heads of clubs of agricultural extension). Core subjects usually focus on the following matters:

- Organizing the system of agricultural extension;
- Methods of establishing and operating clubs of agricultural extension;
- Methods of encouraging agricultural extension; and
- Introducing new technological advances.

Trainers in these courses are members of the centre of agricultural extension of the province and other members of the Department of Agricultural Extension and the Department of Personnel Administration of the Ministry of Agriculture.

Training farmer households to conduct business in veterinary medicines and insecticides is the training form held by veterinary agencies and stations of vegetarian protection. Households conducting business in medicines wanting to have or to maintain business licenses are strongly advised to participate in these classes. We consider this an agricultural encouragement activity because after the training, these households advise farmers on the way to use veterinary medicines and insecticides.

Training for improving the professional ability of members of the Veterinary Technology Department is held by agencies of the Bureau of Veterinary and stations of veterinary

Centres of domestic animal breeding hold training courses for local veterinary surgeons so that they are able to professionally carry out artificial insemination at a local level. These veterinary surgeons are members of the veterinary board or are just those who have practiced this work in villages.

According to the figures of DAFE-MARD, by 2000 the state body of encouraging agricultural extension had carried out 80,000 short-term courses for 500,000 people. At the central level, the programme for training courses has had VND 3.8 billion invested to open 240 courses lasting five to seven days for the programmes of encouraging agricultural extension at the provincial level with about 20,000 trainees (DAFE-MARD, 2003).

5.1.5 Investment policy

Currently, government investment is the most important source of investment channelled into the agricultural sector. However, the overall investment policy of the government tends to be biased in favour of the industrial sector neglecting the agricultural sector. Government investment in the agricultural sector seems to be ineffective since it focuses mainly on SOEs because most of the SOEs tend to be capital intensive and they do not absorb much labour in the rural areas. In addition, investment in the agricultural research system and extension services is inadequate.

5.1.6 Economic policies

Generally, investment policies biased toward urban areas and capital-intensive industries (mainly SOEs) harm the agricultural sector in several ways. This adverse tendency tends to be exaggerated by the pursuance of an overvalued exchange rate policy. During the period from 1997 to 1999, the dong depreciated but at a much lower rate to that of other countries in the region, thus lowering the competitiveness of farm exports.

5.2 Public policies on food diversification

To promote food diversification, the policy also focuses on research for new technology.

5.2.1 Research system and research personnel

As of 2000, a total of 25 research institutes, five universities and 120 centres, researching agriculture have been built in Viet Nam. There are also many research units working on biological disciplines. They also contribute to the development of the country's agriculture.

Table 5.1 Research institutes and research centres in the country

Region	Research institutes	Research centres and sub-institutes	Total
North West		1	1
North East	1	7	8
Red River Delta	17	62	79
North Central Coast		4	4
South Central Coast		3	3
Central Highlands	1	12	13
South East	4	28	32
Mekong River Delta	2	3	5
Total	**25**	**120**	**145**

Source: Personnel Department, MARD, 2001, cited by Dao The Anh, 2004.

In 2000, there were 7,608 agricultural researchers, of which 5,763 were regular staff and more than 1,845 were contracted persons. In Table 5.2, the educational attainment level of researchers working in the agricultural industry are given.

Table 5.2 Quality of researchers in agricultural research (percentage of total researchers)

Diploma	1999	2000
Phd	10.4	11.4
Master	12.1	12.7
Bachelor/Engineer	77.5	75.9
Total	**100.0**	**100.0**

Source: Personnel Department, MARD, 2001, cited by Dao The Anh, 2004.

Thus, as a fist step, Viet Nam has a firm foundation for the agricultural research system with the contribution of so many researchers who have a basic level of training. However, it is not a large number in comparison with the total population of Viet Nam which is more than 80 million, and the majority of population (70 per cent) live in rural areas and do agricultural work.

5.2.2 Budget for research

Total expenses: Recently, the state budget for research has been increasing rapidly, it increased two fold in five years from 1996 to 2000.

Table 5.3 State budget for research (thousand dong)

Articles	1996	1997	1998	1999	2000
National programme – MOSTE	5 030	12 319	14 537	15 400	24 600
Programmes of the Ministry of Agriculture and Rural Development	14 723	14 670	14 363	12 030	51 544
Gene fund	1 390	1 490	1 600	1 980	3 100
Upgrade, enhancement, repair	2 600	2 600	2 500	2 400	6 900
Equipment	3 800	4 900	5 600	5 000	17 000
Salary and apparatus	47 370	47 370	47 960	43 240	47 461
Total	**74 913**	**83 349**	**86 560**	**80 050**	**150 605**

Source: Project VIE 98/019.08; UNDP-FAO, 2001, cited by Dao The Anh, 2004.

However, the budget for renovating equipment is still small, in 2000, only VND 17 billion was invested to renovate equipment, equal to 30 per cent of the cost of basic salaries.

Budget allocation: As a percentage, the state budget has increased much more than any other source of budget from the contribution of foreign co-operation, individuals, enterprises, etc. We need to encourage the local authorities to invest in research, however, it is necessary to arrange the subject or limit the research between each level to be effective.

5.3 Public policies on food processing

The policy for promoting food processing focuses only on the state enterprises. The Law on Business coming into force, especially after Decision 80-CP of the government on consuming agricultural products through contracts between enterprises and farmers, enterprises have actively participated in transferring technological advances to farmers to build region-specific materials, and improve the productivity and quality of agricultural products.

The system of encouraging agricultural extension at all levels has combined closely with 19 enterprises, helped them develop varieties of goods, as well as input or output services for programmes of encouraging agricultural extension. For example, at the central level, the Bureau of Agriculture and Forestry Expansion Encouragement have:

- Combined with Central Company No. 1 of Tree and Plant Breeds, the Southern Company of Tree and Plant Breeds and some other companies of tree and plant breeds in some provinces to transfer the technology of producing cross-bred rice seeds to co-operative farms and groups of farmer households. It is the company that consumes the produced breeds for those farms and groups.
- Combined with the Tea Corporation for the planting of new high quality and productive tea breeds, serving the needs of producing tea for export such as the tea breeds: TRI777, LDP1, and LDP2.
- Combined with Sa Pa Company of Vegetables and Fruits to experiment the model of encouraging agricultural extension for temperate fruit trees.
- Combined with Luong My Factory of Chicken Breeds improve services of chicken breeds in models of encouraging agricultural extension.
- Combined with the Corporation of Rations to expand growing rice seeds of high quality for export such as IR64, VND95-20 and VD20.
- In local areas, businesses have also combined closely with programmes of encouraging agricultural extension at different levels to precede the displays and transfer of new products to farmers, some of which are An Giang Company of Vegetarian Protection, Binh Dien Fertilizer Factory, Lam Thao Super Phosphate Company, Song Gianh, Komic and Lam Son Sugar Company. Foreign enterprises that have performed well in encouraging agricultural extension such as Bioseed, CP Group, PIC, Pionner, Novatis, Chiasin, Proconco, France Hybrid, Cargill, and Biomin have transferred many productive high quality breeds into production. Recently, enterprises have been very effective channels of transferring technological advances.

Table 5.4 State credit for agro-processing promotion, 1999 to June 2004

	Number of projects	Total investment (billion dong)	State credit (billion dong)	Percentage of delay payment (%)
Agro-processing	381	4,000	1,858	13.1
Private center	267	889	424	8.5
Forestry processing	158	1,339	874	6.1
Aqua-processing	124	910	503	5.6

Source: Development Assistance Fund report 2004, cited by Dao The Anh, 2004.

The Development Assistance Fund was created in 1999 with the objective of processing firm assistance through priority credit for creation. This policy helped many small enterprises working in the food processing industry. The experience shows that small enterprises are more apt in this domain than large and state enterprises.

5.4 Public policies on marketing and pricing

Viet Nam's commodity marketing structure is characterized by a segmentation of enterprises in the market between the state and private entrepreneurs. The national, provincial and district enterprises are heavily involved in marketing, processing and international trade and private entrepreneurs have only been able to make significant inroads in processing and trading non-traditional exports like cashew, coffee and some kinds of fruits and vegetables. Domestic agricultural markets have been progressively liberalized since 1988. With market deregulation, farmers have been permitted to trade with intermediaries of their choice. Prices for the major agricultural products in the domestic market are determined by market forces. Nevertheless, the government has maintained certain interventions in the agricultural market. In the domestic market, state enterprises are expected to stabilize price. The main measure of the government in this regard is to instruct state corporations to purchase agro-products (mainly rice) from farmers and traders when the retail price falls below the "minimum price" determined by the government, by offering working capital at a subsidized interest rate. The subsidies are funded by the Price Stabilization Fund (PSF) established in April 1993. Another measure of the government in rice marketing was expanding the range and number of buyers consigned to purchase for export. Despite expanding the number of entities with formal rights to purchase for export most are still state owned enterprises.

In this field of policy, the lack of market institutions for quality management, and for contract farming control are very significant gaps to promote the diversification of the domestic and international market.

6. Impact of Global Trade Orientation on CGPRT Crop Agriculture in Viet Nam

6.1 Brief overview of the country's international trade policies for CGPRT and other agricultural products

6.1.1 Import and export tax

Generally speaking, tariffs are low on exportable agricultural commodities and rather high for most processed products. Exports of commodities like rice, coffee, natural rubber, tea and pepper have no export taxes. High tariffs are imposed on processed products to protect the domestic food processing industries. Since the schedule for tariff reduction under the CEPT list is nearing, the domestic agro-processing industry will face great challenges from competition from ASEAN countries. Under the CEPT list, import tax for most agricultural commodities will be reduced to 5 per cent by 2006.

Regarding agricultural imports, only refined oil, and raw and refined sugar were included in the list of imported goods under the licensing procedure of the Ministry of Trade. Exports of wood from natural forests are prohibited for the purpose of forest protection. With the exception of agricultural machinery, the tariff rate imposed on imports of agricultural inputs is set at zero. This policy is designed to support farmers. Rice, an exported product used to be managed through quotas to ensure food security. Recently, however rice quotas were removed. In addition, most other agricultural products and inputs are traded freely but still taxed.

6.1.2 Non-tariff policies

The policy of epidemic control and vegetal protection for imported agricultural products

The government has a veterinary system controlling animal and poultry meat and also protecting vegetal products. But the epidemic control teams are limited, these teams are not strong enough to satisfactorily fulfil this duty. In reality, many products coming from China are not controlled. This needs to be reformed to build an effective control system.

