

CHAPTER 2

LITERATURE REVIEW

2.1. Review of Vietnam's rice policies in the period 1975- 1995.

The policy changes in Vietnam have significantly impacted on all enterprises in the country as well as on the agricultural sector. Before the latest reform in 1993, the agricultural policy of Vietnam has experienced several stages, that can be reviewed as follows:

Before 1981: Rice policy consisted of three stages:

- The formation of work- exchange teams
- The low level of cooperatives.
- The high level of cooperatives

In this period, income was dependent on land: Land belong of to the state. The agri-cooperate was controlled by higher level management. All farming activities of the cooperatives were done by production teams, decision making had to follow the Planning Department at all levels from National, Provincial, to District. Input and output distribution activities were controlled by a top-down approach. By this system, each worker was assigned work points for the quality and quantity of activity done each day, payment at the end of season was based on the number of work points accumulated (Chung,1994: Mai,1995)

This policy system created some problems: The number of working hours did not reflect the difference in quality of the work, it was hard to judge the actual number of working hours and led to conflict among team members. In addition, the system of input supply resulted in high administrative overheads adding to the cost of inputs and timely input supply. Moreover, “the work-based contract system” did not encourage farmers to work effectively, they paid more attention to their household economy. The food shortage became serious because rice production was low (UNDP, 1990).

The 1981 reform:

Rice production policy before 1981 had some disadvantages, so the directive No. 100 was issued in 1981 which introduced the “contractual system” to the rural area in Vietnam. All the farmers had to be responsible for producing a certain amount of output on their land by contracting with the Agri-cooperative. The cooperative would furnish each farmer with adequate inputs for achieving that output level. While production teams continued to provide land preparation, irrigation and output distribution services to all farmers, each farmer was responsible for crop management. The contracted output had to be sold to the State at the fixed price. The extra output beyond the contracted amount could be kept for home consumption or the market.

The introduction of the “contract system” had a significant impact on rice output growth between the years 1981 and 1987. Average rice output grew annually at the rate of 2.8% during that period as compared to 1.9% for the 1976-1981 period. (Khiem, 1995).

However, this policy system still had weakness for example the decision making for such as crop choice, and input distribution were centralized. This led to an inadequate supply of inputs in each production area. (Tran, 1993).

The 1988 reform

The policies in this period contained three major parts

Land allocation:

Resolution No.10 allowed land distribution to individual farmers for long term management on a renewable basis (UNDP, 1990). They are now free to decide what to do, how to produce, and how to market their farm products. The role of cooperative has changed significant for agricultural services such as irrigation management, technical transfer etc. Now farmers have become a base unit of agricultural production.

Privatisation of the output market and introduction of the land tax

Since 1989, the individual farmers have the right to own all products generated by them after subtracting taxes and other commitments to the board of collectives. Farmers are required to pay tax based on the assessed value of their land, private traders have equal rights to the State in the purchase of rice from farmers.

Decentralization of Input Supplies

From 1988 until now, retail traders in agricultural inputs were controlled by the State trading corporations and the buying and selling cooperatives. The total

supply of inputs was not enough to meet demand. Individual traders can also handle input marketing.

2.2. Trend of rice production in Vietnam.

The stagnant rice yield and production growth of the 1976 - 1980 period coincides with government effort to push the collectivization of the South of the country and intensification of cooperative consolidation in the North. Although, the area under rice cultivates increased at the rate of 1 percent per year, but the total product remained at the level of 11 million tons from 1976 to 1980. Rice production in the period 1981- 1987 was marked by a sharp increase in yield and output (3.23 and 3.14 percent per annum respectively). Rice production increased at 5 percent yearly in the period 1988- 1992, of which area accounted for nearly 3 percent and yield 2 percent of the rate. In the period 1992- 1995 rice production increased 2.5 percent (Khiem et al., 1995). Expansion of rice over this period came mainly from the conversion of single to double rice cropping.

Rice production has increased rapidly over the years in Vietnam. An analysis of rice production trends over these periods shows the significant increase in rice growing areas in the period 1991- 1995. Similarly, rice and production has been increased at high rate over the years. Within 20 years, rice production in Vietnam has doubled (Cuc, 1994; Ministry of Agriculture and food Industry of Vietnam, 1992). The main reasons for such an impressive increase in rice production can be explained as follows:

The increased rice growing area was due to the improvement and expansion of irrigation and drainage systems. The Government had paid great attention to improving the infrastructure of irrigation systems, and the drainage works have also improved, which allow farmers to use larger cultivated area and faster crop rotation.