6.2 Extent of exports and imports of CGPRT and other agricultural products

Table 6.1 Relation between GDP growth and exportation

Year	Export value (US$ million)	Export growth (%)	GDP growth (%)	Agro-forest-aquatic export value (US$ million)	Agro-forest-aquatic export growth (%)	Export share of agriculture (%)
1990	2 404.0	23.5	5.1	1 151.5	12.9	47.9
1996	7 255.9	33.2	9.3	3 069.2	21.9	42.3
1997	9 185.0	26.6	8.2	3 242.3	5.6	35.3
1998	9 360.3	1.9	5.8	3 322.9	2.5	35.5
1999	1 154.0	23.3	4.8	3 773.6	13.6	32.7
2000	1 448.3	25.5	6.8	4 350.7	15.3	30.1
2001	1 502.9	3.8	6.9	4 414.0	0.7	29.4
2002	1 670.6	11.2	7.0	5 011.7	13.5	30.0

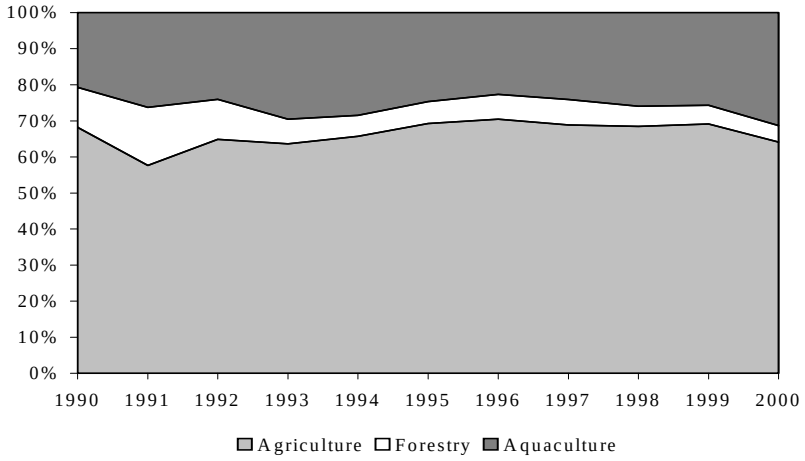
Source: GSO, 2003.

The export value and GDP of Viet Nam have increased strongly over the last 10 years. We can see that the export growth rates of the agri-forestry-aquatic sectors are lower than general export growth rates. This has lead to the share of agro-products in total export value to fall (47.9 per cent in 1990 compared to 30 per cent in 2002). In fact, the real export value of the agri-forestry-aquatic sectors has still increased over the last few years (the value in 2002 was five times higher than that in 1990). The main reason is that the government has promulgated policies to develop industry, and services to restructure the economy through industrialization and modernization. Besides, most exported agro-products from Viet Nam are raw materials with low added value. The increasing export value from the agri-forestry-aquatic sectors is mainly from increasing quantity, not quality. Therefore, some export commodities have reached their maximum export quantity, such as rice, and it is very difficult to increase the export turnover of these products without increasing the quality of the products. The exportation of raw products such as rice and coffee is influenced by price fluctuations in the international market, as in 1998 and 2001. These phenomena push agricultural production towards diversification in both domestic and international markets.

In terms of agricultural imports, Viet Nam imports on average, US$ 300-400 million per year. This quantity has been stable in recent years. However, non-official imports from China and Thailand have increased recently. The fruit market is a good example of this.

Regarding the value share among industries in the agricultural sector, we can see that agro products still occupy a large share of export value, followed by aquatic products and forestry products.

Figure 6.1 Variation of export structure in the agricultural, forestry and aquaculture sectors



Source: GSO, 2003.

The increase in agricultural output has not only met the domestic demand for agricultural products, but has also created a huge surplus for export. Currently, some Vietnamese exportable agricultural commodities have affirmed their positions in the regional and the world markets, such as rice, coffee, cashew, pepper, tea and aquatic products. Vietnamese agricultural export value in the past few years has increased rapidly. During 1990-2002, agricultural, forestry and fishery exports in Viet Nam grew at annual rate of 11.3 per cent, 5.0 per cent and 20.1 per cent respectively. The export value of the combined sub-sectors amounted to US$ 4.6 billion in 2002, making up 28 per cent of the total export value of Viet Nam.

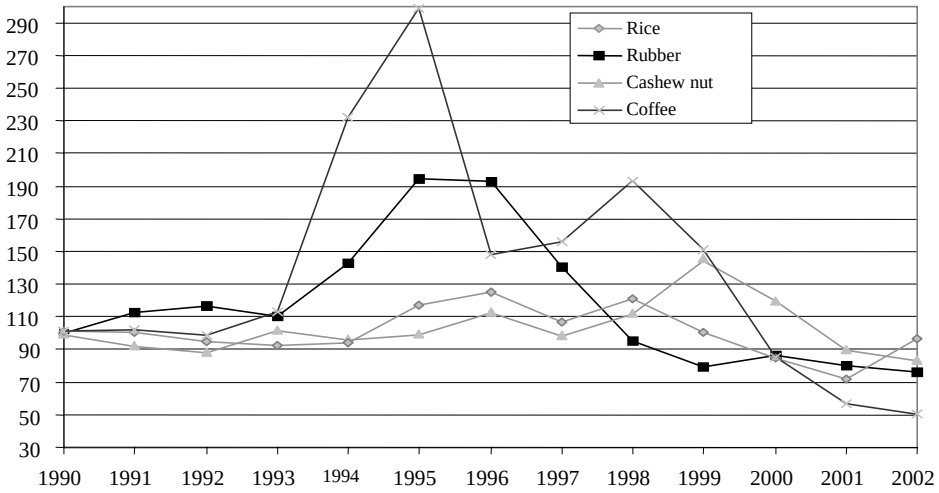
Table 6.2 Export value of agro-forestry-fishery in Viet Nam (US$ million)

	1990	1995	2000	2001	2002
Nationwide	**2 404**	**5 449**	**14 308**	**15 100**	**16 706**
Extended agriculture	1 149	2 521	4 308	4 428	4 630
Agriculture	783.2	1 746	2 563	2 422	2 437
Rice	374	530	672	625	726
Rubber	53	188	170	166	263
Shelled cashew nut	22	89	129	152	212
Shelled groundnut	42	70	42	38	52
Pepper	9	39	143	91	108
Coffee	73	598	474	391	317
Tea	19	25	56	70	83
Vegetables and fruit	57	56	213	344	201
Forestry	126.5	153.9	155.7	176	170
Fishery	239.1	621.4	1 479	1 816	2 023

Source: GSO, 2003.

In recent years, a large number of export commodity prices fell sharply due to the lower trend in the world agricultural market. Coffee prices fell to only one third compared to 1997.

Figure 6.2 Export price trends of some agricultural commodities in Viet Nam (1990=100)



Source: ICARD, cited by Dao The Anh, 2004.

Counter measures for such problems, especially with respect to price fluctuations in the world market were not effective. Agricultural diversification, the target that Viet Nam is still pursuing, can help farmers reduce the risks associated with production and may improve their income.

Table 6.3 Main food imports, 2001

Product	Volume of imports ('000 tons)
Wheat	823
Dairy products	630
Vegetable oils	260
Sugar	87
Fruits	41

Source: MARD, 2001.

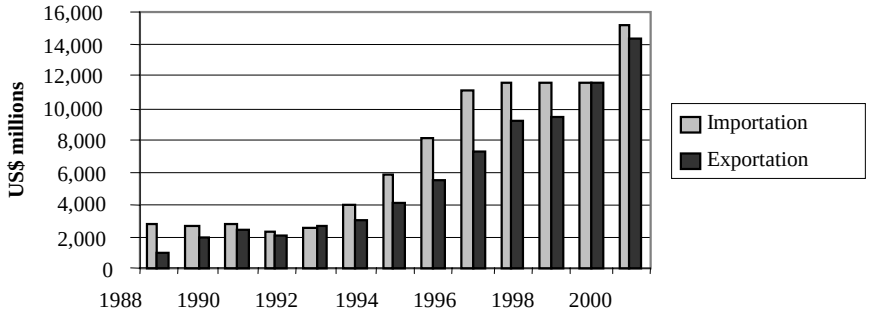
Food imports (excl. aquatic products) totalled approx. US$ 0.4-0.5 billion per year for the period 1995-2000 (FAOSTAT), compared to the domestic food market, which reached US$ 5.7 billion in 1998 (incl. consumption outside the home).

Comparing consumption volumes and quantities imported per capita allows food products to be classified into two categories: those which do not depend, or only to a very small extent, on imports - eggs, fruits, vegetables, meat and aquatic products, tubers and rice – and those which are heavily dependent on imports – milk, wheat and vegetable oils.

With regard to fruits, it would seem that imports (apples, grapes, lemons, etc.) account for a growing share, however most of the supply, in particular that coming from China escapes official statistics.

As for milk and oils, the government has implemented ambitious programmes to increase production (National dairy programme and oil subsidies in 2003, to double production by 2010).

Figure 6.3 Evolution of trade balance in Viet Nam



Source: GSO, 2001.

The general tendency of the trade balance is a surplus of imports. Agricultural exports are unable to assure the balance of trade.

The value of agricultural exports (excl. fish) for the period of 1997-2001 was US$ 2 to 2.5 billion per year. The value of agricultural food imports (excl. aquatic products), 1995-2000 was US$ 0.4 to 0.5 billion per year.

6.3 Effects of trade liberalization on production, marketing and demand for CGPRT crop products

Maize and soybean are used as raw materials to produce feed for animals. The demand for feed has rapidly increased in line with livestock growth. Maize is still lacking in the domestic market, but the challenge will be the competitiveness of the maize industry in the context of the WTO, when the government will reduce the tax on maize imports from 7 per cent to zero.

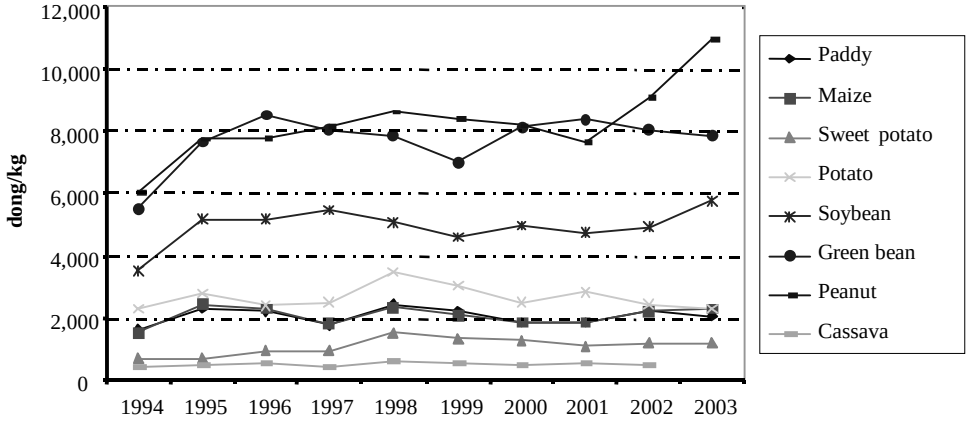
Table 6.4 Proportion of imported raw material in feed production, 1996-1999

	Unit	1996	1997	1998	1999
Industrial feed production	1 000 tons	1 050	1 322	1 450	2 000
Imported raw material	1 000 tons	141.8	525.1	856.8	1 133.7
Percentage of importation/production	%	13.5	39.7	59.09	58.3

Source: DAFE-MARD, 2000.

Among the CGPRT crops, the most commercialized are maize, soybean, potato and peanut. These products generally receive a stable price, except peanut which has experienced exceptional price increases in the last few years. Sweet potato and cassava have a decreasing price tendency due to low consumption. The legume group have always received higher prices than tuber food crops. The staple food crops have the same tendency of rice fluctuations in the Red River Delta.

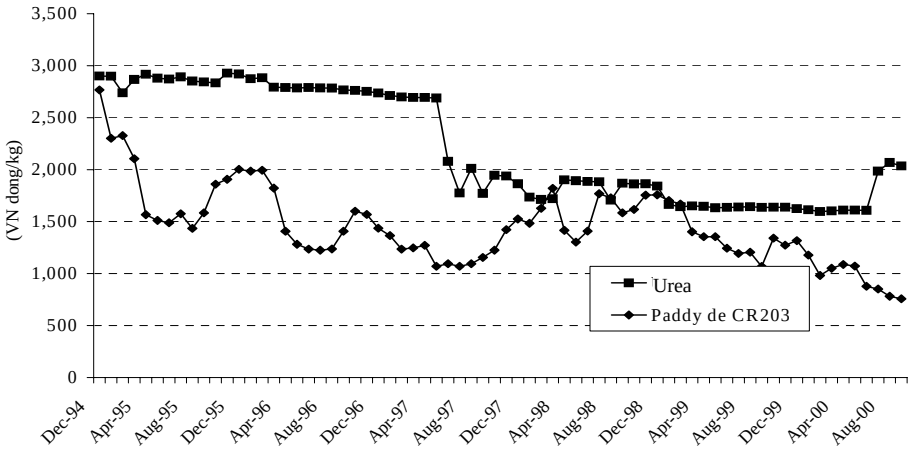
Figure 6.4 Evolution of CGPRT crop prices in the Red River Delta



Source: ASD-VASI, 2004.

In terms of constant price, food product prices decreased more rapidly than urea fertilizer. This is a constraint to intensification.

Figure 6.5 Evolution in average monthly price of paddy and urea in Nam Sach, Hai Duong (comparative prices, December 1994)



Source: Moustier and Dao The Anh, 2003.

In terms of competitiveness, maize and soybean are the least competitive products due to the lower prices in the international market.

In order to assess the actual competitiveness of these products, we use the DRC ratio. The mountainous provinces such as Son La and Dac Lak have a ratio lower than one, which means these provinces have the opportunity to build their competitiveness. Maize production in these provinces is becoming more intensified and the scale increased. The cost of labour in these provinces is still low. This phenomenon could reduce the production costs of maize in order to assure the competitiveness (Dao Duc Huan, 2003). In the plains province, the production cost is higher due to less available land and higher labour prices. Maize production in these provinces is difficult to assure the competitiveness of.

Table 6.5 Domestic resource cost (DRC) for maize production in 2003

(Competitiveness analysis for maize)

Provinces	Son La	Ha Tay	Dac Lak	Dong Nai
DRC	**0.78**	1.09	**0.78**	0.99

Source: Nguyen Tuan Son, 2004.

Regarding soybean production, competitiveness is even more difficult to realize than for maize because of the high production costs in the majority of provinces. Only in Dac Lak province is the ratio less than one. Soybean production has, however, a smaller impact on poverty reduction because of the small cultivated area.

Table 6.6 Domestic resource cost (DRC) for soybean production in 2003

(Competitiveness analysis for soybean)

Provinces	Son La	Ha Tay	Dac Lak	Dong Nai
DRC	1.17	1.30	**0.98**	1.13

Source: Nguyen Tuan Son, 2004.

Peanut production in Viet Nam is competitive compared to other products due to the low production costs. This tendency will continue in the future with high-productivity varieties being applied.

In terms of potato production, Chinese imports are only a seasonal substitution for the regulation of supply. This product doesn't have a problem of competitiveness yet.

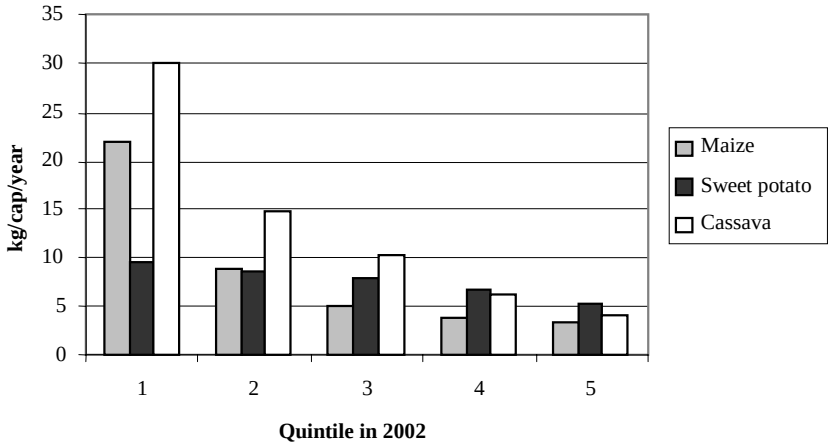
Table 6.7 Income elasticity of some main CGPRT crops across regions

	Maize	Cassava	Peanut
Nationwide	-0.0000648	-0.0001057	0.0000005
North West	-0.0003480	-0.0001076	0.0000067
North East	-0.0000025	-0.0000067	0.0000009
Red River Delta	-0.0003017	-0.0019578	0.0000365
North Central Coast	0.0000012	-0.0002151	0.0000085
South Central Coast	-0.0000073	-0.0000891	0.0000021
Central Highlands	-0.0001510	-0.0002848	0.0000037
South East	-0.0000265	-0.0000141	0.0000017
Mekong River Delta	0.0000085	0.0000066	0.0000056

Source: VHLSS 2002, 2003.

Due to the small consumption quantity per capita of different CGPRT crops, the values of income elasticity are very small. In general, when the average income increases, maize and cassava consumption decrease. On the contrary, peanut consumption increases with income. These tendencies can be seen clearer in Figure 6.6.

Figure 6.6 CGPRT crop consumption by income quintile in 2002



Source: VHLSS 2002, 2003.

6.4 Concluding summary

Based on the general assessment of maize production and market development, we can clearly be aware of the development tendencies and changes in consumption as well as in their production. In addition, powerful countries also influence the market through their implementation of policies that lead to markets becoming distorted and further causing difficulties for the integration and adaptation of new WTO members.

Under current conditions, the Vietnamese maize market is able to compete successfully and maintain itself upon integration. However, if the demand from feed companies remains as is or increases, would the present commercial supply satisfy this demand? If Viet Nam becomes a WTO member, policies currently implemented to limit business for foreign companies and individuals will be removed, causing the market not only to face a price problem, but also new competition in terms of supply and financial capacity for market regulation. At that time, the maize market in Viet Nam will face increased competition in terms of the quality, price and supply capacity from foreign imports. These issues require further study, as it is currently difficult to assess market demand changes at a time when household husbandry is still in the process of adapting to the market.

6.4.1 Necessary to enhance the trade management capacity regarding agricultural products

For state bodies

The business and investment environment in Viet Nam has always been attractive due to its law and policy system. However, official and unofficial transaction expenditure by the authorities has remarkably reduced this attractiveness. In the context of international integration, officers, especially in the provinces and districts do not really understand the regulations of the WTO and other international agreements. If we do not quickly support these systems to enhance the capacity of market management in agricultural products, Viet Nam will face legal action by foreign partners over violations to international regulations once Viet Nam joins WTO or commits to international agreements. Capacity enhancement of the state bodies is for the betterment of the service, for a healthy business environment and proper and sound decision and policies within WTO's regulations. In terms of non-centralization, as the provincial level is

authorized to allocate budget, capacity enhancement plays a more important role in avoidance of policies against international agreements. Currently, negotiation is only at the government level with just one specified division and it is only this division which has good knowledge of the WTO. Even officers in departments and institutes of the Ministry of Agriculture and Rural Development, Provincial Departments of Agriculture and Rural Development, Provincial Departments of Trade and officials at the local level do not clearly comprehend WTO regulations. Independence in trade and vocational organizations have not been encouraged or paid attention to. Administrative management is popular in most localities. It is essential to enhance the competence of the system so that it is not contradictory to the signed agreements.

For the commodity chain actors of agricultural products

Capacity enhancement of commodity chain actors in accordance with WTO's requirements will help them access the world market and fill the domestic market. The weakness of the agents calls for their capacity to be enhanced in each unit as well as the whole sector. Capacity enhancement is also essential for quality control of agricultural products, trade names, commodity chain regulations, organization and union of units of the sector. Once this has been realized, the agricultural sector will stand firm and develop ensuring the lives of millions of farmers, especially the rural poor.

In addition, the participation of small-scale households in production specialization will increase the risks for the farmers as the market greatly fluctuates. Capacity enhancement should be made to households through the establishment of co-operatives or professional associations to share the risk among members. There are non-market institutions for the enhancement of supporting mechanisms and these institutions will play a supplementary role for more professional management of risks such as agricultural insurance, establishment of co-operatives, post delivery market etc.

The promotion of agriculture insurance is essential for stabilizing farmer production against risks.

7. Benefits of Agricultural Diversification in Terms of Poverty Alleviation in the Country

7.1 Overview of public poverty alleviation policies and their limitations

Poverty reduction policy: Since 90 per cent of the poor live in rural areas, the current reforms in agriculture and rural areas have strong positive impacts on poverty reduction in Viet Nam. The achievements in poverty reduction have largely been due to rapid growth and agricultural diversification. Job creation programmes, infrastructure construction for 1,000 poor communes, The "Lighting-point" Programme, activities of the Bank for the Poor and the more general impacts of the reform process have helped reduce the rate of those people living below the poverty line from 58 per cent in 1993 to 29 per cent in 2002.

There are many different external factors among the regions in terms of natural, social and infrastructure conditions (the plains area has more advantages compared to hilly and mountainous areas), behaviour and purpose of production (socialization and commercialization in the South is higher than the North), relationships with external markets (coastal provinces have more advantages compared to isolated/inland provinces). The differences are also influenced by internal factors such as the investment policy of local authorities (more favourable in the South East) as well as the concentrated level of investment priority (urban and industrial zones are more attractive) etc.