During the decades, the number of rice growing seasons had also been changed or increased from a single growing season to two or three harvests of rice per year. This has been through using extension and high yielding varieties as well as using disease and pest resistant varieties, supplemented by better cultural management.

The impacts of new policies related to agricultural development and implementation of a market-oriented economy have been substantial. Due to renovation, which greatly influenced agricultural development, Vietnam has moved from chronic food deficit to being a food self-sufficiency country, capable of feeding its 73 million population with enhanced security and production surplus that allows rice export of around 2 million tons per year (Cuc, 1994).

Food security is major issue concerning many countries in the world, especially those countries having experiences in food deficit and unstable market rice prices. Food security can be expressed as the availability of rice quantity to domestic demand, a stable marketing system and production system and in the assurance of food available. Since 1989, Vietnam has enough food for domestic uses and much has been exported. Food per capital has been increasing continuously from 280 kg in 1988, 361, 371 kg in 1994 and 1995 (Tan, 1996)

2.3. Agro- Economy of the North Central Coast Region of Vietnam.

The different resource base, infrastructure and market integration can lead to variation in response parameters across regions. Vietnam's diversified agricultural production environment and other demographic variables calls for classification in to agro-economic regions. The classification which has been used was partitioning into seven agro-economic regions: North mountain and Midland, Red rive delta, North central coast, South central coast, Central highland, Southeastern region, and Mekong rive delta. This section summarizes the agro-economic characteristics and food production in the North Central Coast Zone.

This region included six provinces which are Thanh Hoa, Nghe An, Quang Binh, Quang Tri and Thua Thien Hue province. The climate of the regions is similar to the rest of the Southern part of Vietnam, but Quang Binh, Quang Tri and Thua Thien Hue province are located between two passes, Ngang pass in the Northern of Vietnam and Haivan pass in the Southern of Vietnam. Therefore, their climate has some special characteristics that are different to other region. The low temperature at the end of March influences the flowering of Spring rice and the rainy season comes later than in Northern and Southern region of Vietnam, It rain strongly from September until December which make it difficult to harvest Summer rice and lows the development of Winter crops. This region is usually divided to three subregions, hill and mountain region; delta plaint, and coast sandy soil region. The alluvial delta area is suitable for rice production and many other cash crops. The region has 282,000 hectares of rice land or 6.6 percent of the country's total. In 1995, there was total output of 568,900 tones of paddy. The sown area increased steadily at a rate of

1.5 percent per annum during the period 1976 - 1995. Average rice yield increased 2.2 ton ha⁻¹ in the period 1976- 1981 and 4.0 ton ha⁻¹ in the period 1982- 1995 (IFPRI, 1996: UNDP, 1990).

2.4. Land use in Thua Thien Hue province.

In the sandy area and delta plain regions, farmers planted only two rice crops or one rice crop per year (Spring rice and Summer rice crop). The goal of growing rice is mainly for household consumption. Rice production in the region faces problems of water shortage and pest infestation leading to low rice yield.(Thanh,1998).

In the coastal sandy soil zone, total land holding per household in the sandy soil region was higher than in the delta plain in Thua Thien Hue province. The average of total cultivated area per household of the three survey villages (11,817 m²) is rather higher than in the delta zone 9,817m² .(Ngan ,P.D.)1993).

Most of land area in three villages are planted with rice (11,458 m²) which covered 97% of the total cultivated area, the areas of peanut, chili and cucumber are very low as compared to the rice area. (Tinh,1997).

The rice planted area in the Spring season was about 15% higher than in the Summer season. The planting area for both seasons has been virtually constant over the years 1991-1996, averaging around 26,400 hectares in Spring and 22,900 hectares in the Summer season. (Thua Thien Hue statistic year book 1996)

2.5. Cropping pattern in the delta plain and coastal sandy soil zone of Thua Thien Hue.

Thanh (1998) shown that, rice is the major crop in the area, followed crops by food legumes, sweet potato, corn and vegetables. some crop are grown as intercrops in the Spring and Summer and winter season. Cropping patterns such as peanut-rice, peanut / corn intercrop, rice- mungbean / corn intercrop are new cropping pattern, but the growing area was low (15- 20% total land area) in the delta plain. (Thanh,1998,p 43-45).