7.2 Assessment of potential benefits of agricultural diversification on poverty alleviation

Despite the significant improvements in poverty elimination nationwide, in 2002, the North West and the Central Highlands accounted for the highest poverty rates at over 50 per cent, while the South East showed the lowest rates of poverty. In addition, the income gap between the rich and the poor as the well as average income difference among areas has risen remarkably, particularly in such areas as the Mekong River Delta and the South East.

Table 7.1 Monthly income of households (thousand dong)

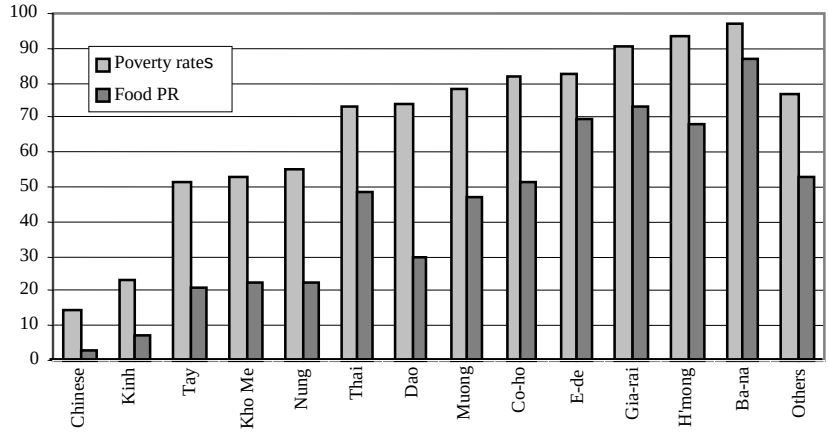
	1996	1999	2001-2002	2002/1996
Nationwide	**226.7**	**295**	**356.8**	**1.57**
Urban	509.82	516.7	625.9	1.23
Rural	187.89	225	274.9	1.46
Northern Mountains	173.76	210	232.55	1.34
North West			269.2	
North East			195.9	
Red River Delta	223.3	280.3	35.3	1.58
North Central Coast	174.05	212.4	235.5	1.35
South Central Coast	194.66	252.8	306	1.57
Central Highlands	265.6	344.7	239.7	0.90
South East	378.05	527.8	623	1.65
Mekong River Delta	242.31	342.1	373.2	1.54

Source: GSO, 2003.

There still remains many difficulties in rural society. The national average rate of children under five years of age is 4.2 per cent while in rural areas, especially in remote and poverty stricken areas, this figure exceeds 8-10 per cent. The rate of children under five affected by malnutrition is 33 per cent nationwide, while in rural areas this figure is much higher. In addition, healthcare infrastructure in rural areas is very poor because approximately 80 per cent of the state budget for healthcare is distributed to the large hospitals in the cities.

The extent of poverty reduction is not the same across all ethnic minorities. Poverty rates vary considerably from group to group. The variation in food poverty is even more striking, with more than 86 per cent of the Ba-na not being able to afford the food consumption basket, compared to 21 per cent among the Tay. Among the six poorest ethnic groups, four (Ba-na, Gia-rai, E-de and Co-ho) are in the Central Highlands and two (H'mong and Muong) in the Northern Mountains.

Figure 7.1 Poverty rates across ethnic groups in 2002



Source: Estimated based on 2002 VHLSS.
Note: Poverty rates were computed only for ethnic minority groups with at least 100 observations in the sample from the 2002 VHLSS.

The share of ethnic minorities among the poor is also increasing steadily, from 20 per cent in 1993 to more than 30 per cent by 2002. The share of ethnic minorities among the food-poor increased from less than 30 per cent in 1993 to almost 53 per cent in 2002. It could remain in this range in 2010. During this current decade, therefore, poverty in Viet Nam will become mostly associated with ethnic minorities.

Why are ethnic minorities so poor, and why is their poverty so persistent? Answering these questions is central to the agenda for poverty reduction in Viet Nam. So far, the data suggests a range of interwoven disadvantages and deprivations. Cutting one or two strands of this "net" may make a small hole that some households can use as an exit route. For some of the poorer groups, however, positive change is likely to require simultaneous progress in a number of areas.

Poverty among ethnic minorities appears overwhelmingly high when considering other indicators of well-being, apart from the level of expenditure per capita. Ethnic minorities are less well-educated than their Kinh and Chinese counterparts. Though the indicators are improving, they are still way behind. Primary school enrolment rates for ethnic minority children have stabilized at about 80 per cent, approximately 12 per cent behind their non-ethnic counterparts. Gaps are larger for secondary education. Recent studies attribute these gaps to poor infrastructure and accessibility, language and cultural barriers, limited quality of teachers,

low suitability of the curriculum, and the perception that returns to education are low (Poverty Task Force, 2002).

In the case of maize diversification, maize growers are much poorer than other crop growers. In 2002, over half of all 4.5 million maize growing households were poor by international standards, against about 29 per cent of all Vietnamese households. There were another 400,000 households 'near-poor' with an income of less than 1.1 times the poverty line. Upland ethnic minorities are disproportionally represented amongst maize growers and the poorer maize growers. Of all maize growers, about 1.8 million households are strongly dependent on maize for their income and food. They are concentrated in some mountainous provinces.

More than 80 per cent of maize growers raise at least one pig. They are on average less poor than maize growers with no pigs. Specialized maize growers use a low percentage of maize for on-farm livestock. Only a small group of better-off ethnic minority farmers in upland areas raise pigs on a larger scale and use some industrial animal feed – the latter is common in the lowlands.

Maize growers have escaped poverty at a rate similar to the rest of Viet Nam because maize prices have been relatively good for some time. Increased productivity has been a result of the promotion of hybrid varieties and the availability of affordable fertilizer. There was little impact on maize farmers' income and poverty of past trade regulations regarding maize. However, the domestic and the world market price have correlated closely since 1998, but the 'support measures' in exporting countries are a drag on domestic price.

The poor and especially the near-poor maize growers are also vulnerable to environmental shocks, since much of the current maize production takes place on depleted soils and is causing soil erosion. Increased risks of drought are associated with global climate change.

The price of maize in the past has been good and benefited all maize growers and this is expected in the near-future too. However, the poorer maize growers who commercialize a small percentage of their maize suffer from worse terms of trade compared to the better off, and the workload of women has risen more than that of men with maize expansion and intensification.

Maize production expanded because of a good price, and because of a lack of alternative farm and non-farm income opportunities. Employment generation from maize production has been limited despite what is widely considered a good price. Income may meet basic needs but does not translate into substantial private or collective investment in human or social capital, natural assets or physical assets. Many social and environmental 'externalities' are not reflected in the production costs. Maize tariff reduction, no matter how small, limits the capacity of maize growers to generate investment for improved efficiency in maize production and alternative livelihood opportunities. This makes the massive 'support measures' for the maize sector in exporting countries seem even more unfair.

7.3 Basic requirements for realizing the benefits of agricultural diversification for poverty alleviation

Viet Nam continues to reduce poverty considerably faster than other countries at a similar development level. While some regions and some population groups gained more than others, overall, Viet Nam's performance in poverty reduction over the last decade can be considered a success story.

The reasons behind the reduction in poverty are less straightforward than in the early 1990s, but also reveal a more developed economy. Earlier gains in poverty reduction were associated with the distribution of agricultural land to rural households in a context where economic reform provided the right incentives for increased production. These gains have mainly stagnated by now. In more recent years, one of the driving forces behind poverty reduction has been job creation in the private sector. In 2002, 30 per cent of those at work

earned a wage, compared to 19 per cent four years earlier. Among wage employees, 69 per cent worked for the private sector, compared to 58 per cent in 1998. ***Improved infrastructure, the diversification of agricultural production, and increased commercialization of crops also account for reductions in poverty.***

Looking forward, the reform strategy of Viet Nam is bound to lead to further poverty reduction. This strategy, embodied chiefly in the CPRGS, combines the completion of the transition to a market economy with social policies aimed at keeping development inclusive, with an effort to build modern governance.

Implementing CPRGS will not be without difficulties. On a structural front, slow progress in the twin agenda of SOE restructuring and financial sector reform could build a considerable liability for Vietnamese society. Inability to harden the budget constraints faced by SOEs would imply that a portion of today's economic growth will have to be devoted, sooner or later, to clearing bad debts and protecting the solvability of financial institutions. In terms of governance, the abuse of public office for private gain risks making everyday life miserable when it happens at low levels leading to resource misallocation and waste, and when it affects collective decision-making. Tackling these two main difficulties is key for Viet Nam to remain a success story in the longer term.

In the medium term, however, the economy will continue to grow at a fast pace, and growth will be associated with further poverty reduction. But will this be enough to eradicate poverty? The experience of the last decade, and especially of the last few years, has revealed that progress in poverty reduction is uneven. Standard inequality indicators, such as the Gini index, have remained relatively stable. But a closer look at the gap between the richest and the poorest quintiles of the population, especially when taking into account the increasing under-reporting of expenditure as the country grows wealthier, shows a sustained increase in inequality. Integration with the world economy has also been associated with a wider gap in earnings between the skilled and the unskilled. And there are clear signs that regional disparities are widening as well. The poverty alleviation impact of economic growth is smaller when inequality increases, and Viet Nam is bound to see slower gains in poverty reduction over the next few years.

Ethnic minorities are among the groups that risk being left behind. The Kinh and Chinese majority have handsomely benefited from growth. Ethnic minorities, especially in the Central Highlands, have made much less progress. If current trends were to continue, the poverty rate could reach 15 or 16 per cent by 2010. However, a forward-looking estimate suggests a considerably higher rate, possibly in the order of 21 per cent. Around 37 per cent of those living in poverty by then will be ethnic minority people, about twice their share of the poor in 1993, and close to three times their share of the population. By 2010, roughly half of those living in hunger (with expenditure below the food poverty line) will be ethnic minority people. While poverty has fallen steadily among the ethnic groups of the Mekong River Delta and the Northern Mountains, it has only declined marginally in the North and the South Central Coast, and has actually increased in the Central Highlands. This latter trend can be partly attributed to the collapse in the price of coffee. Overall, it is fair to say that in the case of ethnic minorities, growth alone will not be enough. Specific policies targeted at them will be needed. They range from the improvement of local infrastructure, to the redistribution of land currently held by state farms, to the legal recognition of communal agricultural practices, and also to the development of social services in local languages. They also include measures to improve the representation of ethnic minorities in local decision-making processes and build good governance in the most remote areas of the country.

At a broader level, the trend towards increased inequality requires a deep reconsideration of public expenditure and public investment programmes. Budget transfers already favour poorer provinces, but the rules and norms on which these transfers are based are still ad hoc. Analyses like those in this report could be used to design more equitable allocation mechanisms, especially in the social sectors. Developments like the creation of the provincial

HCFPs are an important step in the right direction. State investment, on the other hand, favours richer provinces. This choice can be justified on the grounds that investment is more productive in densely populated regions, and budget transfers can then be used to redistribute the increased wealth. However, the long-term sustainability of such a scheme is not guaranteed. As the gap between rich and poor provinces increases, the size of budget transfers will have to increase as well. Whether richer provinces will be willing to sustain year after year their poorer counterparts, as their relative backwardness makes them more expensive, remains an open question.

The quality of public spending needs to be reconsidered as well. At present, public investment and recurrent expenditures are to a large extent disconnected, resulting in poor maintenance and operation of infrastructure. A forward-looking approach in public spending needs to be supported though the development of MTEFs, especially in sectors that are key for poverty reduction, such as education, health, agriculture and transport. The PIP, in turn, is basically a compilation of projects from authorities at different levels, without careful screening of their potential to support economic growth and, in turn, lead to poverty reduction. Return rates for large-scale projects should be computed, and their potential poverty alleviation impacts assessed beforehand. Available evidence already points to large differences between impacts across sectors, from low in the case of irrigation infrastructure to high in the case of roads. Poverty alleviation impacts are also likely to differ across provinces.

This said, targeted poverty alleviation programmes are not irrelevant, and in Viet Nam some of them have proven effective. This is the case, in particular, of exemptions of education fees. Increased reliance on local resources as the country decentralizes, and the irruption of market forces in the social sectors (both officially and unofficially) have led to dramatic increases in out-of-pocket payments. As a result, professional healthcare services and school attendance have become increasingly burdensome to the poor, when they are not simply out of reach. A mechanism to offset this trend are education fee exemptions, which currently reach almost one seventh of the poor. These exemptions are associated with a 10-point increase in school enrolment among the children of the beneficiaries, and substantially lower educational expenditure. Healthcare cards, allowing access to health services at a reduced cost, also appear to have a positive impact. Improvement of delivery mechanisms, through the HCFPs, could increase their effectiveness. Results are more mixed for access to subsidized credit, which reaches less than 6 per cent of the poor. But again, the recent creation of the VBSP could expand coverage and lead to a better credit culture. Taken together, these encouraging findings suggest that HEPR should focus on a limited number of transfer programmes whose effectiveness has been proven. Programmes should also be designed in a way that broadens their coverage of the poor, and facilitates monitoring and evaluation, especially through the development of appropriate baselines.

7.4 Concluding summary

Agricultural diversification has positive impacts on poverty reduction, particularly in remote areas, when the price is good as the case of maize. However, they involve a lot of risk due to price fluctuations and to environmental degradation.

The poverty programme in general is not related directly to agricultural production or to secondary crop promotion. Normally these programmes are managed by other services than the agricultural service. The lack of co-ordination between services at the provincial level is very common. Agricultural programmes are also not pro-poor because they lack understanding of the poor in their design. Therefore, pro-poor initiatives co-ordinating two kinds of programme will benefit the poor.

8. Demand for CGPRT Crops as Staple Foods and Their Industrial Importance in Viet Nam

8.1 Extent of diversified ways of consuming CGPRT crops as staple foods and their demand

8.1.1 Food consumption and CGPRT crop consumption trends

Over the past ten years, the value of the Vietnamese food market has doubled. This growth is the result of three factors: the increase in the population; the increase in the quantities consumed per person; and the reduction in self-consumption of households, especially rural households. The Vietnamese food market was evaluated at US$ 7.2 billion in 2002. National consumption of all food products has grown, except for root vegetables and tubers (cassava, sweet potato, etc.). Consumption of rice per person is falling. Differences are appearing depending on the region or zone; urban or rural. The income level also leads to differences. The rich do not only eat more, they eat differently. As income increases, households consume more rice to the detriment of tubers; they then reduce their rice consumption in favour of other cereals such as wheat.

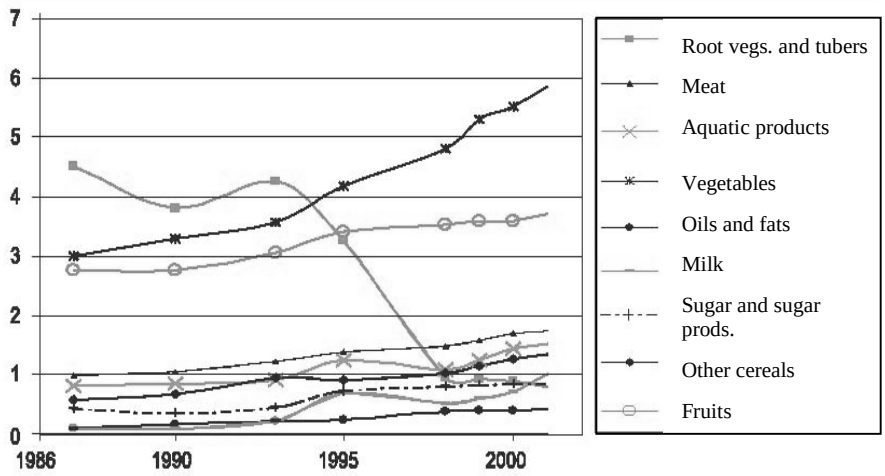
Table 8.1 Food market in rural and urban areas, Viet Nam 2002

	Urban	Rural	Viet Nam
Value of food consumption, inside home, KVND/cap/year	2 641.92	1 403.28	1 691.16
Percentage of purchased food (%)	95.9	68.2	78.2
Expenditure for food consumption, inside home, KVND/cap/year	1 972.05	874.78	1 144.11
Value of food consumption, outside home, KVND/cap/year	586.2	120.24	228.48
Total food expenditure, inside and outside home, KVND/cap/year	2 055.72	1 283.04	1 462.68
Population in 2002 (million inhabitants) [a]	20.022	59.705	79.727
Domestic food market, billions of dongs	51 221.33	59 407.47	109 432.35
Percentage of national food market (%)	46.8	54.3	100

Source: VHLSS 2002
[a] GSO, 2003.

This increase in consumption is in part satisfied by recourse to imports (the case of wheat, milk and, to a lesser extent, oils and fats). The transformation of the agricultural and food processing sectors in order to satisfy this demand are eyed with suspicion by consumers, shaken by regular revelations in the press of cases of food poisoning. The evolutions in consumption have contributed to reducing malnutrition. However, so-called “diseases of excess” are appearing (obesity, cardiovascular diseases, etc.) and urban consumers associate certain products, such as animal fats or meat, to a negative dietetic image. Finally, new food behaviours are appearing in urban areas: the development of supermarkets and, in particular, of street food and restaurants, which represents an important factor from both an economic and nutritional point of view.

Figure 8.1 Changes in the quantities of foodstuffs consumed, 1987-2001 (million tons/year)



Source: FAO food balance sheet.

The urban consumer differs from the rural consumer in terms of the higher proportion of animal products, in the value of the food consumed and the lower proportion of rice and other starch staples. This affects the value of consumption, i.e. what is bought and what is self-consumed by the household. Knowing the rate of self-consumption – it is only partially known – would facilitate the evaluation of the value of the urban market and the rural market for each of its products. Moreover, it is also important to evaluate the impact of recent changes in the production systems on the food safety of agricultural households. The studies carried out in Mong Phu (Nguyen Duc Truyen, 2003) show that the farmers remain producing their own stocks of basic food stuffs necessary for their own food survival (rice, fermented vegetables). The incomes resulting from the development of animal breeding allow certain products to be acquired which are the subject of new or higher consumption: sugar, biscuits, instant noodles, glutamate, condensed or powdered milk, fruits, etc.

This brief look at recent food changes in Viet Nam demonstrates the opportunity represented by this market for the agricultural and food-processing sectors. An opportunity but a challenge as well, it means being capable of measuring these changes - in both their quantitative and qualitative dimensions. It also means following the tempo which, as we have seen, is very quick. At present, this dynamic is still only partially known. What is the share of self-consumption of these different products? How are the behaviours of young people changing compared to their elders? What differences exist between the different regions? There are so many questions the answers to which will allow better evaluation of the locomotive potential of food consumption for economic growth in Viet Nam.

Table 8.2 Trends in food consumption, Viet Nam, 1993-2002

Kg/cap/month	1993	1998	2002
Rice (kg)	12.77	12.53	12.03
Other staple foods (rice eq) (kg)	1.17	0.81	1.36
Meat (kg)	0.80	1.17	1.28
Oil and fat (kg)	0.11	0.33	0.23
Eggs (piece)	1.21	2.35	2.22
Aquatic products (fish and shrimp) (kg)	1.12	1.13	1.13
Fruits (kg)	1.88	1.48	0.82
Sugar, molasses, cake and milk (kg)	0.24	0.40	0.41
Tofu (kg)	0.25	0.40	0.36
Sauce (litre)	0.48	0.41	0.36
Tea, coffee (kg)	0.04	0.14	0.09
Alcohol, beer (litre)	0.33	0.45	0.57
Vegetables and beans (kg)	2.39	3.12	2.53

Source: VLSS 1993, 1998 and VHLSS 2002, GSO.

The importance is also to satisfy this demand in a responsible manner, including not only economic objectives but also objectives of public health or social and cultural concerns. Consumption models are evolving, especially in urban areas, causing new problems of public health. With the industrialization of agricultural production and food transformation, new quality problems are arising. This requires we go beyond the sector-based approach to include other stakeholders, in particular those in the health sector, and to encourage communication with the public.

These food changes also have social and cultural consequences. The spectacular development of food consumption outside the home in the towns leads to fears of the destructuring of meals and, at a higher level, family relations and cohesion. Increasing disparities are already emerging in the access to food and in the food models between rural and urban areas, between rich and poor and between regions. Finally, the rapid opening up to international trade and the resulting increases in food imports raise the question of the capacity of the Vietnamese food system to maintain its food culture while remaining competitive.

An operational and responsible approach to food thus requires that this theme be tackled in all its complexities, i.e. as a nutritional, social, economic and cultural act. And this in order to satisfy the economic stakes for the producers, as well as those of food security and safety.

The latest numbers show that rice consumption has started to decrease both in urban and rural areas. The total staple food increased, but by-product consumption has changed.

8.1.2 CGPRT crop consumption trends

Table 8.3 Evolution of staple food consumption in Viet Nam

Consumption (kg/cap/year)	1987	1990	1993	1995	1998	1999
Staple food other than rice	9.3	10.2	13.4	12.4	12.3	14.7
Maize	6.1	6.9	8.1	6.4	4.7	6.3
Cassava	35.7	28.1	28.4	21.5	16.9	13.2
Potato and sweet potato	37.3	29.7	32.1	23.2	21.4	23.1
Total tubers	73.1	57.7	60.5	44.7	38.3	36.3

Source: FAO food balance sheet.