The rotation of peanut- rice, and rice cucumber are new cropping patterns, but the growing area was very low (3.55 % of total land) in the coast sandy soil in Thua Thien Hue province.(Tinh, 1997, p40)

2.6. Fertilizes application in rice production

In the 12 harvests of four varieties tested in the field experiment from 1968-1970 De Datta and Zarate (1970) showed that the highest nitrogen response and grain yield (9.3 tone/ha) were obtained and nitrogen response was linear throughout up to 120 kg N/ha.

Most of the farmers applied a high level of nitrogen (N) fertilizer, while phosphate (P) and potassium (K) fertilizer were applied at a low level or not at all for crops which was effected to crop yield.(Thanh , 1998).

According to Tinh (1997) most of the manure or green manure treatment are used for sweet potato, cassava, peanut, cucumber or chili, chemical fertilizer such as N,P,K are used for rice production. But when the level of manure application increased the rice yield increased in the coast sandy soil.(Tinh,1997) .

2.7. Rice yield in Thua Thien Hue province.

Rice yield has increased significantly since 1990, from 2.43 tons per hectare to 4.14 tons per hectare in the Spring season and from 2.83 tons per hectare to 3.81 tons per hectare in the Summer season. (Thua Thien Hue statistic year book 1996).

Rice yield of the IR17494 variety was the highest when compare with other rice varieties in the Spring season, and the CR203 variety continue as a popular variety which is high yielding in the Summer season.(Hoa,1996).

2.8. Gross margin analysis of rice based cropping systems.

The lowest net income over total cost was obtained from one rice crop and rice- sweet potato which was 4.148 million VND ha⁻¹ and 6.0 million VND ha⁻¹ respectively (Thanh, 1998)

Following Tinh (1997) the cropping pattern chili-peanut has the highest return over cash cost which was 9.6 million VND ha⁻¹. This is followed by rice-cucumber at 6.7 million VND ha⁻¹, rice-peanut equal 4.8 million VND ha⁻¹. The lowest return over cash cost was obtained from rice-rice, and rice sweet potato (4.1 and 4.0 million VND ha⁻¹ respectively) (Tinh,1997, p48).

2.9. Production function estimation.

Hien (1998) shown that rice yield was closely related to the level of urea, phosphate and manure applied, and also the cost of seed. These relationships were more significant in the Spring season than the Summer crop season. Looking into each key input variable it was found that expenses for seed is highly significant ($p=0.025$). Manure and phosphate applied are also significant ($p=0.00$, and 0.02 respectively) and they have a positive impact. Pesticide cost is not significant in both Spring and Summer crop, potassium applied is not significant ($p=0.325$). It may be explained that the quantity of potassium needed is only small (Hien, 1998).

Tam (1995) when study the performance of rice marketing system in the North Vietnam was concentrated that the cost of rice production in the Central Region was 1059.28 VND higher than those in the Red River Delta. This cost difference was mainly due to higher of market wage rate. However, it is noted that the mandays of labour needed to produce one kilogram of rice in the Central Region is 0.066, lower than that of Thai Binh and Hai Hung, 0.069 and 0.083 mandays, respectively. Labour costs contributed the largest component in rice production cost, 35-40% and 43.6% to total cost for the Red River Delta and the Central Region. The costs of material and service is not different between regions in fertilizer expense (N, P, K) which was around 26- 28% to total cost

Kongubol (1988) estimated the production function of young corn and its return of scale. The study also investigated the economic efficiency of each input factors in order to find a proper level of input use. The estimate of Cobb-Douglas

production function revealed that production both in irrigated and non- irrigated area were in decreasing returns of scale with elasticity of production of 0.4461 and 0.8725, respectively. Factors i.e. farm labor and expenses in bath paid for fertilizes and chemical used, as the independent variables significantly determined young corn yield. As for the efficiency of each factor, the results showed that for young corn in irrigated areas, labor was used at an optimum level but the expenses for fertilizers and chemical should be increased. For rainfed areas, it was found that farmers should increase the use of both farm labor and material input (fertilizer and chemicals) in order to obtain higher profits.

The analysis of size efficiency in rice based multiple cropping systems in Chiang Mai valley was undertaken by Zhang (1991). In this study four common rice based cropping systems were investigated: rice-soybean, rice-potato, rice - tomato, and rice -garlic. The appropriated method of Ordinary Least Square (OLS) or General Least Square (GLS) was employed to estimate the Cobb- Douglas production function of the individual crops. Test for returns to scale showed that there were constant return to scale in all the five crops concerned. The Stochastic were introduced for the estimation of frontier production function in order to detect the technical efficiency of crop production. It was found that on average, there were 92.6, 95.1 and 95.6 percent technical efficiency for the sampled farmers of rice, tomato and garlic respectively. However in thecase of soybean and potato, the frontier production function and the OLS estimators yielded the same estimates, and the one side error term was therefore zero. In addition, a logit model was employed to estimate factors associated with technical efficiency of each crop production and the results of this study indicated that the technical efficiency was not affected by land size.

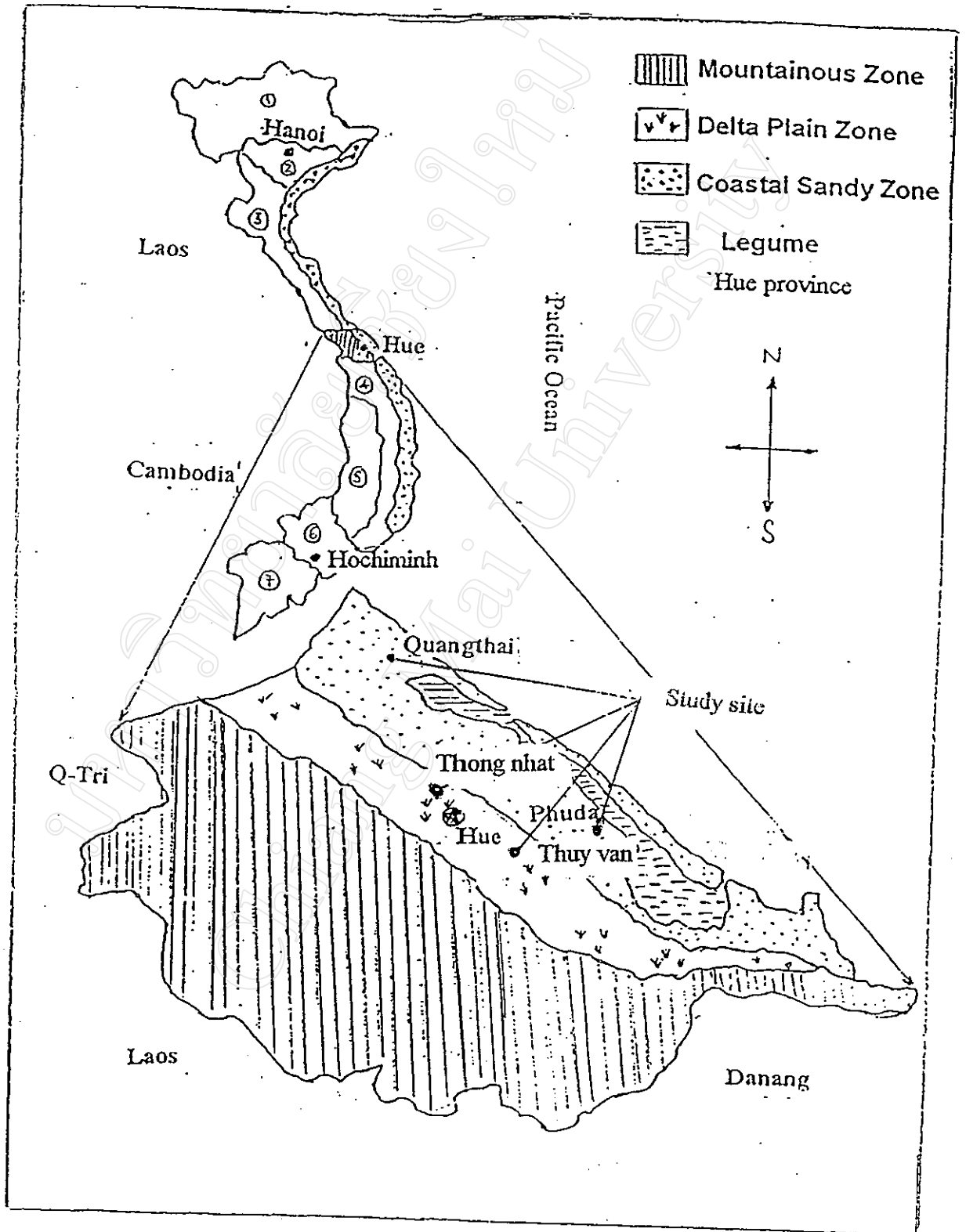


Figure 1. Agroecological zones of Vietnam and Hue province