8.2 Scope to expand CGPRT crop demand as food

8.2.1 Potato consumption

For the sake of national food security, potato is strategically considered an important food crop. Nowadays, it is used in most instances as a nutritious vegetable. It is prepared in soups, curries and other Vietnamese recipes. French fries and chips, prepared in restaurants and kitchens, are treated as precious snacks or special dishes at reception dinners and parties. The local market, therefore, is limited until either eating habits can be changed or until such a time as processing markets or export markets become available. Sweet potato has generally only been used for pig feed, but has a very good opportunity to be used for human consumption. The quantity of potato consumed on average is 8.6 kg per person per year.

Table 8.4 Consumption of fresh potato across regions in 2003

	The North			The South			Average		
	UB n=99	RR n=143	Ave n=242	UB n=108	RR n=127	Ave n=235	UB n=207	RR n=270	Ave n=477
Potato for food (kg/cap/year	10.52	13.28	12.15	6.6	3.57	4.97	8.49	8.71	8.61
Total expense for fresh potato (1,000 VND)	30.8 (0.39)	24.5 (0.61)	25.4 (0.45)	39.5 (0.35)	21.1 (0.46)	29.5 (0.38)	39.2 (0.40)	35.3 (0.51)	37.2 (0.56)

Source: Survey results of consumers in April and May in 2003 by Do Kim Chung, 2004.

Note: UB: Urban; RR: Rural; n means the observed samples; The numbers in brackets are the percentage of expenditure for fresh potato consumption with average income per person.

In 1998, a small potato chip factory was built in Ho Chi Minh City, but it currently faces problems of obtaining a consistent and reliable supply of raw material as the potato varieties produced locally do not meet the chip processing quality standards. In the past, a number of processing varieties were introduced and evaluated for adaptation, but none of them were proven to be suitable for local production.

Exports are an attractive market and many attempts have been made to export potatoes to neighbouring countries. Except for some successful shipments to the former Soviet Union during the early 1980's and a few containers to Singapore in 1997, there have been no significant exports of fresh potatoes from Viet Nam. Poor product quality as well as plant quarantine regulations are the major barriers.

It seems that to meet the quality standards of the processors and the export market, much effort is still required to improve product quality. This would include the use of appropriate varieties and the application of improved agronomic management to ensure high product quality. The good agricultural practice process is a way to continue better quality management.

As potatoes are harvested in bulk and almost all at the same time, the lack of suitable storage and processing technologies, as well as the unavailability of export markets, contribute to the current oversupply and low prices in the market during January and February.

Table 8.5 Total demand for fresh potato in Viet Nam, forecast (tons)

Type of demand	2003	2005	2010
Eating	480 040.8	555 827.0	671 100.5
Breed	38 500.0	42 900.0	49 500.0
Processing	12 000.0	20 000.0	40 000.0
Export	4 200.0	12 000.0	20 000.0
Total demand	534 740.8	630 727.0	780 600.5

Source: Do Kim Chung, 2004.

8.3 Extent of industrial uses and industrial demand for CGPRT crops

In recent years, agro-processing has started to develop, but with many gaps.

Table 8.6 Growth of agro-processing enterprises, 1996-2000

Branch	1996	1997	1998	1999	2000	Annual growth rate (%)
Vegetables	100	111	130	157	163	16
Fisheries	100	113	156	123	128	7
Noodles	100	115	120	125	128	7
Beans	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
Seed	100	121	121	121	168	17
Machine	100	111	127	138	160	18
Total	100	112	128	131	145	12

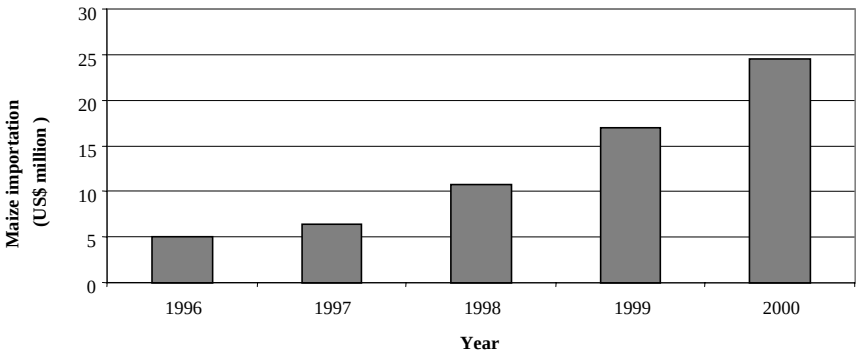
Source: Survey on agro-processing, 2001.[1/]

8.3.1 Maize consumption

Human consumption of maize has decreased on average. Only in the northern mountains do the minorities have the tradition to eat maize as a main food.

Being an agriculture-oriented country, Viet Nam has to import maize to satisfy its increasing demand. The yearly value of imported maize grew from US$ 5 million in 1996 to US$ 24 million in 2000.[2/] In the RRD in particular, the demand for maize has remarkably increased due to the intensification of livestock production (Vu Trong Binh, 2002).

Figure 8.2 Yearly maize importation to Viet Nam from 1996 to 2000



Source: MARD, 2002.

[1/] Smith D., Goletti F. vµ Nguyen Anh Dzung, 2001. Rural industrialization and agro-processing in Viet Nam. TA – 3223 VIE, ADB.

[2/] This statistical information does not include the volume of non-officially imported maize which might be considerable but is unknown.

Table 8.7 CGPRT crop consumption in 2002 across regions in Viet Nam (kg/cap/year)

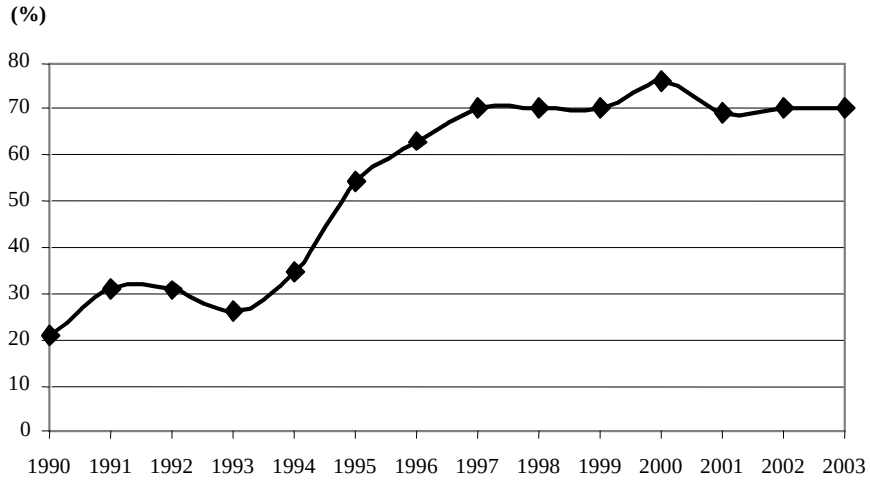
	Maize	Potato and sweet potato	Cassava	Peanut
Nationwide	**9.3**	**7.7**	**14.0**	**1.4**
North West	15.3	10.1	76.9	2.0
North East	27.8	10.3	17.8	2.2
Red River Delta	2.8	10.0	4.0	1.5
North Central Coast	5.2	13.1	21.3	1.7
South Central Coast	5.3	5.8	12.1	0.9
Central Highlands	12.5	5.7	26.3	1.1
South East	6.4	4.7	4.3	1.0
Mekong River Delta	3.1	5.0	4.1	0.7

Source: VHLSS 2002, computed by Dao The Anh.

According to the national consumption survey in 2002, the amount of maize for human consumption was higher than the FAO database in 1999. In other words, maize consumption is very different across regions. In the mountainous areas of the North East, North West and Central Highlands, maize consumption is traditionally higher than other regions.

Maize used for livestock has increased rapidly over the last ten years and since 1997, about 70 per cent of maize production has been used for livestock (pig and poultry).

Figure 8.3 Trend of maize use for livestock



Source: MARD, 2004.

8.3.2 Cassava consumption

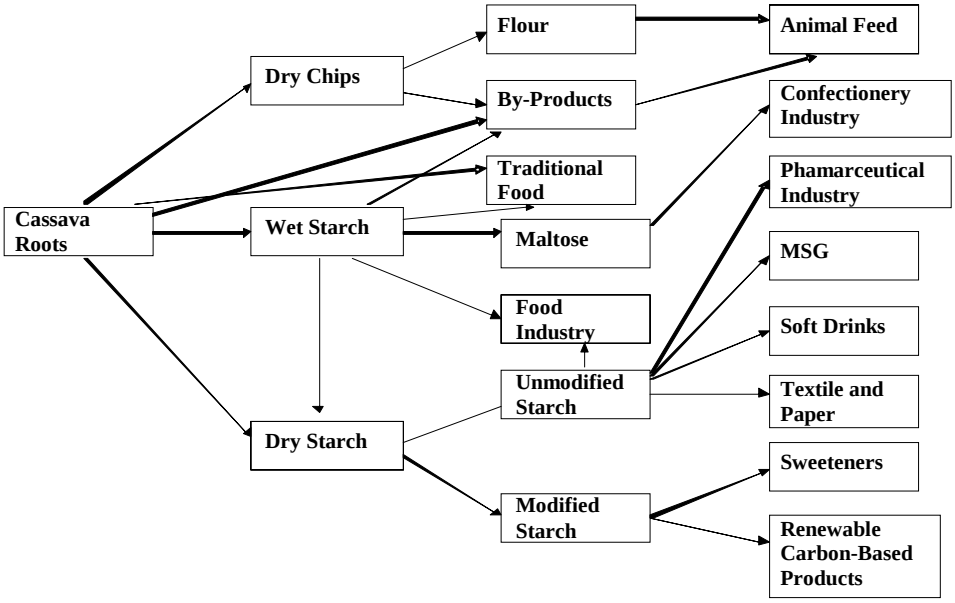
The use of cassava for human consumption has decreased in general, but in some regions (North West) this quantity is still 76 kg/cap/year.

Fresh cassava consumption has decreased, but starch production is increasing. In 1998, only 21,000 tons of starch were exported. But in 2001, starch production in Viet Nam was 500,000 tons, of which 70 per cent was for exportation (350,000 tons) and 30 per cent for domestic use. The starch sector has some of the following characteristics:

- More than 70 per cent of processors are micro- and small-scale and are mostly concentrated in the Red River Delta;

- Most medium- and large-scale processors are concentrated in the South East, of which VEDAN[3/] alone procures 60 per cent of the cassava for starch production. Particularly, the starch based production value of Vedan has increased 100 per cent from 2002 to 2003 and reached US$ 12 million in 2003 with more than 50 different products. The VEDAN company plan is to be based in the South East as the main production region;
- The emergence of new processing enterprises in the centre of the country;
- The dominant role of local traders in the procurement and sale of cassava and starch; and
- Different marketing channels for different types of cassava-based products (cassava, various types of flour, various types of starch and different types of end uses).

Figure 8.4 Diversification of cassava use in Viet Nam



Source: MARD, 2004.

8.4 Concluding summary

Economic development has resulted in rapid changes in consumption demand of rural and urban regions. This phenomenon is an important driving force for agricultural diversification. In spite of the potential in production, Viet Nam has not been able to meet its domestic consumption demand or establish effective market channels. In terms of export channels, there has been a considerable reduction in the prices of cashew, watermelon, lychee, longan and winter-crops due to world market fluctuations in agricultural products. Regarding international trade relations, after China's accession into the WTO, Viet Nam's agricultural sector has exposed its weaknesses to the Chinese market and other foreign markets as they operate under WTO regulations. The present context shows that when tariff barriers are lifted, countries develop technical aspects relating product quality, environment, child labour and non-

[3/] VEDAN International is the leading firm of starch based products in Asia.

market protection to restrict the penetration of other country's goods. Poorer countries are expected to open their markets and have less protection on their goods than other rich countries and former members of WTO. Agriculture and hygienic food safety are two sensitive aspects in the negotiations of trade liberalization. The contents of trade negotiations and commitments are not only tax reductions, and non-tariff removal but also reforms in policies, establishing legal documents, customs, animal and plant inspection, food hygiene, intellectual property and protected origin principles.

9. Potential Scope for the Development of Diversified Agriculture in Viet Nam

9.1 Extent of driving forces for agricultural diversification and CGPRT crop diversification

The following driving forces for agricultural diversification were found from previous analyses:

- Changes in consumption patterns in the domestic market and international market diversified the demand of CGPRT crops for industry, for markets and for self-sufficiency;
- CGPRT crops can take advantage of the intensification of rainfed and remote areas;
- The government policy environment is favourable: promoting a market-driven economy, and strong investment in infrastructure and irrigation policy even in remote areas;
- Research and extension systems are reforming for better adaptation of agricultural diversification;
- Private sector participation is active in the commodity chains;
- Land policy assures land security;
- State credit is available; and
- Government has a policy for agro-processing promotion.

9.2 Extent of constraining forces for agricultural diversification and for CGPRT crop diversification

The following constraining forces for agricultural diversification were found from previous analyses:

- Research and extension systems: new technology is available but the extension and service is inadequate, there is a lack of processing technology, and of integrated cultivation on sloping land. Technological research focuses on the main products, so new technology for diversification falls very short of farmer demand;
- Lack of co-ordination between poverty programmes and agricultural development programmes for pro-poor policies.
- In the extension approach there is a lack of socio-economic extension and advisory methods;
- Private sector participation is dynamic but lacks farmer organization to assure the poor participate in the market and negotiate the contracts or sales;
- Lack of market institutions for quality product management (Protected Designation of Origin, Geographical Indication);
- Natural resource management requires the local institutions to manage the sustainable development of the watershed;
- Need to apply risk management to agricultural production;
- Agro-processing companies need to develop a raw material zone by working with farmer organizations and modernizing technology; and
- Weak capacity of different stakeholders in trade legislation and quality management.

10. Toward the Development of Sustainable Diversified Agriculture for Poverty Alleviation in the Region: A Search for Effective Policies

- In the CPRGS, the government's strategy for agriculture and rural development for the next ten years are presented: ensure food security; diversify agricultural production; attach importance to market research and ensure timely provision of information; increase investment in agriculture; link the production of high value crops to developing storage and processing facilities; promote research and the efficient use of natural resources; expand agricultural, forestry and fishery activities and extension activities in a manner that is suitable to production conditions in different areas and is driven by the poor's demand; develop fisheries and diversify aquaculture; develop a disaster prevention strategy to minimize losses, and stabilize livelihoods and production in disaster-prone areas.

The policy orientation is clear, but the main problem is the lack of institutions and staff to realize these policies at different levels. A monitoring and assessment system is also needed

- The Vietnamese government will focus policy to promote high-value agricultural commodities such as fruits, vegetables, spices, industrial crops, dairy, livestock and aquaculture. The development of diverse products will be based on the comparative advantage of different regions in Viet Nam. Difficulties are to identify the policy to promote these products in a context of market fluctuations and assure the participation of the poor in these commodity chains. The policy of subsidies for main products as in the case of rice can only benefit the rich not the poor. Experience shows that, non-market institutions are also needed to assure the poor's participation in the market.
- Other measures of policies are needed to create a good environment for the household economy:
  - Small farmers, including the poor, invest in production to diversify production when land security is assured. Therefore, land use certificates should be granted to farmers.
  - In recent years, farmers have faced loss of land due to industrialization with very low compensation. In context of the new Land Law of 2004, the price system of land leasing for building industrial factories needs to be more realistic.
  - Irrigation systems and other infrastructure such as roads need to be strengthened in mountainous and upland areas to improve cultivation conditions for higher yield and better market access.
  - Extension systems and public services need to be further adapted to farmer needs, in particular for the poor because the actual system of extension focuses more on rich farmers.
  - The lack of cash to pay tax is one of main constraints of the poor people. Tax exemptions would provide the poor with more financial capacity to invest in agricultural diversification. Exempt or reduced agricultural land use taxes for disadvantaged areas and for poor farmer households would be beneficial.
  - Diversification requires investment over the medium and long-term for the production systems to be more solid. Medium and long-term credit as well as the limitation of loans without collateral for farmers need to be increased. There is

currently no difference in the credit interest rate between state-owned enterprises and farmers.

- Poor farmers are excluded and lack opportunities to approach markets. This constraint limits diversification. Market policies need to be completed: to promote market information, to encourage contract farming and the implementation of measures for quality control.
- According to research results, the collective action of farmers can play a role in protecting the poor. Promoting the diversification of farmer organizations and safety nets to encourage the mutualism between poor and non-poor should be encouraged.

11. Conclusions and Policy Recommendations

Agricultural diversification is effectively a mix of diversity of agro-ecological factors and socio-economic factors. This is a complicated market-driven process based upon the adaptation of production system principles.

Different policy analyses show that, in the context of agricultural diversification, the government should not support only main products to assure food security but should create a favourable socio-economic environment to stimulate the farmer dynamic. In the context of the WTO, with the challenges to reduce production costs in different commodity chains, agricultural policy should focus on better services for production, for commercialization and institutions for farmer co-operation. In this way, the agricultural policy recommendation framework has to follow the priorities of pro-poor diversification policy and institutional development. The state extension service is the most important institution for the realization of these policy initiatives and needs to be enhanced.

11.1 Policy for agricultural commodity diversification promotion and poverty reduction

1. Rice intensification is still a major strategy for Viet Nam because of the priority of food security. The prospect of hybrid rice depends on its quality because of the increasing demand for high quality rice. The capacity of hybrid rice seed production in Viet Nam will also be a determinant factor in the future.
2. The strategy of developing the whole commodity chain is necessary. In this approach, the technical aspect is just one side. Social and economic problems, concerning production and trading are unavoidable.
3. The reduction of production costs by developing input services for competitiveness will be crucial for some crops. The case of soybean shows that the high cost of production is making domestic soybean cultivation unviable as imported produce is cheap.
4. Agro-processing is a key sector for intra-branch diversification of the raw material commodity chain. This sector will create employment in rural areas in a context that the labour absorption of industry is still low. The introduction of varieties adapted for processing and for the export market is important to increase the efficiency of agro-processing. The case of potato shows the lack of varieties adapted for processing in production. There is also demand for the improvement of equipment and institutions for better quality management in the agro-processing chain in order to match high quality markets.
5. Cassava and maize on sloping land needs to be more intensive, the associative cropping system will be an important aspect for the sustainability of the production system.
6. The diversification strategy should promote new seasons to respond to the diverse demand. This is the case of diversification in the peanut sub-sector through the introduction of a winter-autumn crop.
7. Soil evaluation in the agro-ecological zones of Viet Nam is suggested for planning crop diversification at the national level and serve as advisory for the local level through the extension system.
8. The potential of potato in terms of both the area cultivated and well as the productivity per hectare could be greatly improved if more investment could be afforded through

improved seed quality and the application of advanced agronomic practices. Good practices for diversified crops should be introduced and expanded upon using a participative method to realize the best adaptation.

9. The strategy for breeding needs to change to help local people conserve local varieties because the demand for local products in the market has an increasing tendency as the case of maize in Son La province.
10. For remote areas, with a high percentage of rural poor and being major production areas of CGPRT crops, a specific strategy is required. The policies could range from improvements in local infrastructure, to the redistribution of land currently held by state farms, to the legal recognition of communal agricultural practices, and to the development of social services in local languages. They also include measures to improve the representation of ethnic minorities in local decision-making processes and building good governance in the most remote areas. This integrated policy package will assure better farmer participation in the market.
11. Public budget transfers already favour poorer provinces, but the rules and norms on which these transfers are based are still ad hoc. Analyses like those in this report could be used to design more equitable allocation mechanisms, especially in the social sectors. This process should to be completed by capacity building for local staff in terms of management.
12. The poverty programme in general is not related directly to agricultural production or secondary crop promotion. Normally these programmes are managed by other services than the agricultural service. The lack of co-ordination between services at the provincial level is very common. Agricultural programmes are not pro-poor because of the lack of understanding in the design. So pro-poor initiatives for the co-ordination between two kinds of programme will be helpful for the benefit of the poor.

11.2 Policies for rural institution and market institution development

1. The government is not required to plan production zones, but help state companies develop a raw material network. Pro-poor policies should be established based on understanding the situation in each region. The state company of agri-food processing in the majority of cases lacks the capacity to develop the supply system, so the poor can’t have access.
2. The government needs to develop service institutions with access to the poor. Research on commodities chains of different agricultural products (values chains) has been completed and it was found that constraints to this development are the lack of peasant institutions and market institutions.
3. Promoting farmer collective action and co-operative. Small-scale farmers and particularity the poor need collective actions and adaptive market institutions to establish good links with the market.
4. The development of legislation for contract farming promotion plays an important role. In the context of smallholders, contract farming should be developed closely with farmer organizations. Industry should develop a raw material network through contracts with farmer organizations. This can resolve the problems of insufficient raw materials for the processing sector.
5. Different types of diversification need to be promoted through policies and research: vertical diversification which is the improvement of the quality of products by processing and marketing development; and horizontal diversification which is the increase of different kinds of products. Intra-branch diversification through the conservation of traditional varieties also needs to be assured.
6. The establishment of product traceability by Protected Designation of Origin (PDO) or Geographical Indication (GI) is a means to the improvement of quality. Some

experience shows that the poor can participate and receive more added value from a specific product. This is a way to develop fair trade to help poor farmers.

7. Local institutional development for environmental management is crucial for the sustainable development of processing and intensive agricultural villages.
8. Enhancing trade management capacity on agricultural products for both state and commodity chain stakeholders is necessary for the international trade rules in the negotiations. Agriculture and food safety are the two sensitive aspects in negotiations on trade liberalization. The contents of trade negotiations and commitments are not only tax reductions, and non-tariff removal but also reforms in policies, establishing legal documents, customs, animal and plant inspection, food hygiene, intellectual property and protected origin principles.

11.3 Policies on the development of the state extension service and other services

11.3.1 Institutional recommendations for the state extension service

1. The role of the provincial level will be more important in the near future co-ordinating the strategic programme for extension and other local extension services to be market oriented. In this context, even for the government's strategic programme, there is a need to improve the close links between the performance and financial allocation through changes in activity monitoring and financial management.
2. The professionalism of extension services at different levels needs to be improved. In the decentralization and socialization extension system, new partnerships between different actors and the National Agricultural Extension Center (NAEC) need to be consolidated. This partnership must be represented by contract to the realization of the government's programme to achieve the national goals such as food security, social equity, sustainable development and global competitiveness. This contract needs to adapt to the socio-economic context of different regions according to the contribution of the regional goal to the national goal.
3. The horizontal co-ordination between implementation organizations inside and outside of the state extension system through the Advisory Council for extension at the provincial level lead by the People's Committee is also required. This co-ordination is important to guarantee the success of financial incentive principles in different extension flows, not only inside the state extension system.
4. The state extension system has to play the role of promoting collective actions and the organization of farmers to enhance their capacity to receive agricultural extension activities effectively. This is an important condition of applying new technology in practice. Farmer organizations can manage the support from the state, sign contracts with extension services and they can mobilize extension fees from farmers.
5. Research institutes should build technical service sub-organizations and promote working by contract with local extension services to transfer the results of their research. This service could also provide a technical and advisory service for farmer organizations.

11.3.2 Extension management recommendations

1. The actual extension system is not based on performance but only on quantitative aspects. The way to improve the quality of governance at the different levels of the extension system is by financial incentives towards increased organizational efficiency through a professional service provider system. The financial management of the extension programme has to adapt to regional differences.

2. Capacity building regarding methodological diversification, organizational knowledge, co-ordination capacity and planning of activities, and assessment capacity needs to be implemented in NAEC to improve managerial aspects of the programme, improving the process of project planning and implementation, paying more attention to the work through continuous supervision and consulting the extension programme, and reducing the rate of direct investment for households who will participate in the project design. It is necessary to include a share of the risks between farmers and extension services to apply innovation in the extension contracts.
3. Apply innovation and capacity building regarding the methodology of extension relying on the demand of other actors in agricultural extension systems, combining new technology and socio-economic extension when applying the activities of provincial agricultural extension services and lower levels. There is a need to organize a training course for the local authority in the work of conducting, implementing, supervising and evaluating projects, providing them with knowledge related to the market economy and civil society.
4. Diversifying the financial resources for the equipment of provincial and district extension offices for better realization of extension by response to actual constraints: lack of funds, lack of appropriate training, lack of staff, lack of knowledge, lack of appropriate tools for extension activities (hand-outs, booklets) and lack of supporting tools.
5. There is a need to classify the farmers by household group and by village extension club leader, and to conduct advisory extension adapted to diverse groups. Under the extension club in each village, the collective producer organization can be diversified according to activities.
6. Government extension services need to conduct specific training programmes for commune and village extension workers, up to a rate 500 farmers per extension worker, because this is an urgent need to guarantee the decentralization success.
7. A specific research/action programme to promote socio-economic and comprehensive extension focusing on farmer need diagnosis, rural market assessment, practical and managerial advice, marketing and financial advice, farmer organization and voluntary extension services, credit project building and micro-credit management, evaluation of success and impact of extension programmes, the adapted capacity of extension staff, etc. is needed for provincial, district and village extension staff.
8. There is a need to apply the monitoring and evaluation system in the realization of the government extension programme and to take this result in the financial resource allocation. Research and development will be necessary to build the benchmarks and standards for performance assessment of the extension system in the direction of socio-economic extension. A synthesis of NGO's experience in extension needs to be conducted by the NAEC.
9. The programme design of public extension should adapt to the diverse needs and priorities of different regions in the country.

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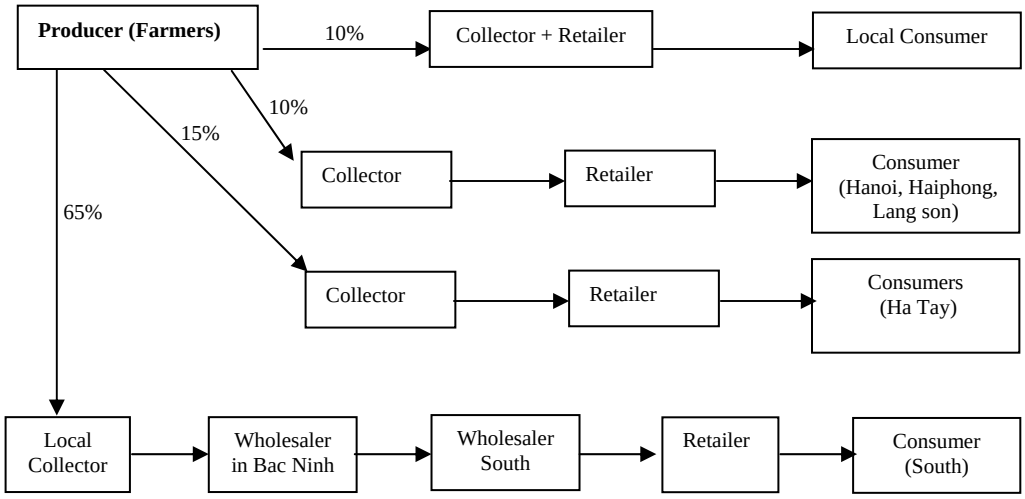
Annexes

Potato marketing channel in Bac Ninh province

The rapid growth of potato production in Bac Ninh depends on the development and the dynamic of the marketing system organized by farmers. This system has 65 per cent of its quantity go to the highly potential South market, where potato cannot be cultivated. The marketing system has seen rapid changes since 1996 up to now. This phenomenon shows the pulling impact of the market on potato production.

Figure A.1 Different channels of potato marketing in Bac Ninh province



Source: Do Kim Chung, 2004.

Table A.1 Classification of farmers according to their potato selling place in Bac Ninh (n=20)

Main selling place	
Selling in market	-
Bring to collector	80.0
Selling on field	-
Selling at home	20.0
Total	100
Main buyer	
Collector	100
Wholesaler	-
Company	
Consumer	
Total	100

Source: Do Kim Chung, 2004.
Note: Data on the table is the percentage of farmers according to selling place in total interviewed farmers.

Table A.2 Evolution of one potato collector in Bac Ninh province

	1996	2002
1. Labour participating in potato collection (men/day)	2	10
2. Collected quantity by year (ton)	20	1,000
3. Surface of storage (m^2)	20	100
4. Capital used for potato collection (million dong)	10	50
5. Markets (Buyer number)	2 (South)	10 (South and Ha Tay, Vinh Phuc, Son La, Hung Yen, etc.)
6. Area of potato collection	Inside of commune	Inside and outside of district

Source: Do Kim Chung, 2004.

In the potato commodity chain the margin distribution seems adequate among participating actors and the system has good functionality.

Table A.3 Price formation of potato in Red River Delta

	The North		The South	
	Middle season	Changing season time	Middle season	Changing season time
	Potato price (VND/kg)			
(1) Price at gate	1 3 19-1 361	2 000-2 100	-	-
(2) Price of collectors [a]	1,479-1 519	2 270-2 400	2 182-2 200	3 300-3 500
(3) Price of wholesaler	1,884-1 895	2 738-2 775	2 797-2 807	4 250-4 500
(4) Retailing price	2 151	3 012	3 117	5 350
	Price difference (VND/kg)			
(2)-(1) [b]	158-160	270-300	839-863	1 300-1 400
- Trading cost	45-50	100-140	520-600	650-780
- Benefit	110-113	160-170	265-319	620-650
(3)-(2)	376-405	375-480	607-615	950-1 000
- Trading cost	100-150	160-220	245-320	300-450
- Benefit	255-276	215-260	295-362	550-650
(4)-(3)	256-267	237-274	310-320	850-1,100
- Trading cost	120-150	120-160	100-120	280-450
- Benefit	117-136	114-117	200-210	570-650

Source: Do Kim Chung, 2004.
[a] In the South, this price is the wholesale price.
[b] In the North, this price compares to the price at gate in the North.

Table A.4 Production place and transfer destination of potato in the North

Production place	Transference Destination	Market share (%)
Bac Ninh, Bac Giang	- Son La, Lai Chau, Bac Kan, Thai Nguyen	25
	- Ha Noi, Ha Tay	15
	- Vinh, Quang Tri to Laos, Hue, Quang Ngai, Da Nang, Dak Lak, Nha Trang, Ho Chi Minh city, Can Tho, Vung Tau	57
	- Local markets in Bac Ninh, Bac Giang	3

Source: Participatory assessment results of potato traders in Red River Delta, Do Kim Chung, 2004.

Table A.5 Imports of potato to Viet Nam, 1998-2002

Imported from	Type of imported potato	Amount (tons)	Price (US$)
	1998		
USA	Frozen potato	37	12 204
Singapore	French fries	11	1 400
China	Potato for breeding and eating	13 326	454 334
	Total	13 374	467 938
	1999		
China	Potato for breeding and eating	15 543	784 014
	2000		
China	Potato for breeding and eating	10 185	615 081
	2001		
China	Breeding potato	3 525	293 115
	Breeding potato	3 306	145 978
Germany	Breeding potato	25	15 701
Holland	Breeding potato	103	52 760
	Total	6 959	507 554
	2002		
China	Potato for breeding and eating	24 414	1 020 409
Holland	Breeding potato	99	52 540
New Zealand	Breeding potato	8	6 531
Singapore	Frozen potato	3	150
USA	Frozen potato	30	1 485
	Total	24 544	1 081 115

Source: General Statistic Office, 2002.

Table A.6 Supply and use of potato in Viet Nam, 2002-2003

	Amount (tons)	%
Supply of potato		
1. Internal production	421 036	81.0
2. Import	100 000	19.0
Total supply	521 036	100
Potato use		
1. Eating	445 022	85.4
Selling for eating (341 022 tons + 62 000 tons)	403 022	77.3
Family consumption	42 000	8.1
2. Processing (4 210 tons + 8 000 tons)	12 210	2.7
3. Export	4 210	0.8
4. Seed	38 500	7.3
Internal breeding production	8 500	1.6
Imported breeding	30 000	5.7
5. Using for livestock	21 094	3.8
Total	521 036	100

Source: Do Kim Chung, 2004.

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Publication Section

Editor: Matthew L. Burrows

Production: Agustina Mardyanti
S. Tayanih (Yayan)

Distribution: Fetty Prihastini

Printer: SMK. Grafika Desa Putera